LOVELY
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School of Computer Application

I-Assignment
On
Java (CAP-680)
Session 2022-2024

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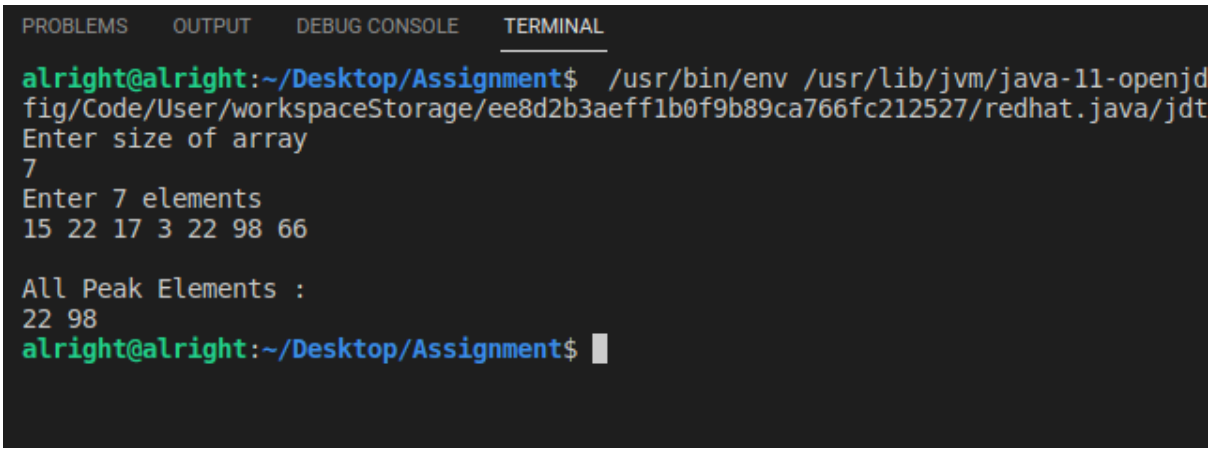
Q1) Mr. Sam used to teach students in groups. He evaluates the student by taking tests. Once he took the test and stored the marks and asked the student to tell the peak marks obtained by the student.

```
import java.util.Scanner;

public class que_I

{

   public static void main(String[] args)

   {

       try (Scanner scan = new Scanner(System.in)) {

           System.out.println("Enter size of array");

           int N = scan.nextInt();

           int[] arr = new int[N + 2];

           arr[0] = Integer.MIN_VALUE;

           arr[N + 1] = Integer.MIN_VALUE;



           System.out.println("Enter "+ N +" elements");

           for (int i = 1; i <= N; i++)

               arr[i] = scan.nextInt();

           System.out.println("\nAll Peak Elements : ");

           for (int i = 1; i <= N; i++)

               if (arr[i - 1] <= arr[i] && arr[i] >= arr[i + 1])

                   System.out.print(arr[i]+" ");

       }

       System.out.println();

   }

}
```

Output:



