Assignment (2)

Chapter 9 Strings and Text IO

Dr. Essam Halim
Section 9.2 The String Class

1 Suppose s is a string with the value "java". What will be assigned to x if you execute the following code?

```java
char x = s.charAt(4);
```

- A. 'a'
- B. 'v'
- C. Nothing will be assigned to x, because the execution causes the runtime error StringIndexOutOfBoundsException.

2 Which of the following statements is preferred to create a string "Welcome to Java"?

- A. String s = "Welcome to Java";
- B. String s = new String("Welcome to Java");
- C. String s; s = "Welcome to Java";
- D. String s; s = new String("Welcome to Java");

3 What is the output of the following code?

```java
public class Test {
    public static void main(String[] args) {
        String s1 = "Welcome to Java!";
        String s2 = s1;

        if (s1 == s2)
            System.out.println("s1 and s2 reference to the same String object");
        else
            System.out.println("s1 and s2 reference to different String objects");
    }
}
```

- A. s1 and s2 reference to the same String object
- B. s1 and s2 reference to different String objects

4 What is the output of the following code?

```java
public class Test {
    public static void main(String[] args) {
        String s1 = "Welcome to Java!";
        String s2 = "Welcome to Java!";

        if (s1 == s2)
            System.out.println("s1 and s2 reference to the same String object");
        else
            System.out.println("s1 and s2 reference to different String objects");
    }
}
```

- A. s1 and s2 reference to the same String object
- B. s1 and s2 reference to different String objects
5 What is the output of the following code?

```java
class Test {
    public static void main(String[] args) {
        String s1 = new String("Welcome to Java!");
        String s2 = new String("Welcome to Java!");

        if (s1 == s2)
            System.out.println("s1 and s2 reference to the same String object");
        else
            System.out.println("s1 and s2 reference to different String objects");
    }
}
```

A. s1 and s2 reference to the same String object  
B. s1 and s2 reference to different String objects

6 Suppose s1 and s2 are two strings. What is the result of the following code?

```java
s1.equals(s2) == s2.equals(s1)
```

A. true  
B. false

7 What is the output of the following code?

```java
class Test {
    public static void main(String[] args) {
        String s1 = new String("Welcome to Java!");
        String s2 = new String("Welcome to Java!");

        if (s1.equals(s2))
            System.out.println("s1 and s2 have the same contents");
        else
            System.out.println("s1 and s2 have different contents");
    }
}
```

A. s1 and s2 have the same contents  
B. s1 and s2 have different contents

8 What is the output of the following code?

```java
class Test {
    public static void main(String[] args) {
        String s1 = new String("Welcome to Java!");
        String s2 = new String("Welcome to Java!");

        String s2 = s1.toUpperCase();

        if (s1 == s2)
            System.out.println("s1 and s2 reference to the same String object");
        else if (s1.equals(s2))
            System.out.println("s1 and s2 have the same contents");
        else
            System.out.println("s1 and s2 have different contents");
    }
}
```

A. s1 and s2 reference to the same String object  
B. s1 and s2 have the same contents  
C. s1 and s2 reference to different String objects  
D. s1 and s2 have different contents
9 What is the output of the following code?

```java
public class Test {
    public static void main(String[] args) {
        String s1 = new String("Welcome to Java");
        String s2 = s1;

        s1 += "and Welcome to HTML";

        if (s1 == s2)
            System.out.println("s1 and s2 reference to the same String object");
        else
            System.out.println("s1 and s2 reference to different String objects");
    }
}
```

- A. s1 and s2 reference to the same String object
- B. s1 and s2 have the same contents
- C. s1 and s2 have different contents

10 Suppose s1 and s2 are two strings. Which of the following statements or expressions are incorrect?

- A. String s = new String("new string");
- B. String s3 = s1 + s2
- C. s1 >= s2
- D. int i = s1.length
- E. s1.charAt(0) = '5'

11 Suppose s1 and s2 are two strings. Which of the following statements or expressions is incorrect?

- A. String s3 = s1 - s2;
- B. boolean b = s1.compareTo(s2);
- C. char c = s1[0];
- D. char c = s1.charAt(s1.length());

12 "abc".compareTo("aba") returns __________.

