CS239

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Which of the following will cause an exception to be thrown in Java?

1. Forgetting to place a semicolon at the end of a line.
2. Attempting to access the fifth element in a four element array.
3. Beginning a class name with a lower-case letter.

Which of the following are Java keywords related to exception handling?

1. `attempt, except`
2. `try, catch`
3. `static, final`
4. `first, last`

In a `try ... catch ... finally` statement,

1. the `finally` block is always executed.
2. the `finally` block is only executed if an exception is raised that does not have a catch block.
3. the `finally` block is only executed if no exception is raised.

What's wrong with the following code?

```
/****************************************************
* Return the mean, or -1 if the array has length 0.
****************************************************/
public static double mean(double[] numbers)
    {
        double sum = 0;
        double result;

        if (numbers.length == 0)
        {
            result = -1;
        }
        else
        {
            for (int i = 0; i < numbers.length; i++)
            {
                sum += numbers[i];
            }
            result = sum / numbers.length;
        }
        return result;
    }
```

Why Exceptions?

One reason: Sometimes there is no return value that can be used to indicate an error has occurred.

Example...

Let's write a Java program that reads a text file containing simple mathematical expressions, and writes the results:

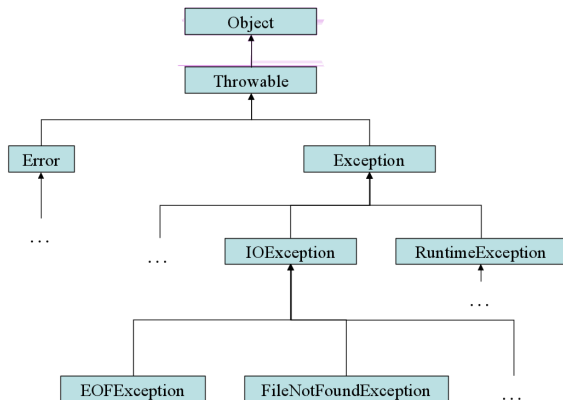- If the input file contains:

```
2 + 3
22 / 2
3 * 2
```

- Terminal output should be:

```
5
11
6
```

Exception Class Hierarchy

Clicker Question

```
1          fileName = "NONEXISTENTFILE.txt";
2          System.out.print("A ");
3          try
4          {
5              System.out.print("B ");
6              file = new File(fileName);
7              scanner = new Scanner(file);
8              System.out.print("C ");
9
10         }
11         catch (FileNotFoundException e)
12         {
13             System.out.print("D ");
14         }
15         finally
16         {
17             System.out.print("E ");
18         }
19         System.out.print("F ");
```

1. A B
2. A B D F
3. A B D E F
4. A B C D E F

Clicker Question

Characterize the following code, assuming `numbers` is an array of doubles. (There are no syntax errors.)

```
1           double sum = 0;
2           try
3           {
4               for (int i = 0; i <= numbers.length; i++)
5               {
6                   sum += numbers[i];
7               }
8           }
9           catch (ArrayIndexOutOfBoundsException e)
10          {
11              //Do nothing.
12          }
13          System.out.println(sum);
```

1 Correct result, appropriate use of exception handling.

2 Incorrect result, appropriate use of exception handling.

3 Correct result, inappropriate use of exception handling

4 Incorrect result, inappropriate use of exception handling.