Pre-tests for Reading Motivation
A Project for the 2001-02 Faculty Learning Community

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This report briefly describes my project for the 2001-02 Faculty Learning Community at RIT. Each of us in the community was asked to come up with something new that could potentially enhance learning in one of our classes. We would then try it out and report on it to the Community and to RIT at large.

Observation

Time and time again, we have observed that students do not read material for a topic on which a lecture will take place in the future. My project involved an approach that I hoped would alleviate this problems

Other Approaches

One form of the Socratic Method has the teacher interrogate the students to ensure that they did read the material. This was made famous in the movie The Paper Chase.

There is a form of the Socratic method, in which the teacher forms questions to cause the students to figure out the lessons without a priori reading. In other words, "Don't use a textbook."

The opposite of this would be, "Don't use an instructor." In other words, a self-study or distance-learning course.

My Approach

I modified the first approach above to use written quizzes rather than oral interrogation.

Approximately once a week, at the start of a new topic, I would give a quiz covering key points in the current topic. They are given approximately ten minutes to take the quiz. When done, the students exchange quizzes (the quizzes are not signed).

Discussion then takes place on the questions. Through this process, the material is covered. The hope was that students who tried and perhaps failed to answer questions on a topic would be more interested in paying attention when it was explained.

Finally, at a later time, the quizzes were graded for experimental analysis but not counted.

The biggest surprise was how many students actually told that they thought my idea worked well.

(These were extra questions appended to the normal evaluation instrument.)	--	-	0	+	++
19. Did the mini quizzes encourage you to read the material ahead of time?	0	0	15	8	0
20. Did having taken the quiz help you focus on the material covered immediately after it?	1	1	6	9	6
21. Was it a good use of time to take the quizzes versus spending more time lecturing?	3	3	2	12	3
22. Overall influence you feel the quizzes had on your learning in these lectures:	3	3	3	11	3

Figure 2: End-of-Term Student Evaluation Data

The Course

During winter quarter 2001-02 I taught a lecture section of VCSS 232, Computer Science 2. It is a freshman course, the second in a sequence of 3 first-year courses that teach the basics of software design and implementation. Currently the Java programming language is used throughout the sequence.

Being a required freshman course in a popular major, it had many lecture sections (more than 10). In addition to the quizzes, I met with another lecture instructor, Prof. Jessica Bayliss, once a week. We discussed how the lectures were going and what could be done to improve them. I also habitually sent her a copy of each quiz I created. Prof. Bayliss was my junior faculty member collaborator.

Performance Results

As the chart below shows, performance on the quizzes was not that good overall, but this was expected. I knew that, despite the quizzes, many students would not prepare. But again, I had hopes for increased attention in class as a result of taking the quiz.

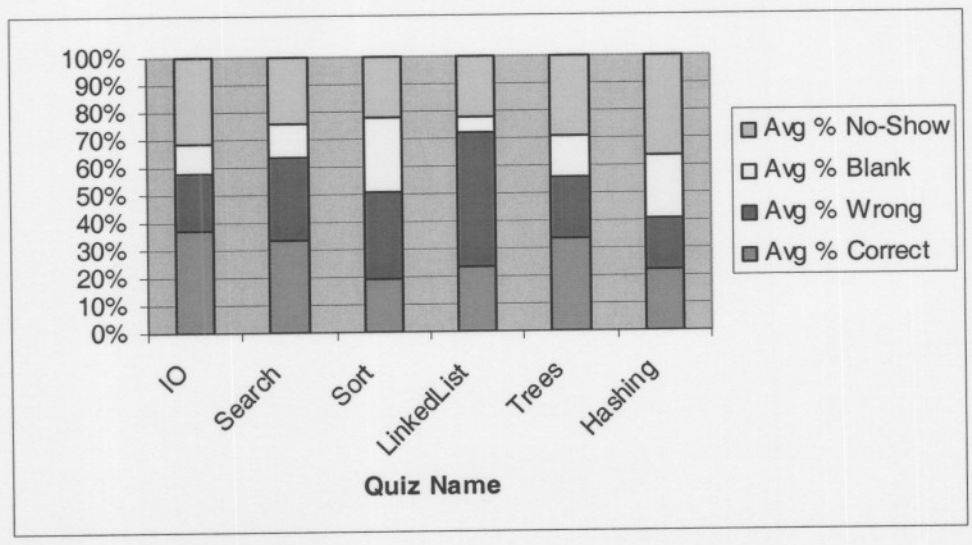

Figure 1: Student Performance on Quizzes

Student Assessment of Quiz Utility

At the end of the course, I included some extra questions in the standard CS department student evaluation to see how the students felt about my idea. The results are tabulated in Figure 2 below.

Faculty Learning Community
Pre-Survey for Participants

Name James Heliotis
Academic Rank Professor
Department Comp Sci. / Software Engr.
Phone Number 56133
College GCCIS
E-Mail jeh@cs.rit.edu

Number of years employed as a full-time teacher (visiting or tenure track) at RIT 18

1. Degrees

Degrees	Institutions	Dates
B.S. (Engr.)	Cornell U.	June 1975
M.Eng. (Elec. Engr.)	Cornell U.	June 1976
Ph.D.	U. of Rochester	April 1984

2. Professional History

Positions and/or Ranks	Institutions	Dates
Assoc. Prof	RIT	1987-1993?
Assist. Prof	RIT	1983-1987?

3. Briefly describe the nature of your current teaching responsibilities. Include your learning objectives from one of these courses as stated in your syllabus for that course.

My responsibilities vary year to year and quarter to quarter. In general, I teach two courses each quarter. It often includes some formal laboratories for lower division students.

Several of my courses have the acquiring of solid design skills as a learning objective.

4. Indicate your reasons for wanting to participate in this community.

I don't think enough of my students are really "getting" the important skills from the course I teach.

Many students seem bored; they don't participate.

I was asked to join. I'll get a course release to "solve" the above problems.

5. Describe particularly innovative teaching activities in which you have been involved (e.g. efforts to improve teaching, development of curricular materials, etc.).

- Formal (supervised) labs
- In-lecture group exercises
- Web-based supplementary instructional material.
- Weekly extra help sessions

6. Indicate two or three of your most pressing needs regarding teaching.

10. What do you think you can contribute to the program (for example, certain teaching knowledge or experiences)?

That depends on who else is in the community. But it won't be much, outside of just having been here a while.

7. Part of this program is an individual teaching project pursued by each participant. At this time, what area of interest do you wish to pursue? (Some suggestions are listed below. You may change directions as you learn more about the Program.)