Q2) A class has 30 students .These students are divided into 3 groups of 10 each. The viva-marks of each student are stored in each group. The teacher wants the zero marks obtained in groups to be placed at the end of each group. The constraint is that the marks should be between 0 to 20.Help the teacher in obtaining the task.

```
import java.util.Scanner;



class que_II {



   static void g1(int arr1[], int n) {

       int count = 0;



       for (int i = 0; i < n; i++)

           if (arr1[i] != 0)

               arr1[count++] = arr1[i];



       while (count < n)

           arr1[count++] = 0;

   }



   static void g2(int arr2[], int n) {
```

```
    int count = 0;


    for (int i = 0; i < n; i++)
        if (arr2[i] != 0)
            arr2[count++] = arr2[i];


    while (count < n)
        arr2[count++] = 0;
}


static void g3(int arr3[], int n3) {
    int count = 0;


    for (int i = 0; i < n3; i++)
        if (arr3[i] != 0)
            arr3[count++] = arr3[i];


    while (count < n3)
        arr3[count++] = 0;
}


/* Driver function to check for above functions */
public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter array size: ");
    int n = sc.nextInt();
```

```
        int arr1[] = new int[n];

        int arr2[] = new int[n];

        int arr3[] = new int[n];

        System.out.println("Enter group 1 marks:");

        for (int i = 0; i < n; i++) {

            arr1[i] = sc.nextInt();

        }

        System.out.println("Enter group 2 marks: ");

        for (int i = 0; i < n; i++) {

            arr2[i] = sc.nextInt();

        }

        System.out.println("Enter group 3 marks: ");

        for (int i = 0; i < n; i++) {

            arr3[i] = sc.nextInt();

        }

        // function calling...

        g1(arr1, n);

        g1(arr2, n);

        g1(arr3, n);

        System.out.print("Group 1: ");

        for (int i = 0; i < n; i++) {

            System.out.print(arr1[i] + " ");

        }



        System.out.print("\nGroup 2: ");

        for (int i = 0; i < n; i++) {

            System.out.print(arr2[i] + " ");
```

```
        }

        System.out.print("\nGroup 3: ");

        for (int i = 0; i < n; i++) {

            System.out.print(arr3[i] + " ");

        }

        sc.close();

    }

}
```

Output:

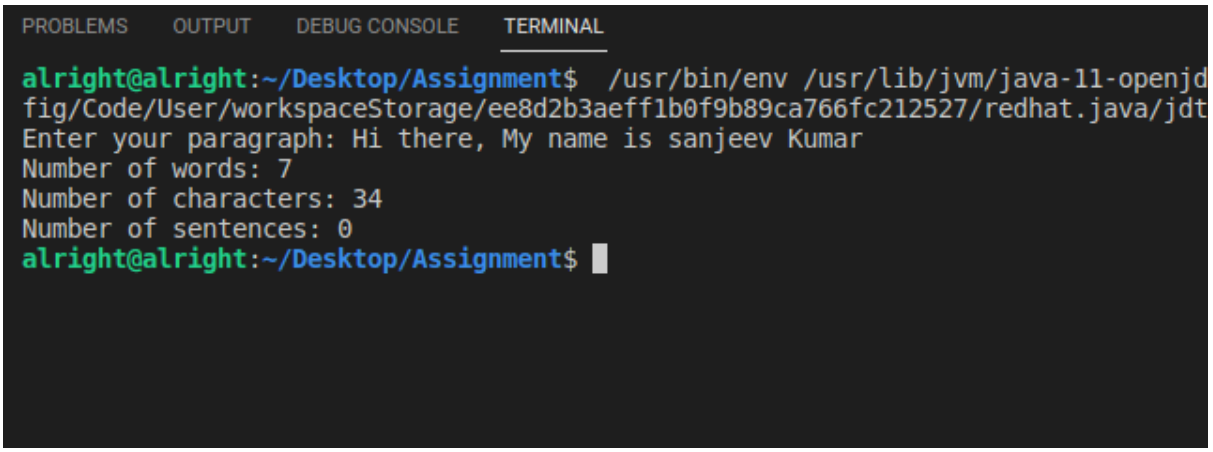
```
Open folder in new window (ctrl + click)   TERMINAL
alright@alright:~/Desktop/Assignment$  /usr/bin/env /usr/lib/jvm/java-11-openjd
orkspaceStorage/ee8d2b3aeff1b0f9b89ca766fc212527/redhat.java/jdt_ws/Assignment_
Enter array size: 10
Enter group 1 marks:
15 0 17 0 18 0 3 11 18 20
Enter group 2 marks:
9 10 4 0  8 12 0 0 18 17
Enter group 3 marks:
16 6 2 10 0 0 0 11 5 9
Group 1: 15 17 18 3 11 18 20 0 0 0
Group 2: 9 10 4 8 12 18 17 0 0 0
Group 3: 16 6 2 10 11 5 9 0 0 0 alright@alright:~/Desktop/Assignment$
```