- A. 1
- B. 2
- C. -1
- D. -2
13 "AbA".compareToIgnoreCase("abC") returns _________.
   A. 1
   B. 2
   C. -1
   D. -2
   E. 0

14 ____________________ returns true.
   A. "peter".compareToIgnoreCase("Peter")
   B. "peter".compareToIgnoreCase("peter")
   C. "peter".equalsIgnoreCase("Peter")
   D. "peter".equalsIgnoreCase("peter")
   E. "peter".equals("peter")

15 What is the output of the following code?
   String s = "University";
   s.replace("i", "ABC");
   System.out.println(s);
   A. UnABCversity
   B. UnABCversABCty
   C. UniversABCty
   D. University

16 What is the return value of "SELECT".substring(0, 5)?
   A. "SELECT"
   B. "SELEC"
   C. "SELE"
   D. "ELECT"

17 What is the return value of "SELECT".substring(4, 4)?
   A. an empty string
   B. C
   C. T
   D. E
18 Analyze the following code.

class Test {
    public static void main(String[] args) {
        String s;
        System.out.println("s is " + s);
    }
}

- A. The program has a compilation error because s is not initialized, but it is referenced in the println statement.
- B. The program has a runtime error because s is not initialized, but it is referenced in the println statement.
- C. The program has a runtime error because s is null in the println statement.
- D. The program compiles and runs fine.

19 To check if a string s contains the prefix "Java", you may write

- A. if (s.startsWith("Java")) ...
- B. if (s.indexOf("Java") == 0) ...
- C. if (s.substring(0, 4).equals("Java")) ...
- D. if (s.charAt(0) == 'J' & & s.charAt(1) == 'a' & & s.charAt(2) == 'v' & & s.charAt(3) == 'a') ...

20 To check if a string s contains the suffix "Java", you may write

- A. if (s.endsWith("Java")) ...
- B. if (s.lastIndexOf("Java") >= 0) ...
- C. if (s.substring(s.length() - 4).equals("Java")) ...
- D. if (s.substring(s.length() - 5).equals("Java")) ...
- E. if (s.charAt(s.length() - 4) == 'J' & & s.charAt(s.length() - 3) == 'a' & & s.charAt(s.length() - 2) == 'v' & & s.charAt(s.length() - 1) == 'a') ...

21 Which of the following is the correct statement to return JAVA?

- A. toUpperCase("Java")
- B. "Java".toUpperCase("Java")
- C. "Java".toUpperCase()
- D. String.toUpperCase("Java")

22 Which of the following is the correct statement to return a string from an array a of characters?

- A. toString(a)
- B. new String(a)
- C. convertToString(a)
23 Assume s is " abc ", the method __________ returns a new string "abc".
   A. s.trim(s)
   B. trim(s)
   C. String.trim(s)
   D. s.trim()

24 Assume s is "ABCABC", the method __________ returns a new string "aBCaBC".
   A. s.toLowerCase(s)
   B. s.toLowerCase()
   C. s.replace('A', 'a')
   D. s.replace('a', 'A')
   E. s.replace("ABCABC", "aBCaBC")

25 Assume s is "ABCABC", the method __________ returns an array of characters.
   A. toChars(s)
   B. s.toCharArray()
   C. String.toChars()
   D. String.toCharArray()
   E. s.toChars()

26 __________ returns a string.
   A. String.valueOf(123)
   B. String.valueOf(12.53)
   C. String.valueOf(false)
   D. String.valueOf(new char[]{'a', 'b', 'c'})

27 The following program displays __________.

```java
public class Test {
    public static void main(String[] args) {
        String s = "Java";
        StringBuilder buffer = new StringBuilder(s);
        change(s);
        System.out.println(s);
    }

    private static void change(String s) {
        s = s + " and HTML";
    }
}
```
28 What is displayed by the following statement?
System.out.println("Java is neat".replaceAll("is", "AAA");

- A. Java
- B. Java and HTML
- C. and HTML
- D. nothing is displayed

29 What is displayed by the following code?
public static void main(String[] args) {
    String[] tokens = "Welcome to Java".split("o");
    for (int i = 0; i < tokens.length; i++) {
        System.out.print(tokens[i] + " ");
    }
}

- A. Welcome to Java
- B. Welc me to Java
- C. Welc me t Java
- D. Welcome t Java

30 What is displayed by the following code?
System.out.print("Hi, ABC, good".matches("ABC ") + " ");
System.out.println("Hi, ABC, good".matches(".*ABC.*");

- A. false fasle
- B. true fasle
- C. true true
- D. false true

31 What is displayed by the following code?
System.out.print("A,B;C".replaceAll(";", ";#") + " ");
System.out.println("A,B;C".replaceAll("[.;], ";#"));

- A. A B C A#B#C
- B. A#B#C A#B#C
- C. A,B;C A#B#C
- D. A B C A B C
32 What is displayed by the following code?

```java
String[] tokens = "A,B;C;D".split("[,;]");
for (int i = 0; i < tokens.length; i++)
System.out.print(tokens[i] + " ");
```