Problem-based learning	Teaching styles	Incorporating writing
Service learning	Team teaching	Reading skills
Cooperative learning	Using diversity in teaching	Questioning
Active learning	Leading discussions	Educational games
Experiential learning	Teaching critical thinking	Assessment/evaluation
Group learning	Humor in the classroom	Authentic assessment ?
Learning styles	Case Studies	Student portfolios

8. Part of this program involves working with a faculty member of your choice. Although you need not have a particular person in mind at this time, in what ways would you take advantage of this opportunity and how do you see this aspect of the program as being helpful to you?

Get an energetic, imaginative junior faculty member involved early in their career.

9. Part of this program involves working with a student consultant of your choice. Although you need not have a particular person in mind at this time, in what ways would you take advantage of this opportunity and how do you see this aspect of the program as being helpful to you?

A student off whom I can bounce ideas.

Dec 10 23:46 2001 exc-classes Page 1

--
Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, objects get thrown and classes get caught.

expression → object any object of given class

Dec 10 23:23 2001 propagation Page 1

methods that called
starting method

--
When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

the methods that are called from the starting method

Dec 10 23:46 2001 exc-classes Page 1

[redacted]

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Dec 10 23:23 2001 propagation Page 1

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Dec 10 23:23 2001 propagation Page 1

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the methods that call exception generating methods are given a chance to handle the exception (as is the method that generated the exception)

Dec 10 23:46 2001 exc-classes Page 1

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In Java, classes get thrown and objects get caught.

objects classes

Dec 10 23:23 2001 propagation Page 1

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methods that are called from the starting method.

Dec 10 23:46 2001 exc-classes Page 1

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In Java, ~~classes~~ objects get thrown and ~~objects~~ classes get caught.

Dec 10 23:23 2001 propagation Page 1

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When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

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Dec 10 23:23 2001 propagation Page 1

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[redacted]

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Dec 10 23:23 2001 propagation Page 1

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Dec 10 23:46 2001 exc-classes Page 1

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Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, ~~classes~~ objects get thrown and ~~objects~~ classes get caught.

Dec 10 23:23 2001 propagation Page 1

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Dec 10 23:46 2001 exc-classes Page 1

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Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, __Objects__ get thrown and __classes__ get caught.

Dec 10 23:23 2001 propagation Page 1

--
When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

It is the methods that are called from the starting method that are given a chance to handle it.

Dec 10 23:46 2001 exc-classes Page 1

--

Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, objects get thrown and ~~objects~~ Classes get caught.

Dec 10 23:23 2001 propagation Page 1

--
When an exception is thrown from a method, is it the methods that are
called from the starting method that

methods that called starting method

Dec 10 23:46 2001 exc-classes Page 1

--

Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, ~~CLASSES~~ OBJECTS get thrown and ~~OBJECTS~~ CLASSES get caught.

Dec 10 23:23 2001 propagation Page 1

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When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

the ones that are called from the starting method

[redacted]

Dec 10 23:46 2001 exc-classes Page 1

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it depends on where the try and catch statements are please be more specific

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jmh

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Dec 10 23:23 2001 propagation Page 1

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methods that are called from starting method

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When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

the methods that are called from the starting method are given the chance

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When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the ~~methods that called the starting method?~~
method that threw the exception?

methods that are called from the starting method

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Byte - What you do to food when you want to eat it

Character - A single letter, number, or symbol

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte? "No more data idiot"

this is a string not a byte

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. ScrewUps

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

You Goofed It.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation? Falling Asleep

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

Sure, True, Why Not.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Character — a 'real' letter | One letter/Symbol
16-bit unicode

Byte - binary value | Small object | Small character ASCII code
8-bit value

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

End of file "EOF" Character
byte
"-1" returned

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

Try to open a file that does not exists

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

File not found
Permissions

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes - 8 bit value (binary)
characters - 16 bit unicode

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

end of data: "EOF" character
↑ byte
-1

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

try to input from a file that doesn't exist

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

~~RunTime~~ File Not Found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~True~~ False

2^{16}

IO Quiz

JAVA-16 bit unicode

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Ascii (16bit unicode) Characters - real letter/symbol

(8bit value) byte - binary value
small object, stores ASCII code, numbers

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

~~to~~ the full input 1st pt: EOF character = -1

2nd part:

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOEXCEPTION

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation. file not found

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

filenotfound

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False → sequential

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes - part of file 8 bit value
Char - file names 16 bit Unicode

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

returns -1

because would not be part of the file

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

~~File I/O~~ I/O Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

~~Command line argument not given~~

Unable to find file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

~~File Exception Error~~ FileNOTFOUND

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes store the ascii code of characters

8-bit bytes -> binary value, small object, numbers

16-bit unicode characters -> the actual "letter" or symbol

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

null, This character doesn't appear in files,

"EOF" character ← byte

-1

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException ⇒ IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if you try writing to a read only file

Open a non existent file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

the file may not exist Permission

File not Found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~true~~

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

when there aren't the right number of files.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. False

SRP

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes are small bits of data binary data

characters are data that include letters, numbers and symbols (e,#,.,?,etc)

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Input exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

~~error~~ creating/opening file exception

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~True~~ False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes - Bytes are data types representing integer values but have a lower range.

Characters - Characters represent alphabetical variables.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

True False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Characters - letters and symbols - (16 bytes)

bytes -

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOEXCEPTION

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

X the array is out of bounds and can not grab a file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

what type of file is it? read-only or write-only, etc.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

byte is 8 bits - the amount of data required to hold a char

char is a specific use of a byte to hold a symbol

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

~~null value~~

-1

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

X out of bounds

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

File not found; permissions

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes would be 8 bits ~~as~~ ~~and~~ not translated into a character. Character are these 8 bits converted to english / ASCII character set

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

Null. Null has no value

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOStream Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

try to open a nonexistant file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

unable to open file for reading or writing

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False, stream has order

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

character : 'a'

byte: 00111010

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns -1 which cant be confused with a regular byte b/c a byte would have 8 bits and an int has 32 bits.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

X reading past the end of a File

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

FNFException

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

character types hold a single character while a byte hold a whole number between -16,000 and +16900

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns a null this ~~charac~~ value cannot be confused for a regular byte because it is empty

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. run-time exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

an array overflow

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

if the disk file does not exist an exception will be thrown.

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False.

LCD

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes and characters are both primitive. Byte characters contain a series of numbers that stand for different things while Characters are the data exactly. byte 010110 -> something like a this char a -> a

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

It returns a value of -1 and this cannot be confused with a byte because it is an integer.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

Cannot find file or a file does not exist exception.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False, a stream will always give you the contents of a file in a direct order.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes are the specific 1s or 0s,
characters are composed of bytes

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns NULL

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation. if the file you try to read doesn't exist.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

a bad one

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes are numbers
characters are letters

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

EOFException - try to read past the end of the file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

FileNotFound Exception

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes → alphanumeric content

char → only [redacted] letters

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

check for root, or if user has read or write access to that file

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

X. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Characters are letters, bytes are small values.

X. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

X File IO

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

File Not Found Exception

X4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

X5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

True

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes include integers while characters do no.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

It could be a file or a directory

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

True

IO Quiz mdf

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

characters allow for the storage of only one letter or symbol.

bytes ~~allow for storage of many longer things.~~
are the generic term for a small Object like char, int, double, etc.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns an <eof> character which means end of file,
it cannot be confused w/ another character because it is unique in the file stream.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Parameter Exception.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if you input a char object into an int variable.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

Buffer Stream.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

? byte is
char is

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns EOF.
> a some special character at end of file
indicating that it is the end of file

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOEXCEPTION

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if a file is not Found

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

File not Found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. FALSE

IO Quiz

X. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes - number

character a, b, c basically a letter

X. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte? returns a double

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. I/O exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

User input isn't compatible with the programs output

X

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation? invalid file exception

---

X. True or false?: A stream is useful if you need to access the contents of a file in a random order. True

IO Quiz

X. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes are alway 4 bits long. Characters vary depending on what system is being used.

X. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

<CR>

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

~~The file you are trying to read does not exist.~~

X Improper datatype upon initialization (such as Casino Simulation).

X. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

The difference between bytes and characters is that characters take up more space and need to be streamed in.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

When there is no more data the read method returns garbage generally none of this makes sense and therefore can't be confused for a regular byte.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

Trying to open a file that doesn't exist

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False, streaming access content in sequential order.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes is the value of the character

character is the actual character

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

-1

"EOF" character

End of file character

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

~~End of File~~ IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

file not found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes hold a single number

~~characters~~ hold a single character, be it number or letter.
Characters

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Character : 16-bit unicode - Java
byte : 8- bit value

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte? end of data :

Value return -1
"EOF" charactor ← byte

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IO Exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

X

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

File notfound , permission

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes would be 8 bits ~~as~~ ~~and~~ not translated into a character. Character are those 8 bits converted to english / ASCII character set.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

Null. Null has no value

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOStream Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

try to open a nonexistant file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

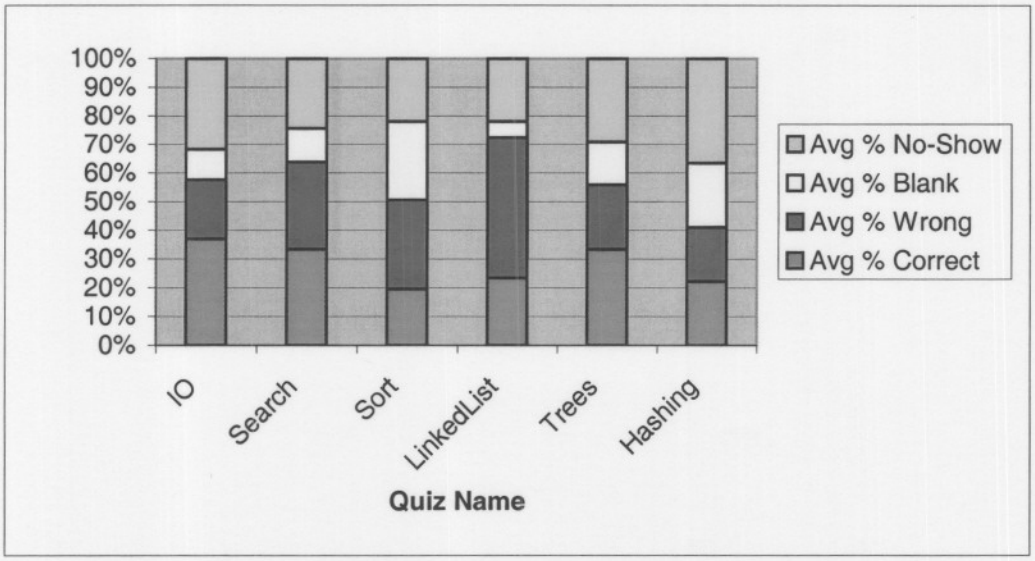
unable to open file for reading or writing

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False, stream has order

Quiz	Avg % Correct	Avg % Wrong	Avg % Blank	Avg % No-Show	check
IO	36.9%	20.7%	10.7%	31.7%	100.0%
Search	33.3%	30.5%	11.9%	24.4%	100.0%
Sort	19.5%	31.1%	27.5%	22.0%	100.0%
LinkedList	23.4%	48.9%	5.7%	22.0%	100.0%
Trees	33.2%	22.6%	14.9%	29.3%	100.0%
Hashing	22.2%	18.8%	22.4%	36.6%	100.0%



Quiz grade results by Heath McLean, my student collaborator.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Byte - What you do to food when you want to eat it

Character - A single letter, number, or symbol

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte? "No more data idiot"

this is a string not a byte

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. ScrewUps

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

You Goofed It.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation? Falling Asleep

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

Sure, True, Why Not.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Character — a 'real' letter | One letter/Symbol
16-bit unicode

Byte - binary value | Small object | Small character ASCII code
8-bit value

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

End of file "EOF" Character
byte
"-1" returned

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

Try to open a file that does not exists

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

File not found
Permissions

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes - 8 bit value (binary)
characters - 16 bit unicode

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

end of data: "EOF" character
byte
-1

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

try to input from a file that doesn't exist

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

~~RunTime~~ File Not Found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~True~~ False

2^{16}

IO Quiz

JAVA-16bit unicode

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Ascii (16bit unicode) Characters – real letter/symbol

(8bit value) byte – binary value
small object, stores ASCII code, numbers

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

~~At~~ the full input 1st pt: EOF Character = -1

2nd part:

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOEXCEPTION

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation. file not found

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

filenotfound

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False → sequential

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes - part of file 8 bit value
Char - file names 16 bit Unicode

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

returns -1

because would not be part of the file

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

~~File I/O~~ I/O Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

~~Command line argument not given~~

Unable to find file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

~~File Exception Error~~ FileNOTFOUND

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes store the ascii code of characters

8-bit bytes -> binary value, small object, numbers

16-bit unicode characters -> the actual "letter" or symbol

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

null, This character doesnt appear in files,

"EOF" character ← byte

-1

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException => IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if you try writing to a read only file

Open a non existent file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

the file may not exist Permission

File not found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~true~~

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

when there aren't the right number of files.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. False

JRP

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes are small bits of data binary data

characters are data that include letters, numbers and symbols (C#, ., ?, etc)

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Input Exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

~~error~~ creating/opening file exception

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~False~~ False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes - Bytes are data types representing integer values but have a lower range.

