Java Programming Interview Questions for QA/SDET

Part -1

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Question 1: Write a program to find duplicate characters in a given String.

The Input is: hackerearth
Output should be: h a e r

```java
package string;

/**
 * This class finds duplicate characters in a given string.
 *
 * @author Bhavin.Thumar
 */

public class FindDuplicateStringCharacter {

	/**
	 * Finds duplicate characters in a given string and prints them. If no
	 * duplicates are found, it prints a message.
	 *
	 * @param args The command-line arguments.
	 */
	public static void main(String[] args) {
		String s = "hackerearth".toLowerCase();
		char[] character = s.toCharArray();

		boolean isNotDuplicate = false;

		for (int i = 0; i < s.length(); i++) {
			boolean isDuplicate = false;

			for (int j = i + 1; j < s.length(); j++) {
				if (character[i] == character[j]) {
					isDuplicate = true;
					break;
				}
			}

			if (isDuplicate) {
				System.out.println(character[i]);
				isNotDuplicate = true;
			}
		}

		if (!isNotDuplicate) {
			System.out.println("No duplicates are found!");
		}
	}
}
```

Question 2: Write a program to remove duplicate characters in a given String.

The Input is: hackerearth
Output should be: hackert

```java
package string;

import java.util.LinkedHashSet;

/**
 * This class is remove duplicate characters from a string.
 *
 * @author Bhavin.Thumar
 */

public class RemoveDuplicateChar {

    /**
     * Removes duplicate characters from the input string.
     *
     * @param inputString The input string from which duplicates are to be removed.
     * @return A string with duplicate characters removed.
     */
    public static String removeDuplicates(String inputString) {
        String lowercaseString = inputString.toLowerCase();
        char[] characters = lowercaseString.toCharArray();
        LinkedHashSet<Character> uniqueCharacters = new LinkedHashSet<>();

        for (char character : characters) {
            if (!uniqueCharacters.contains(character)) {
                uniqueCharacters.add(character);
            }
        }

        StringBuilder resultBuilder = new StringBuilder();

        for (char character : uniqueCharacters) {
            resultBuilder.append(character);
        }

        return resultBuilder.toString();
    }

    public static void main(String[] args) {
        String inputString = "hackerearth";
        String result = removeDuplicates(inputString);
        System.out.println(result);
    }
}
```

Question 3: Write a program to reverse a given string.

The Input is: This is a string
Output should be: gnirts a si sihT

```java
package string;

/**
 * This class print string in a reverse.
 *
 * @author Bhavin.Thumar
 */
public class ReverseString {

	/**
	 * Reverses the input string.
	 *
	 * @param input The input string to be reversed.
	 * @return The reversed string.
	 */
	public static String reverse(String input) {
		String reversedString = "";

		for (int i = input.length() - 1; i >= 0; i--) {
			reversedString += input.charAt(i);
		}

		return reversedString;
	}

	public static void main(String[] args) {
		String inputString = "This is a string";
		String reversedString = reverse(inputString);
		System.out.println(reversedString);
	}
}
```

Question 4: Write a program to calculate the count of non-space characters in a string.

The Input is: This is a string
Output should be: 13

```java
package string;

/**
 * This class is calculate the count of non-space characters in a string.
 *
 * @author Bhavin.Thumar
 */
public class StringCount {

	/**
	 * Calculates the count of non-space characters in the given string.
	 */
	public static void main(String[] args) {

		String a = "This is a string";
		int count = 0;

		for (int i = 0; i < a.length(); i++) {

			if (a.charAt(i) != ' ') {
				count++;
			}
		}
		System.out.println(count);
	}
}
```

Question 5: Write a program to swap the two strings using substring.

The Input is: Hello world
Output should be: World Hello

```
package string;

/**
 * This class is swap the two strings using substring.
 *
 * @author Bhavin.Thumar
 */
public class SwapStrings1 {

    /**
     * Swaps the contents of two strings using the substring method.
     */
        public static void main(String[] args) {

                String string1 = "Hello";
                String string2  = "World";

                string1 = string1 + string2;
                string2 = string1.substring(0, string1.length() - string2.length());
                string1 = string1.substring(string2.length());

                System.out.println(string1);
                System.out.println(string2);
        }
}
```

Question 6: Write a program to swap the two strings using temp variable.

The Input is: Hello world
Output should be: World Hello

```
package string;

/**
 * This class is swap the two strings using temp variable.
 *
 * @author Bhavin.Thumar
 */
public class SwapStringsUsingTempVariable {

    /**
     * Swaps the contents of two strings using the temp variable.
     */
        public static void main(String[] args) {
                String string1 = "Hello";
                String string2 = "World";
                String temp;

                temp = string1;
                string1 = string2;
                string2 = temp;

                System.out.println(string1);
                System.out.println(string2);
        }
}
```

Question 7: Write a program to swap the two strings using StringBuilder class.

The Input is: Hello world
Output should be: World Hello

```java
package string;

/**
 * This class is swap the two strings using StringBuilder class.
 *
 * @author Bhavin.Thumar
 */
public class SwapStringsUsingStringBuilder {

	/**
	 * Swaps the contents of two strings using the StringBuilder class.
	 */
	public static void main(String[] args) {

		String firstString = "Hello";
		String secondString = "World";

		StringBuilder sb = new StringBuilder(firstString);
		sb.append(secondString);

		secondString = sb.substring(0, firstString.length());
		firstString = sb.substring(secondString.length());

		System.out.println(firstString);
		System.out.println(secondString);
	}
}
```

Question 8: Write a program to swap the two numbers using the substring method.

The Input is: 10 20
Output should be: 20 10

```
package coding;

/**
 * This class is swap the two number using substring.
 *
 * @author Bhavin.Thumar
 */
public class SwapTwoNumber {

        /**
         * Swaps of two number using the substring method.
         */
        public static void main(String[] args) {

                int firstNumber = 10;
                int secondNumber = 20;

                firstNumber = firstNumber + secondNumber;
                secondNumber = firstNumber - secondNumber;
                firstNumber = firstNumber - secondNumber;

                System.out.println(firstNumber);
                System.out.println(secondNumber);
        }
}
```