קורס:מבוא למדעי המחשב בשפת java

סטודנטית 1: דליה ויליאם

סטודנט 2: גיא רחמים

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//Dalya Wiliam & Guy Rahamim
public class Assignment10
	{
		public static void main(String[] args)
			{
			//------------------------Question 1----------------------//
				System.out.println("Exe.1");
			String str1="I love programming. I love Java.";
			String sub1= "love";
			System.out.println("Example 1:\n " +"the string is: " + str1+"\nThe sub string
is: "+ sub1 + "\nAnd the index is: "  +(searchForSub(str1,sub1)));
			System.out.println("\n");
			String str2="fast breakfast";
			String sub2= "fast";
			System.out.println("Example 2:\n " +"the string is: " + str2+"\nThe sub string
is: "+ sub2 + "\nAnd the index is: "  +(searchForSub(str2,sub2)));


			//----------------------------Question 2 ----------------------//
			//Example 1
			System.out.println("\n\nExe.2");
			String[] strArr1= {"Hello", "Hello Guy", "Oh, Hello Guy, how are you?"} ;
			System.out.println("Example 1:\nThe contents of the string array is: ");
			printStringArray(strArr1);
			System.out.println("\nThe answer is: "+checkForContSub(strArr1));

			//Example 2
			String[] strArr2= {"h", "he", "hel", "hell", "hello", "hello", "mello there"};
			System.out.println("\nExmple 2:\nThe content of the string array is: ");
			printStringArray(strArr2);
			System.out.println("\nThe answer is: " + checkForContSub(strArr2));

			//---------------------------Question 3----------------------//
			System.out.println("\n\nExe.3");

			//example 1
			String countedString = "Please count how many a's are present.";
			char charToCount = 'a';

			//example 2
			System.out.println("the string is: " +countedString + "\nThe character is: "
+charToCount);
			System.out.println("and the answer is: " +countTheChar(countedString,
charToCount));

			//---------------------------Question 4 ----------------------//
			System.out.println("\n\nExe.4");

			//example 1
			String stringToCheck1="madam";
			System.out.println("Example 1:\nThe string is: " + stringToCheck1);
			System.out.println("the function returns: "
+classifyThePalindrom(stringToCheck1)+ "\n");

			//example 2
			String stringToCheck2="abba";
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                        System.out.println("Example 2:\nThe string is: " + stringToCheck2);
                        System.out.println("the funtion returns: " +classifyThePalindrom(stringToCheck2)+
"\n");

                        //example 3
                        String stringToCheck3="hello";
                        System.out.println("Example 3:\nThe string is: " + stringToCheck3);
                        System.out.println("the function returns: "
+classifyThePalindrom(stringToCheck3));
                        }

                //----------------------Functions---------------------//

                //-----------------------------Exe.1--------------------//
                //the function searches for a sub as a substring in str,
                //and returns the index of the first char of sub's last
                //appearence in str.
                public static int searchForSub(String str, String sub)
                {
                        int index=-1;
                        for (int i=str.length()-sub.length(); i>=0;i--)
                                {
                                        if (sub.equals(str.substring(i, i+sub.length())))
                                                {

                                                        return i;
                                                }
                                }
                        return index;
                }

                //-----------------------------Exe.2--------------------//
                //the function takes a string array and checks if each cell
                //of the array is a sub string of the next cell.
                public static boolean checkForContSub (String[] strArr)
                {
                        for (int i=1; i<strArr.length ; i++)
                                {
                                        if (!(searchSub(strArr[i],strArr[i-1])))
                                                                {
                                                                        return false;
                                                                }
                                }
                        return true;
                }

                //----------------------helper for Exe.2--------------------//
                //a helper function for question 2 that check if sub is a substring
                //of str.
                public static boolean searchSub(String str, String sub)
                {
                        //boolean isSub=false;
                        for (int i=0; i<=str.length()-sub.length();i++)
                                {
                                        if (sub.equals(str.substring(i, i+sub.length())))
                                                {
                                                return true;
                                                }
                                }
                        return false;
                }

                //-----------------------------Exe.3--------------------//

                //a function that takes a string and a character and counts how many
                //times the character appears in the string.
                public static int countTheChar (String str, char charToCount)
                {
                        int counter=0;
```

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		for (int i=0; i<str.length();i++)
			{
				if (str.charAt(i)==charToCount)
					counter++;
			}
		return counter;
	}

	//----------------------------Exe.4-------------------//
	//a function takes a string and checks if its a palindrom.
	//if it is, it checks what type of palindrom it is (odd or even numbered).
	public static int classifyThePalindrom(String str)
	{
		for (int i=0; i<str.length()/2; i++)
			{
				if (str.charAt(i)!=str.charAt(str.length()-1-i))
					return -1;
			}
		if (str.length()%2!=0)
			return 1;
		return 0;
	}

	//a helper function that prints 1 dimensional string arrays.
	public static void printStringArray(String[] strArr)
	{
		for (int i = 0; i < strArr.length; i++)
			{
				System.out.print(strArr[i]+ "\t");
			}
	}

}
```

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Exe.1
Example 1:
 the string is: I love programming. I love Java.
The sub string is: love
And the index is: 22


Example 2:
 the string is: fast breakfast
The sub string is: fast
And the index is: 10


Exe.2
Example 1:
The contents of the string array is:
Hello   Hello Guy       Oh, Hello Guy, how are you?
The answer is: true

Exmple 2:
The content of the string array is:
h       he      hel     hell    hello   hello   mello there
The answer is: false


Exe.3
the string is: Please count how many a's are present.
The character is: a
and the answer is: 4


Exe.4
Example 1:
The string is: madam
the function returns: 1

Example 2:
The string is: abba
the funtion returns: 0

Example 3:
The string is: hello
the function returns: -1
```