Characters - Characters represent alphabetical variables.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Characters - letters and symbols - (16 bytes)

bytes -

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOEXCEPTION

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

X the array is out of bounds and can not grab a file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

what type of file is it? read-only or write-only, etc.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

character : 'a'

byte: 00111010

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns -1 which cant be confused with a regular byte b/c a byte would have 8 bits and an int has 32 bits.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

X reading past the end of a File

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

FNFException

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes store the ascii code of characters

8-bit bytes -> binary value, small object, numbers

16-bit unicode characters -> the actual "letter" or symbol

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

null, This character doesn't appear in files,

"EOF" character ← byte

-1

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException ⇒ IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if you try writing to a read only file

Open a non existent file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

the file may not exist Permission

File not Found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~true~~

False

IO Quiz

The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

character types hold a single character while a byte hold a whole number between -16,000 and +16900

A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns a null this ~~charac~~ value cannot be confused for a regular byte because it is empty

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. run-time exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

an array overflow

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

if the disk file does not exist an exception will be thrown.

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False.

LCD

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes and characters are both primitive. Byte characters contain a series of numbers that stand for different things while characters are the data exactly. byte 010110 -> something like a this char a -> a

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

It returns a value of -1 and this cannot be confused with a byte because it is an integer.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

Cannot find file or a file does not exist exception.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False, a stream will always give you the contents of a file in a direct order.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes are the specific 1s or 0s,
characters are composed of bytes

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns NULL

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation. if the file you try to read doesn't exist.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

a bad one

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes are numbers
characters are letters

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

EOFException - try to read past the end of the file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

FileNotFound Exception

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes → alphanumeric content

char → only [redacted] letters

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

check for root, or if user has read or write access to that file

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Characters are letters, bytes are small values.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

X File IO

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

File Not Found Exception

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

True

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes include integers while characters do no.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

It could be a file or a directory

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

True

IO Quiz mdf

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

characters allow for the storage of only one letter or symbol.

bytes ~~allow for storage of many longer things.~~
are the generic term for a small Object like char, int, double, etc.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns an <eof> character which means end of file,
it cannot be confused w/ another character because it is unique in the file stream.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Parameter Exception.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if you input a char object into an int variable.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

Buffer Stream.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

? byte is
char is

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns EOF.
> a some special character at end of file
indicating that it is the end of file

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOEXCEPTION

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if a file is not Found

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

File not Found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. FALSE

IO Quiz

X. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes - number

character a, b, c basically a letter

X. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte? returns a double

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. I/O exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

User input isn't compatible with the programs output

X

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation? invalid file exception

---

X. True or false?: A stream is useful if you need to access the contents of a file in a random order. True

IO Quiz

X. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes are alway 4 bits long. Characters vary depending on what system is being used.

X. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

<CR>

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

~~The file you are trying to read does not exist.~~

X Improper datatype upon initialization (such as Casino Simulation).

X. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

The difference between bytes and characters is that characters take up more space and need to be streamed in.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

When there is no more data the read method returns garbage generally none of this makes sense and therefore can't be confused for a regular byte.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

Trying to open a file that doesn't exist

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False, streaming access content in sequential order.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes is the value of the character

character is the actual character

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

-1

"EOF" character

End of file character

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

~~End of File~~ IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

file not found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

X. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types. Bytes would be numerical data in a number; characters would be asci valued letters, numbers and characters.

X. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte? end of line marker

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

X

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation. when attempting to read from or write to a nonexistant file.

X. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes would be 8 bits ~~as~~ ~~and~~ not translated into a character. Character are those 8 bits converted to english / ASCII character set.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

Null. Null has no value

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOStream Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

try to open a nonexistant file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

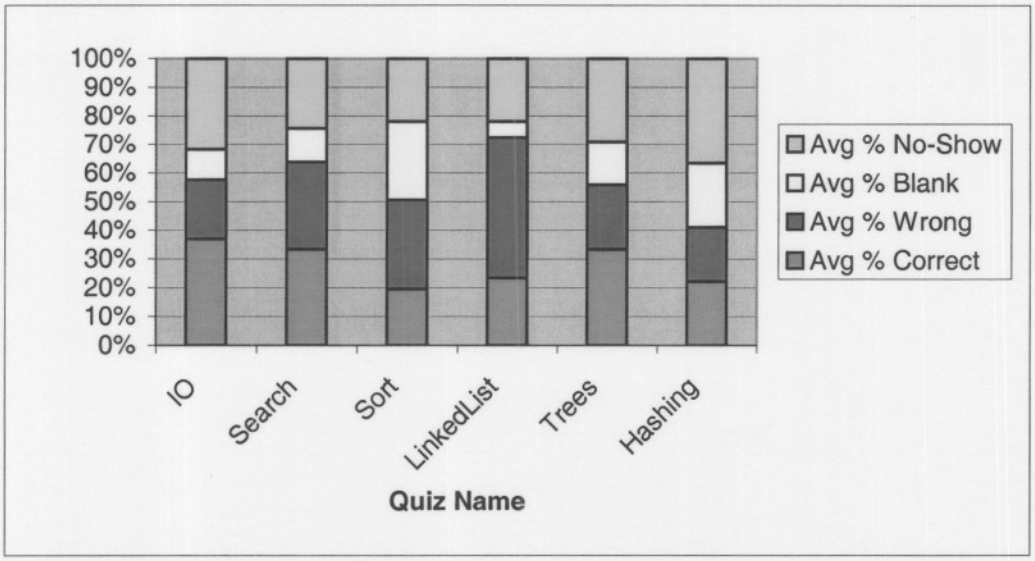
unable to open file for reading or writing

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False, stream has order

Quiz	Avg % Correct	Avg % Wrong	Avg % Blank	Avg % No-Show	check
IO	36.9%	20.7%	10.7%	31.7%	100.0%
Search	33.3%	30.5%	11.9%	24.4%	100.0%
Sort	19.5%	31.1%	27.5%	22.0%	100.0%
LinkedList	23.4%	48.9%	5.7%	22.0%	100.0%
Trees	33.2%	22.6%	14.9%	29.3%	100.0%
Hashing	22.2%	18.8%	22.4%	36.6%	100.0%



Quiz grade results by Heath McLean, my student collaborator.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Byte - What you do to food when you want to eat it

Character - A single letter, number, or symbol

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte? "No more data idiot"

this is a string not a byte

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. ScrewUps

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

You Goofed It.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation? Falling Asleep

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

Sure, True, Why Not.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Character — a 'real' letter | One letter/Symbol
16-bit unicode

Byte - binary value | Small object | Small character ASCII code
8-bit value

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

End of file "EOF" Character
byte
"-1" returned

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

Try to open a file that does not exists

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

File not found
Permissions

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes - 8 bit value (binary)
characters - 16 bit unicode

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

end of data: "EOF" character
byte
-1

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

try to input from a file that doesn't exist

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

~~RunTime~~ File Not Found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~True~~ False

2^{16}

IO Quiz

JAVA-16bit unicode

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Ascii (16bit unicode) Characters – real letter/symbol