Q3) A paragraph writing competition was organised in a school. The limitation is that paragraphs will contain only a maximum of 10 sentences. The judge team wanted to know the number of words, number of characters and number of sentences that had been entered by the best performing student .As a programmer you are assigned to assist the team in achieving this goal. Make an effective program to achieve it by taking suitable assumptions if any.

```
import java.util.Scanner;



public class que_III {

    public static void main(String[] args) {
```

```java
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter your paragraph: ");
        String paragraph = scanner.nextLine();

        String[] words = paragraph.split("\\s+");
        int wordCount = words.length;

        int characterCount = paragraph.length();

        int sentenceCount = 0;
        for (int i = 0; i < paragraph.length(); i++) {
            char c = paragraph.charAt(i);
            if (c == '.' || c == '?' || c == '!') {
                sentenceCount++;
            }
        }

        // Print the results
        System.out.println("Number of words: " + wordCount);
        System.out.println("Number of characters: " + characterCount);
        System.out.println("Number of sentences: " + sentenceCount);
        scanner.close();
    }

}
```

Output:



Q4) In an organisation the information of employees are organised in hierarchical manner i.e. class “Salary” inherit class “Employee” and interface “Allowance”. Class “Result” inherits class “Salary”.

Each class and interface has the following attribute (member data)
(a)Employee: empcode (b) Salary: basicsalary (c) Allowance: da, hra , ta
(b)Result: netsalary
Where netsalary =basicsalary+hra+da+ta
Display the netsalary along with employee code of “n” employees .Use proper method as per the requirement.
Hra=House rent allowance Da=dearness allowance ta=traveling allowance.

```
class employee {

   void empcode(int id, String name) {

        System.out.println("ID: " + id);

        System.out.println("Name: " + name);

   }

}



interface allowrance {

   void m1(int hra);
```

```
    void m2(int da);


    void m3(int ta);
}


class salary implements allowrance {
    @Override
    public void m1(int hra) {


    }


    @Override
    public void m2(int da) {


    }


    @Override
    public void m3(int ta) {


    }


}


class result extends salary {
    void netsalry(int basicsalary, int hra, int da, int ta) {
        int netsalry = basicsalary + hra + da + ta;
        System.out.println("Netsalary " + netsalry);
```

```
    }
}


public class qu_IV {
    public static void main(String[] args) {
        employee em = new employee();
        em.empcode(12220131, "Sanjeev Kumar");
        result rc = new result();
        rc.netsalry(20000, 500, 1000, 2000);

    }
}
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
alright@alright:~/Desktop/Assignment$  /usr/bin/env /usr/lib/jvm/java-11-ope
f1b0f9b89ca766fc212527/redhat.java/jdt_ws/Assignment_15fd99ff/bin qu_IV
ID: 12220131
Name: Sanjeev Kumar
Netsalary 23500
alright@alright:~/Desktop/Assignment$
```

Q5) A play was organised, in which two words were given and asked whether the second word derived from the first word just by arranging the characters of the first word. Make a suitable program to achieve this task.

```
import java.util.*;



public class qu_v {

   public static void main(String[] args) {

       // Get the two words from the user

       Scanner scanner = new Scanner(System.in);

       System.out.print("Enter the first word: ");

       String word1 = scanner.nextLine();

       System.out.print("Enter the second word: ");

       String word2 = scanner.nextLine();



       // Check if the second word is an anagram of the first word

       if (word1.length() == word2.length()) {

           char[] arr1 = word1.toCharArray();

           char[] arr2 = word2.toCharArray();

           Arrays.sort(arr1);

           Arrays.sort(arr2);

           if (Arrays.equals(arr1, arr2)) {

               System.out.println("The second word is derived from the first
word.");

           } else {

               System.out.println("The second word is not derived from the
first word.");

           }

       } else {
```

```
                System.out.println("The second word is not derived from
the first word.");

        }

        scanner.close();

    }

}
```

Output: