Debugging: Part 1

Practice Quiz, 12 questions

<div>1 point</div>

1.

Your friend is trying to solve the following problem using Java:

Write a method that finds each occurrence of "abc_" in a String input (where _ is a single character) and prints "bc_" for each such occurrence. For example, **findAbc("abcdefabcghi")** should print:

```
1   bcd
2   bcg
```

You friend has just finished writing a solution and needs help testing it.

Create a new BlueJ project. Create a class and copy and paste the two methods (below) into it.

```
1   public void findAbc(String input) {
2       int index = input.indexOf("abc");
3       while (true) {
4           if (index == -1) {
5               break;
6           }
7           String found = input.substring(index+1, index+4);
8           System.out.println(found);
9           index = input.indexOf("abc", index+4);
10      }
11  }
12    public void test() {
13      //no code yet
14  }
```

Test method **findAbc()** by adding a line in the **test()** method:

```
1   findAbc("abcd");
```

Do this example by hand. What should the output be if the method is working correctly?

> Enter answer here

<div>1 point</div>

2.

Compile your class and run the **test()** method. What is the output?

> Enter answer here

Debugging: Part 1

Practice Quiz, 12 questions

So far so good! Comment out the line **findAbc("abcd")** and add a new line in the **test()** method:

```
1   findAbc("abcdabc");
```

What should the output be if the method is working correctly?

Enter answer here

1
point

4.

Compile and run your code. Which *two* of the following are results?

☐   "bcd" is printed.

☐   A StringIndexOutOfBoundsException is thrown.

☐   A blank line is printed.

☐   "Error" is printed.

1
point

5.

Which line of the program is causing the error?

○
```
1   int index = input.indexOf("abc");
```

○
```
1   if (index == -1) {
```

○
```
1   String found = input.substring(index+1, index+4);
```

○
```
1   index = input.indexOf("abc", index+4);
```

1
point

6. What is the index that is out of range?

Debugging: Part 1

Practice Quiz, 12 questions

| 1 |
| point |

7. What is the length of input for this method call?

Enter answer here

| 1 |
| point |

8.
At the time this error is produced, what are the values of index+1 and index+4? You may want to add print statements to your code and run it again to see what these values are.

Enter your answer as numbers separated by a comma: int1, int2. For example if index+1 were 1 and index+4 were 5, you would enter:

```
1   1,5
```

Enter answer here

| 1 |
| point |

9.
Why does the program throw an index out of bounds exception for this input?

○   The method **substring()** is trying to access index 8 but the String **input** is only 7 characters long.

○   The program finds the wrong index for the second occurrence of "abc".

○   The method **findAbc()** never works when the String **input** is longer than 6 characters.

○   The method **substring()** is trying to access index 5, but the value of the int **index** is 4.

| 1 |
| point |

10.

Imagine your friend wants to get help from Coursera classmates on the discussion forums.

Debugging: Part 1

Which one of the following would be the most helpful way to describe the problem so that others can easily help?

Practice Quiz, 12 questions

    ○   My method **findAbc()** has an index out of bounds exception.

    ○   My method **findAbc()** has an index out of bounds exception when I call it with input "abcdabc".

    ○   My method **findAbc()** has an index out of bounds exception when I call it with input "abcdabc". The exception is at the line

```
1   String found = input.substring(index+1, index+4);
```

    ○   My method **findAbc()** has an index out of bounds exception at the line

```
1   String found = input.substring(index+1, index+4);
```

when I call it with input "abcdabc". It prints "bcd" and then throws the exception. The index out of range is 8.

| 1 |
| point |

11.

Which of the following are examples of input that would also throw this exception? Check all that are correct.

    ☐   "aaaaabc"

    ☐   "woiehabchi"

    ☐   "eusabce"

    ☐   "yabcyabc"

    ☐   "abcbbbabcdddabc"

| 1 |
| point |

12.

Add an if statement, such that the while loop breaks if the index is out of bounds. Compile the code and run it again. It should now print "bcd" without throwing an exception. Try it on the examples you selected the previous question to make sure it works.

What are possible conditions for this if statement? (Choose all that are correct.)

    ☐