(8bit value) byte – binary value
small object, stores ASCII code, numbers

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

~~At~~ the full input 1st pt: EOF Character = -1

2nd part:

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOEXCEPTION

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation. file not found

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

filenotfound

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False → sequential

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes - part of file 8 bit value
Char - file names 16 bit Unicode

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

returns -1

because would not be part of the file

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

~~File I/O~~ I/O Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

~~Command line argument not given~~

Unable to find file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

~~File Exception Error~~ FileNOTFOUND

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes store the ascii code of characters

8-bit bytes -> binary value, small object, numbers

16-bit unicode characters -> the actual "letter" or symbol

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

null, This character doesnt appear in files,

"EOF" character ← byte

-1

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException => IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if you try writing to a read only file

Open a non existent file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

the file may not exist Permission

File not found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~true~~

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

when there aren't the right number of files.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. False

JRP

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes are small bits of data binary data

characters are data that include letters, numbers and symbols (C#, ., ?, etc)

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Input Exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

~~error~~ creating/opening file exception

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~False~~ False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes - Bytes are data types representing integer values but have a lower range.

Characters - Characters represent alphabetical variables.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Characters - letters and symbols - (16 bytes)

bytes -

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOEXCEPTION

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

X the array is out of bounds and can not grab a file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

what type of file is it? read-only or write-only, etc.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

character : 'a'

byte: 00111010

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns -1 which cant be confused with a regular byte b/c a byte would have 8 bits and an int has 32 bits.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

X reading past the end of a File

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

FNFException

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes store the ascii code of characters

8-bit bytes -> binary value, small object, numbers

16-bit unicode characters -> the actual "letter" or symbol

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

null, This character doesn't appear in files,

"EOF" character ← byte

-1

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException ⇒ IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if you try writing to a read only file

Open a non existent file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

the file may not exist Permission

File not Found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

~~true~~

False

IO Quiz

The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

character types hold a single character while a byte hold a whole number between -16,000 and +16900

A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns a null this ~~charac~~ value cannot be confused for a regular byte because it is empty

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. run-time exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

an array overflow

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

if the disk file does not exist an exception will be thrown.

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False.

LCD

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes and characters are both primitive. Byte characters contain a series of numbers that stand for different things while characters are the data exactly. byte 010110 -> something like a this char a -> a

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

It returns a value of -1 and this cannot be confused with a byte because it is an integer.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

Cannot find file or a file does not exist exception.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False, a stream will always give you the contents of a file in a direct order.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes are the specific 1s or 0s,
characters are composed of bytes

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns NULL

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation. if the file you try to read doesn't exist.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

a bad one

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes are numbers
characters are letters

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

EOFException - try to read past the end of the file

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

FileNotFound Exception

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes → alphanumeric content

char → only [redacted] letters

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

check for root, or if user has read or write access to that file

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Characters are letters, bytes are small values.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

X File IO

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

File Not Found Exception

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

True

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes include integers while characters do no.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

It could be a file or a directory

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

True

IO Quiz mdf

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

characters allow for the storage of only one letter or symbol.

bytes ~~allow for storage of many longer things.~~
are the generic term for a small Object like char, int, double, etc.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns an <eof> character which means end of file,
it cannot be confused w/ another character because it is unique in the file stream.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

Parameter Exception.

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if you input a char object into an int variable.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

Buffer Stream.

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

? byte is
char is

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

it returns EOF.
> a some special character at end of file
indicating that it is the end of file

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOEXCEPTION

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

if a file is not Found

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

File not Found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. FALSE

IO Quiz

X. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes - number

character a, b, c basically a letter

X. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte? returns a double

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. I/O exceptions

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

User input isn't compatible with the programs output

X

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation? invalid file exception

---

X. True or false?: A stream is useful if you need to access the contents of a file in a random order. True

IO Quiz

X. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

Bytes are alway 4 bits long. Characters vary depending on what system is being used.

X. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

<CR>

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations. IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

~~The file you are trying to read does not exist.~~

X Improper datatype upon initialization (such as Casino Simulation).

X. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. False

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

The difference between bytes and characters is that characters take up more space and need to be streamed in.

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

When there is no more data the read method returns garbage generally none of this makes sense and therefore can't be confused for a regular byte.

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

IOException

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

Trying to open a file that doesn't exist

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

False, streaming access content in sequential order.

IO Quiz

---

1. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types.

bytes is the value of the character

character is the actual character

---

2. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte?

-1

"EOF" character

End of file character

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

~~End of File~~ IO Exception

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation.

---

4. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

file not found

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order.

false

IO Quiz

X. The library of Stream Input/Output classes support both bytes and characters. Distinguish these two data types. Bytes would be numerical data in a number; characters would be asci valued letters, numbers and characters.

X. A FileInputStream will normally return the next byte in its input when the read method is called. What does it return if there is no more data, and how is it that this value cannot be confused for a regular byte? end of line marker

---

3. Give the name of the general class of exceptions that is thrown by I/O stream operations.

X

Give one example of a situation that would cause an exception of this type to be raised. You do not need to recall the exact name of the exception class; just describe the situation. when attempting to read from or write to a nonexistant file.

X. When you open a disk file for reading and writing, what exception might be thrown before you even attempt to perform a read or write operation?

---

5. True or false?: A stream is useful if you need to access the contents of a file in a random order. False

Dec 10 23:35 2001 trace Page 1

--

Show the output generated when the following class is executed:

```
class ExcTrace {

        static void f3() throws Exception {
                System.out.println( "f3.1" );
                throw new Exception( "EXCP" );
                // System.out.println( "f3.2" );
        }

        static void f2() throws Exception {
                try {
                        System.out.println( "f2.1" );
                        f3();
                        System.out.println( "f2.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                        throw e;
                }
        }

        static void f1() {
                try {
                        System.out.println( "f1.1" );
                        f2();
                        System.out.println( "f1.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                }
                finally {
                        System.out.println( "f1.3" );
                }
        }

        public static void main( String[] args ) {
                f1();
        }
}
```

f1.1
f2.1
f3.1
f2.2
e
f1.2
f1.3

Dec 10 23:23 2001 propagation Page 1

--
When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

Methods that are called from the starting method.

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f	result	
4	4 + f(3)	10
3	3 + f(2)	6
2	2 + f(1)	= 3
1	1.	

Output

f(4) = 10

Dec 10 23:46 2001 exc-classes Page 1

--
Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, classes get thrown and objects get caught.

Dec 10 23:43 2001 exc-use Page 1

--
How would you criticize the use of exceptions in this program?
(The program DOES compile and run.)

```
class Loop {

        static class BreakLoop extends Throwable {
        }

        public static void main( String[] args ) {
                System.out.println( "The first five perfect squares:\n" );
                int n = 1;
                try {
                        while ( true ) {
                                System.out.println( n * n );
                                n++;
                                if ( n > 5 ) {
                                        throw new BreakLoop();
                                }
                        }
                }
                catch ( BreakLoop b ) {
                        System.out.println( "---------" );
                }
        }
}
```

It will always generate an error after n > 5, therefore breaking the loop. However this is an inefficient way of breaking loops as it uses up more resources than required.
there really is no sense for the while statement to create a loop when one could just have it loop 5 times on its own.

Dec 10 23:35 2001 trace Page 1

--
Show the output generated when the following class is executed:

```
class ExcTrace {

        static void f3() throws Exception {
                System.out.println( "f3.1" );
                throw new Exception( "EXCP" );
                // System.out.println( "f3.2" );
        }

        static void f2() throws Exception {
                try {
                        System.out.println( "f2.1" );
                        f3();
                        System.out.println( "f2.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                        throw e;
                }
        }

        static void f1() {
                try {
                        System.out.println( "f1.1" );
                        f2();
                        System.out.println( "f1.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                }
                finally {
                        System.out.println( "f1.3" );
                }
        }

        public static void main( String[] args ) {
                f1();
        }
}
```

f1.1
f2.1
f3.1
f1.2
e
f1.3
f3.2

Dec 10 23:23 2001 propagation Page 1

--
When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

the methods that are called from the starting method

Dec 10 23:43 2001 exc-use Page 1

```
--
How would you criticize the use of exceptions in this program?
(The program DOES compile and run.)

class Loop {

        static class BreakLoop extends Throwable {
        }

        public static void main( String[] args ) {
                System.out.println( "The first five perfect squares:\n" );
                int n = 1;
                try {
                        while ( true ) {
                                System.out.println( n * n );
                                n++;
                                if ( n > 5 ) {
                                        throw new BreakLoop();
                                }
                        }
                }
                catch ( BreakLoop b ) {
                        System.out.println( "---------" );
                }
        }
}
```

No statement to test numbers greater than 5, or negative numbers

Dec 10 23:46 2001 exc-classes Page 1

--
Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, classes get thrown and objects get caught.

Dec 10 23:35 2001 trace Page 1

--
Show the output generated when the following class is executed:

```
class ExcTrace {

        static void f3() throws Exception {
                System.out.println( "f3.1" );
                throw new Exception( "EXCP" );
                // System.out.println( "f3.2" );
        }

        static void f2() throws Exception {
                try {
                        System.out.println( "f2.1" );
                        f3();
                        System.out.println( "f2.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                        throw e;
                }
        }

        static void f1() {
                try {
                        System.out.println( "f1.1" );
                        f2();
                        System.out.println( "f1.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                }
                finally {
                        System.out.println( "f1.3" );
                }
        }

        public static void main( String[] args ) {
                f1();
        }
}
```

Dec 10 23:23 2001 propagation Page 1

--
When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

the methods that are called from the starting method.

Dec 10 23:43 2001 exc-use Page 1

--
How would you criticize the use of exceptions in this program?
(The program DOES compile and run.)

```
class Loop {

        static class BreakLoop extends Throwable {
        }

        public static void main( String[] args ) {
                System.out.println( "The first five perfect squares:\n" );
                int n = 1;
                try {
                        while ( true ) {
                                System.out.println( n * n );
                                n++;
                                if ( n > 5 ) {
                                        throw new BreakLoop();
                                }
                        }
                }
                catch ( BreakLoop b ) {
                        System.out.println( "---------" );
                }
        }
}
```

The exception is use to end the loop, when it should be used to find errors

Dec 10 23:46 2001 exc-classes Page 1

--
Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, objects get thrown and classes get caught.

Dec 10 23:35 2001 trace Page 1

--
Show the output generated when the following class is executed:

```
class ExcTrace {

        static void f3() throws Exception {
                System.out.println( "f3.1" );
                throw new Exception( "EXCP" );
                // System.out.println( "f3.2" );
        }

        static void f2() throws Exception {
                try {
                        System.out.println( "f2.1" );
                        f3();
                        System.out.println( "f2.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                        throw e;
                }
        }

        static void f1() {
                try {
                        System.out.println( "f1.1" );
                        f2();
                        System.out.println( "f1.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                }
                finally {
                        System.out.println( "f1.3" );
                }
        }

        public static void main( String[] args ) {
                f1();
        }
}
```

f3.1
f2.1
f3.1
~~f2.2~~
EXCP

f1.1
f2.1
f3.1
EXCP
f1.3

Dec 10 23:23 2001 propagation Page 1

--
When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

methods called from starting method.

"starting method"
the method that
threw the exception

Dec 10 23:43 2001 exc-use Page 1

--
How would you criticize the use of exceptions in this program?
(The program DOES compile and run.)

```
class Loop {

        static class BreakLoop extends Throwable {
        }

        public static void main( String[] args ) {
                System.out.println( "The first five perfect squares:\n" );
                int n = 1;
                try {
                        while ( true ) {
                                System.out.println( n * n );
                                n++;
                                if ( n > 5 ) {
                                        throw new BreakLoop();
                                }
                        }
                }
                catch ( BreakLoop b ) {
                        System.out.println( "---------" );
                }
        }
}
```

I don't know

Dec 10 23:46 2001 exc-classes Page 1

--
Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, objects get thrown and classes get caught.

Dec 10 23:35 2001 trace Page 1

--
Show the output generated when the following class is executed:

```
class ExcTrace {

        static void f3() throws Exception {
                System.out.println( "f3.1" );
                throw new Exception( "EXCP" );
                // System.out.println( "f3.2" );
        }

        static void f2() throws Exception {
                try {
                        System.out.println( "f2.1" );
                        f3();
                        System.out.println( "f2.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                        throw e;
                }
        }

        static void f1() {
                try {
                        System.out.println( "f1.1" );
                        f2();
                        System.out.println( "f1.2" );
                }
                catch( Exception e ) {
                        System.out.println( e );
                }
                finally {
                        System.out.println( "f1.3" );
                }
        }

        public static void main( String[] args ) {
                f1();
        }
}
```

f1.1
f2.1
f3.1
EXCP

f1.1
f2.1
f3.1
EXCP
f3.2
f2.2
f1.2
e
f1.3

Dec 10 23:23 2001 propagation Page 1

--
When an exception is thrown from a method, is it the methods that are called from the starting method that are given a chance to handle it, or the methods that called the starting method?

The starting method

Dec 10 23:43 2001 exc-use Page 1

--
How would you criticize the use of exceptions in this program?
(The program DOES compile and run.)

```
class Loop {

        static class BreakLoop extends Throwable {
        }

        public static void main( String[] args ) {
                System.out.println( "The first five perfect squares:\n" );
                int n = 1;
                try {
                        while ( true ) {
                                System.out.println( n * n );
                                n++;
                                if ( n > 5 ) {
                                        throw new BreakLoop();
                                }
                        }
                }
                catch ( BreakLoop b ) {
                        System.out.println( "---------" );
                }
        }
}
```

should be System.err.println("---");

Dec 10 23:46 2001 exc-classes Page 1

--
Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, objects get thrown and classes get caught.