- A. A,B;C;D
- B. A B C D
- C. A B C;D
- D. A B;C;D

Section 9.3 The Character Class

33 Which of the following is not a correct method in Character?

- A. isLetterOrDigit(char)
- B. isLetter(char)
- C. isDigit()
- D. toLowerCase(char)
- E. toUpperCase()

34 Suppose Character x = new Character('a'), _______________ returns true.

- A. x.equals(new Character('a'))
- B. x.compareToIgnoreCase('A')
- C. x.equalsIgnoreCase('A')
- D. x.equals('a')
- E. x.equals("a")

Section 9.4 The StringBuilder/StringBuffer Class

35 Analyze the following code.

```java
class Test {
    public static void main(String[] args) {
        StringBuilder strBuf = new StringBuilder(4);
        strBuf.append("ABCDE");
        System.out.println("What's strBuf.charAt(5)? " + strBuf.charAt(5));
    }
}
```

- A. The program has a compilation error because you cannot specify initial capacity in the StringBuilder constructor.
- B. The program has a runtime error because because the buffer's capacity is 4, but five characters "ABCDE" are appended into the buffer.
- C. The program has a runtime error because the length of the string in the buffer is 5 after "ABCDE" is appended into the buffer. Therefore, strBuf.charAt(5) is out of range.
36 Which of the following is true?

- A. You can add characters into a string buffer.
- B. You can delete characters into a string buffer.
- C. You can reverse the characters in a string buffer.
- D. The capacity of a string buffer can be automatically adjusted.

37 _______ returns the last character in a StringBuilder variable named strBuf?

- A. strBuf.charAt(strBuf.length() - 1)
- B. strBuf.charAt(strBuf.capacity() - 1)
- C. StringBuilder.charAt(strBuf.length() - 1)
- D. StringBuilder.charAt(strBuf.capacity() - 1)

38 Assume StringBuilder strBuf is "ABCDEFG", after invoking ________, strBuf contains "AEFG".

- A. strBuf.delete(0, 3)
- B. strBuf.delete(1, 3)
- C. strBuf.delete(1, 4)
- D. strBuf.delete(2, 4)

39 Assume StringBuilder strBuf is "ABCDEFG", after invoking ________, strBuf contains "ABCRRRRDEFG".

- A. strBuf.insert(1, "RRRR")
- B. strBuf.insert(2, "RRRR")
- C. strBuf.insert(3, "RRRR")
- D. strBuf.insert(4, "RRRR")

40 Assume StringBuilder strBuf is "ABCCEFC", after invoking ________, strBuf contains "ABTTEFT".

- A. strBuf.replace('C', 'T')
- B. strBuf.replace("C", "T")
- C. strBuf.replace("CC", "TT")
- D. strBuf.replace('C', "TT")
- E. strBuf.replace(2, 7, "TTEFT")

41 The StringBuilder methods ___________ not only change the contents of a string buffer, but also returns a reference to the string buffer.

- A. delete
- B. append
42 The following program displays __________.

```java
public class Test {
    public static void main(String[] args) {
        String s = "Java";
        StringBuilder buffer = new StringBuilder(s);
        change(buffer);
        System.out.println(buffer);
    }

    private static void change(StringBuilder buffer) {
        buffer.append(" and HTML");
    }
}
```

- A. Java
- B. Java and HTML
- C. and HTML
- D. nothing is displayed

**Section 9.5 Command-Line Arguments**

43 How can you get the word "abc" in the main method from the following call?

```bash
java Test "+" 3 "abc" 2
```

- A. args[0]
- B. args[1]
- C. args[2]
- D. args[3]

44 Given the following program:

```java
public class Test {
    public static void main(String[] args) {
        for (int i = 0; i < args.length; i++) {
            System.out.print(args[i] + " ");
        }
    }
}
```

What is the output, if you run the program using

```bash
java Test 1 2 3
```
45 Which code fragment would correctly identify the number of arguments passed via the command line to a Java application, excluding the name of the class that is being invoked?

- A. int count = args.length;
- B. int count = args.length - 1;
- C. int count = 0; while (args[count] != null) count ++;
- D. int count=0; while (!(args[count].equals("")) count ++;

46 Which correctly creates an array of five empty Strings?

- A. String[] a = new String [5];
- B. String[] a = {"", ",", ",", ","};
- C. String[5] a;
- D. String[ ] a = new String [5]; for (int i = 0; i < 5; a[i++] = null);

47 Identify the problems in the following code.

```java
public class Test {
    public static void main(String argv[]) {
        System.out.println("argv.length is " + argv.length);
    }
}
```

- A. The program has a compile error because String argv[] is wrong and it should be replaced by String[] args.
- B. The program has a compile error because String args[] is wrong and it should be replaced by String args[].
- C. If you run this program without passing any arguments, the program would have a runtime error because argv is null.
- D. If you run this program without passing any arguments, the program would display argv.length is 0.

48 Which of the following is the correct header of the main method?

- A. public static void main(String[] args)
- B. public static void main(String args[])
- C. public static void main(String[] x)
- D. public static void main(String x[])
- E. static void main(String[] args)

Section 9.6 The File Class

49 What are the reasons to create an instance of the File class?
A. To determine whether the file exists.
B. To obtain the properties of the file such as whether the file can be read, written, or is hidden.
C. To rename the file.
D. To delete the file.
E. To read/write data from/to a file

50 Which of the following returns the path separator character?
- A. File.pathSeparator
- B. File.pathSeparatorChar
- C. File.separator
- D. File.separatorChar
- E. None of the above.

51 Which of the following statements creates an instance of File on Window for the file c:\temp.txt?
- A. new File("c:\temp.txt")
- B. new File("c:\temp.txt")
- C. new File("c:/temp.txt")
- D. new File("c://temp.txt")

52 Which of the following statements are true?
- A. If a file (e.g., c:\temp.txt) does not exist, new File("c:\temp.txt") returns null.
- B. If a directory (e.g., c:\liang) does not exist, new File("c:\liang") returns null.
- C. If a file (e.g., c:\temp.txt) does not exist, new File("c:\temp.txt") creates a new file named c:\temp.txt.
- D. If a directory (e.g., c:\liang) does not exist, new File("c:\liang") creates a new directory named c:\liang.
- E. None of the above.

53 Which class contains the method for checking whether a file exists?
- A. File
- B. PrintWriter
- C. Scanner
- D. System

54 Which class do you use to write data into a text file?
- A. File
- B. PrintWriter
55 Which class do you use to read data from a text file?
- A. File
- B. PrintWriter
- C. Scanner
- D. System

56 Which method can be used to write data?
- A. close
- B. print
- C. exist
- D. rename

57 Which method can be used to read a whole line from the file?
- A. next
- B. nextLine
- C. nextInt
- D. nextDouble

58 Which method can be used to create an input object for file temp.txt?
- A. new Scanner("temp.txt")
- B. new Scanner(temp.txt)
- C. new Scanner(new File("temp.txt"))
- D. new Scanner(File("temp.txt"))

59 Suppose you enter 34.3 57.8 789, then press the ENTER key. Analyze the following code.
Scanner input = new Scanner(System.in);
int v1 = input.nextInt();
int v2 = input.nextInt();
String line = input.nextLine();

- A. After the last statement is executed, intValue is 34.
- B. The program has a runtime error because 34.3 is not an integer.
- C. After the last statement is executed, line contains characters '7', '8', '9', 'n'.
- D. After the last statement is executed, line contains characters '7', '8', '9'.
60 Suppose you enter 34.3 57.8 789, then press the ENTER key. Analyze the following code.
Scanner input = new Scanner(System.in);
double v1 = input.nextDouble();
double v2 = input.nextDouble();
String line = input.nextLine();

☐ A. After the last statement is executed, intValue is 34.
☐ B. The program has a runtime error because 34.3 is not an integer.
☐ C. After the last statement is executed, line contains characters '7', '8', '9', '

61 Suppose you enter 34.3, the ENTER key, 57.8, the ENTER key. Analyze the following code.
Scanner input = new Scanner(System.in);
double v1 = input.nextDouble();
double v2 = input.nextDouble();
String line = input.nextLine();

☐ A. After the last statement is executed, intValue is 34.
☐ B. The program has a runtime error because 34.3 is not an integer.
☐ C. After the last statement is executed, line contains characters '7', '8', '9', '

62 Which method can be used to create an output object for file temp.txt?
☐ A. new PrintWriter("temp.txt")
☐ B. new PrintWriter(temp.txt)
☐ C. new PrintWriter(new File("temp.txt"))
☐ D. new PrintWriter(File("temp.txt"))

<table>
<thead>
<tr>
<th>Q#</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Key</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>Key</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td>32</td>
</tr>
<tr>
<td>Key</td>
<td>33</td>
<td>34</td>
<td>35</td>
<td>36</td>
<td>37</td>
<td>38</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>Key</td>
<td>41</td>
<td>42</td>
<td>43</td>
<td>44</td>
<td>45</td>
<td>46</td>
<td>47</td>
<td>48</td>
</tr>
<tr>
<td>Key</td>
<td>49</td>
<td>50</td>
<td>51</td>
<td>52</td>
<td>53</td>
<td>55</td>
<td>55</td>
<td>56</td>
</tr>
<tr>
<td>Key</td>
<td>57</td>
<td>58</td>
<td>59</td>
<td>60</td>
<td>61</td>
<td>62</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>