Dec 10 23:43 2001 exc-use Page 1

--
How would you criticize the use of exceptions in this program?
(The program DOES compile and run.)

```
class Loop {

        static class BreakLoop extends Throwable {
        }

        public static void main( String[] args ) {
                System.out.println( "The first five perfect squares:\n" );
                int n = 1;
                try {
                        while ( true ) {
                                System.out.println( n * n );
                                n++;
                                if ( n > 5 ) {
                                        throw new BreakLoop();
                                }
                        }
                }
                catch ( BreakLoop b ) {
                        System.out.println( "---------" );
                }
        }
}
```

there should be an error message printed

the if statement should be under the

catch phrase

[redacted]

Dec 10 23:46 2001 exc-classes Page 1

--
Place the words "objects" and "classes" in the correct blanks in the statement below:

In Java, classes get thrown and objects get caught.

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

~~4 + 3 + 2~~

1

prints out f(4)=9

~~Return~~ f(4) = 9

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

F(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4+3 +2+1

F(4) = 10

Brendan Shank

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f4=7

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4+3+2+1

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4 +
3 +
2
+1

4
+
3
+

Max
3

result
1
3
6
10

M
4

R
4+x0

M
3

R
3+x1

M
2

R
2+x1

M
1

R
1

4 + (3 + (2 + (1))) = 10

output:
f(4) = 10

Jordan Sissel

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

10

4+3+2+1 = 10

hat gets printed out when the following class is executed by java?

```
ublic class Summatial {

    public int f( int max ) {
            int result;
            if ( max == 1 ) {
                    result = 1;
            }
            else {
                    result = max + f( max-1 );
            }
            return result;
    }

    public static void main( String args[] ) {
            Summatial demo = new Summatial();
            System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
    }
```

4 + f3

4 + 3 + 3 + f2

4 + 3 + 3 + 2 + f1

4 + 3 + 3 + 2 + 1

27 ?

f(4) = ~~13~~ ~~27~~

13

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4 + f(3)
3 + f(2)
2 + f(1)
1

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(4) = 10

13

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {                  4 +3+2+1
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

~~f(4) = 10~~ f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f (4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4 + 3 + 2 + 1

f(4) = 10

4
3
2
1
10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(4) =

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {                  4  + f(3)
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

$f(4) = 4 + f(3)$

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4 3 2 3 2 1

max	result
4	4+6
3	3+3
2	2+1

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(4) = [redacted] 10

4
3
2
1

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f4=10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

253 i

f(" + 4 + ") = 16

--

David Hart

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4+3+2+1

$\boxed{f(4) = 10}$

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(4) = 7

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(2) = 2 + f(1)

f(1) = 1

2 + 1 = 3

4 + f(3)

f(3) = 3 + f(2)

3 + 3 = 6 + 4 = 10

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

~~f(4)~~

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

?

$= 4 + f(3) =$

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

$4 + f(3) + 3 + f(2) + 2 + 1$

$10 + 6 + 3 = 19$

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

result	max
1	4
2	3
4	2
8	1
15	

f(4) = 11

Lu

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(" + 4 + ") = 4 + f(3)

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

$\boxed{f(4) = 10}$

result: max ~~result~~
4 + f(3)
4 + 3 + f(2)
4 + 3 + 2 + f(1)
10 = 4 + 3 + 2 + 1 = 10

result = 4 +
result = 3 +
result = 2 + 1

4+3+2+1

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

call	max	result
1	4	4 + 6 = 10
2	3	3 + 3 = 6
3	2	2 + 1 = 3
4	1	1

output

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4+3+2

$f(4) = 4 + f(3)$

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

f(4) = 10

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4
3
2
1

[4 + [3 + [2]]]

9

1

f(4) = 1

--

What gets printed out when the following class is executed by java?

```
public class Summatial {

        public int f( int max ) {
                int result;
                if ( max == 1 ) {
                        result = 1;
                }
                else {
                        result = max + f( max-1 );
                }
                return result;
        }

        public static void main( String args[] ) {
                Summatial demo = new Summatial();
                System.out.println( "f(" + 4 + ") = " + demo.f( 4 ) );
        }
}
```

4+

pass in 4

~~4+3=7~~

~~7+2=9~~

1

If class Tornado inherits from class Storm, mark the following statements as true or false:

F There are more objects that conform to the type Tornado than there are that conform to the type Storm.

T Tornado instances probably have more fields (attributes) than Storm instances, and definitely not fewer.

T All methods declared in Storm can be called on instances of Tornado.

____ All methods declared in Storm will perform the same way whether they are invoked on instances of Storm or of Tornado.

F Invoking a Tornado method on an object declared to be type Storm will cause a run time, rather than a compile time error.

T. S.

What action on, or use of, a class is in fact not allowed on abstract classes or interfaces? Show a statement that would generate an error, if used with an abstract class named Animal.

Assume we have available to us a class Queue with this interface:

```
public class Queue {

        /**
         * Add an element to the queue.
         *
         * @param element the element to be added
         */
        public void add( Object element ) {...}

        /**
         * Remove from the queue the element that was added
         * the longest time ago ("first in, first out" (FIFO)).
         *
         * @return oldest element contained in the queue
         */

        public Object remove() {...}

        /**
         * Test if the queue is empty.
         *
         * @return true if and only if there are no elements
         * left in the queue.
         */
        public boolean empty() {...}

        // ..
        // other things not part of the public interface
        // ..
}
```

For each of the additions mentioned below, would you recommend inheritance or aggregation to reuse the functionality of Queue?

****

Using inheritance would mean doing something like

```
class Whatever extends Queue {
        // ..
}
```

.. Here, if add(), remove(), or empty() are not redefined, the Queue versions would automatically be used. If any of them were redefined, they could choose to invode the Queue versions or not.

Using aggregation would mean doing

```
class Whatever {
        private Queue implementation;
        // ..
}
```

.. Here, the programmer would have to write add(), remove(), and empty() to at some point invoke those functions on the implementation object.

****

continued on next page...

Given two Java classes, City and Municipality, and knowing that City inherits from Municipality, how would you write the start of the class definition of City, up to the opening brace?

What action on, or use of, a class is in fact not allowed on abstract classes or interfaces? Show a statement that would generate an error, if used with an abstract class named Animal.

Ran out of time

You cannot use subclass methods and classes if you are in a super class.

Given two Java classes, City and Municipality, and knowing that City inherits from Municipality, how would you write the start of the class definition of City, up to the opening brace?

class City extends Municipality {

First addition: create a TalkingQueue class that, in addition to performing add() and remove() functions, writes a line to diagnostic output stating what ocurred.

Second addition: create a PriorityQueue class that changes add() to take a second argument, a priority number. When remove() is called it is also changed to return the oldest element of the highest priority. This means that a PriorityQueue is not purely FIFO in behavior.

If class Tornado inherits from class Storm, mark the following statements as true or false:

T There are more objects that conform to the type Tornado than there are that conform to the type Storm.

F Tornado instances probably have more fields (attributes) than Storm instances, and definitely not fewer.

T All methods declared in Storm can be called on instances of Tornado.

T All methods declared in Storm will perform the same way whether they are invoked on instances of Storm or of Tornado.

F Invoking a Tornado method on an object declared to be type Storm will cause a run time, rather than a compile time error.

P & M

What action on, or use of, a class is in fact not allowed on abstract classes or interfaces? Show a statement that would generate an error, if used with an abstract class named Animal.

instance variables and non-static methods.

Assume we have available to us a class Queue with this interface:

```
public class Queue {

        /**
         * Add an element to the queue.
         *
         * @param element the element to be added
         */
        public void add( Object element ) {...}

        /**
         * Remove from the queue the element that was added
         * the longest time ago ("first in, first out" (FIFO)).
         *
         * @return oldest element contained in the queue
         */

        public Object remove() {...}

        /**
         * Test if the queue is empty.
         *
         * @return true if and only if there are no elements
         * left in the queue.
         */
        public boolean empty() {...}

        // ..
        // other things not part of the public interface
        // ..
}
```

For each of the additions mentioned below, would you recommend inheritance or aggregation to reuse the functionality of Queue?

****

Using inheritance would mean doing something like

```
class Whatever extends Queue {
        // ..
}
```

.. Here, if add(), remove(), or empty() are not redefined, the Queue versions would automatically be used. If any of them were redefined, they could choose to invode the Queue versions or not.

Using aggregation would mean doing

```
class Whatever {
        private Queue implementation;
        // ..
}
```

.. Here, the programmer would have to write add(), remove(), and empty() to at some point invoke those functions on the implementation object.

****

continued on next page...

Given two Java classes, City and Municipality, and knowing that City inherits from Municipality, how would you write the start of the class definition of City, up to the opening brace?

~~public abstract class City extends Object~~ {

public class City extends Municipality {

First addition: create a TalkingQueue class that, in addition to performing add() and remove() functions, writes a line to diagnostic output stating what ocurred.

Second addition: create a PriorityQueue class that changes add() to take a second argument, a priority number. When remove() is called it is also changed to return the oldest element of the highest priority. This means that a PriorityQueue is not purely FIFO in behavior.

If class Tornado inherits from class Storm, mark the following statements as true or false:

F There are more objects that conform to the type Tornado than there are that conform to the type Storm.

____ Tornado instances probably have more fields (attributes) than Storm instances, and definitely not fewer.

____ All methods declared in Storm can be called on instances of Tornado.

____ All methods declared in Storm will perform the same way whether they are invoked on instances of Storm or of Tornado.

____ Invoking a Tornado method on an object declared to be type Storm will cause a run time, rather than a compile time error.

Assume we have available to us a class Queue with this interface:

```
public class Queue {

        /**
         * Add an element to the queue.
         *
         * @param element the element to be added
         */
        public void add( Object element ) {...}

        /**
         * Remove from the queue the element that was added
         * the longest time ago ("first in, first out" (FIFO)).
         *
         * @return oldest element contained in the queue
         */

        public Object remove() {...}

        /**
         * Test if the queue is empty.
         *
         * @return true if and only if there are no elements
         * left in the queue.
         */
        public boolean empty() {...}

        // ..
        // other things not part of the public interface
        // ..
}
```

For each of the additions mentioned below, would you recommend inheritance or aggregation to reuse the functionality of Queue?

****

Using inheritance would mean doing something like

```
class Whatever extends Queue {
        // ..
}
```

.. Here, if add(), remove(), or empty() are not redefined, the Queue versions would automatically be used. If any of them were redefined, they could choose to invode the Queue versions or not.

Using aggregation would mean doing

```
class Whatever {
        private Queue implementation;
        // ..
}
```

.. Here, the programmer would have to write add(), remove(), and empty() to at some point invoke those functions on the implementation object.

****

continued on next page...

Given two Java classes, City and Municipality, and knowing that City inherits from Municipality, how would you write the start of the class definition of City, up to the opening brace?

First addition: create a TalkingQueue class that, in addition to performing add() and remove() functions, writes a line to diagnostic output stating what ocurred.

Second addition: create a PriorityQueue class that changes add() to take a second argument, a priority number. When remove() is called it is also changed to return the oldest element of the highest priority. This means that a PriorityQueue is not purely FIFO in behavior.

What action on, or use of, a class is in fact not allowed on abstract classes or interfaces? Show a statement that would generate an error, if used with an abstract class named Animal.

instantiation

If class Tornado inherits from class Storm, mark the following statements as true or false:

F There are more objects that conform to the type Tornado than there are that conform to the type Storm.

T Tornado instances probably have more fields (attributes) than Storm instances, and definitely not fewer.

T All methods declared in Storm can be called on instances of Tornado.

F All methods declared in Storm will perform the same way whether they are invoked on instances of Storm or of Tornado.

F Invoking a Tornado method on an object declared to be type Storm will cause a run time, rather than a compile time error.

Given two Java classes, City and Municipality, and knowing that City inherits from Municipality, how would you write the start of the class definition of City, up to the opening brace?

class City extends Municipality {

Assume we have available to us a class Queue with this interface:

```
public class Queue {

        /**
         * Add an element to the queue.
         *
         * @param element the element to be added
         */
        public void add( Object element ) {...}

        /**
         * Remove from the queue the element that was added
         * the longest time ago ("first in, first out" (FIFO)).
         *
         * @return oldest element contained in the queue
         */

        public Object remove() {...}

        /**
         * Test if the queue is empty.
         *
         * @return true if and only if there are no elements
         * left in the queue.
         */
        public boolean empty() {...}

        // ..
        // other things not part of the public interface
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For each of the additions mentioned below, would you recommend inheritance or aggregation to reuse the functionality of Queue?

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Using aggregation would mean doing

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class Whatever {
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.. Here, the programmer would have to write add(), remove(), and empty() to at some point invoke those functions on the implementation object.

****

continued on next page...

First addition: create a TalkingQueue class that, in addition to performing add() and remove() functions, writes a line to diagnostic output stating what ocurred. ← inherit

Second addition: create a PriorityQueue class that changes add() to take a second argument, a priority number. When remove() is called it is also changed to return the oldest element of the highest priority. This means that a PriorityQueue is not purely FIFO in behavior. ← aggregate