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Roll Number : 19BCE233

Course : Object Oriented Programming

Course Code : 2CS302

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Comprehensive Definition :

Develop the Java program for the rain fall portal as mentioned below:

- Consider data for rain fall portal as mentioned below:

District	Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total
Ahmedabad	2004	0	0	0	0	2.4	61.2	222.6	454.2	45.4	34	0.1	0	819.9
Ahmedabad	2005	0	0	0	0	0	393.2	301	223.3	341.4	0	0	0	1258.9
Ahmedabad	2006	0	0	0.4	0	0	84.9	433	268	108.5	0	0	0	894.8
Ahmedabad	2007	0	0.1	0	0	0.4	95.3	381.2	310	103.2	0	0	0	890.2
Ahmedabad	2008	0	0	0	0.7	0	26.7	221.9	233.6	273.5	8.4	0	2	766.8
Ahmedabad	2009	0	0	0	0	0	4.7	265.5	103.2	8.8	4.9	0	0	387.1
Ahmedabad	2010	0.2	0	0	0	0	46.7	335.9	421	241.7	0.9	50.7	0.2	1097.3
Amreli	2004	0	0	0	0	12	88.4	159.7	223.1	61.8	21.3	0.2	0	566.5
Amreli	2005	0	0	0	0	0.3	558.2	150.7	45.2	405.8	5	0	0	1165.2
Amreli	2006	0	0	1.5	0	0	181.2	479.3	77.6	80.7	3.7	1	0	825.0
Amreli	2007	0	0.4	0	0	0	118.2	278.8	306.4	338.4	0.1	2.8	0	1045.1
Amreli	2008	0	0	0	4.2	0	72.1	237	90.7	300.6	23.8	0	0	728.4
Amreli	2009	0	0	0	0	0	56.4	360.4	70.8	16.9	5.2	3.2	0.2	513.1
Amreli	2010	0	0	0	0	0	110.2	348.4	197.9	178.5	16.8	79.3	0	931.1
Anand	2004	0	0	0	0	3.3	41.5	186.8	526	4	9.7	0	0	771.3
Anand	2005	0	0	0	0	0	502.3	521.8	153.1	340.9	0	0	0	1518.1
Anand	2006	0	0	0	0	0	62.3	552.5	392.3	42.6	0	0	0	1049.7
Anand	2007	0	0.5	0	0	0	78.5	391.5	280.4	147.2	0	0	0	898.1
Anand	2008	0	0	0	0.4	0	38.4	151	276.8	292.1	1.4	0.1	0	760.2
Anand	2009	0	0	0	0	0	0.6	246.9	95.3	10	3	1.3	0	357.1
Anand	2010	0	0	0	0	0	35.3	192.1	433.7	170	0.2	32.2	0	863.5

- The portal has following functionalities:
  - Scan the values from user and store it in file. Observe above table for proper data values and their data types.
    File format:
    Ahmedabad#2004#0#0#0#0#2.4#61.2#222.6#454.2#45.4#34#
    0.1#0#819.9

  - Display following summary for each District of Gujarat:

District	Mininum Rain fall among 2004-2010 & Year	Maximum Rain fall among 2004-2010 & Year	Average Rain fall	Maximum rain in which month according to year found in column 3
Ahmedabad	387.1, 2009	1258.9, **2005**	873.6	June à ie. **2005**
Amreli	……			

Data highlighted in red color must be filled as per text file data.

- You have to use file handling and exception handing concepts compulsory. You may use other concepts of Object Oriented Programming if required.

Java Program File ::

Name Of File : OOP_19BCE233_COMPREHENSIVE.java

File Purpose :

In This program We have Store All Details Given In Definition Then The Preform The Operation Tell In Definition like Max Rainfall And Max Rainfall in which year And etc.

```
package Comprehensive_Assignment;

import java.util.*;
import java.io.*;

public class Main {
    public static void main(String[] args) throws IOException
    {
        Scanner sc=new Scanner(System.in);

        String month[]=new String[12];
        month[0]="January";
        month[1]="February";
        month[2]="March";
```

```
            month[3]="April";
            month[4]="May";
            month[5]="June";
            month[6]="July";
            month[7]="August";
            month[8]="September";
            month[9]="October";
            month[10]="November";
            month[11]="December";

            int n;
            boolean flag=true;
            do
            {
                System.out.println("1. Add Data");
                System.out.println("2. Show Data");
                System.out.println("3. Exit");
                System.out.println("Enter Your Choice::");
                n=sc.nextInt();
                switch(n)
                {
                    case 1:
                    {
                        int total = 0;
                        String name = new String();
                        String s = new String("");
                        String date = new String();
                        try
                        {
                            Scanner sc1 = new Scanner(System.in);
                            File f = new File("Rainfall Data.txt");
                            FileWriter fw = new FileWriter(f.getAbsoluteFile(),tr
ue);
                            BufferedWriter bw = new BufferedWriter(fw);

                            System.out.println("Enter the Name of Distrinct : ");
                            name = sc1.nextLine();
                            System.out.print("Enter The Year : ");
                            date = sc1.nextLine();

                            s = s  + name + "#" + date +"#";

                            for(int i=0;i<12;i++)
                            {
                                try{
```

```
                                    Scanner sc2 = new Scanner(System.in);
                                System.out.print("Enter the Rainfall in Month of
"+month[i]+" : ");
                                float r = sc2.nextFloat();
                                total+=r;
                                s=s+r+"#";
                                }
                                catch(InputMismatchException e)
                                {
                                    System.out.println("You can Enter only Float
value !!!");
                                    i--;
                                }
                            }
                            s=s+total;
                            bw.write(s);
                            bw.newLine();
                            bw.close();

                        }
                        catch (IOException e1) {
                            e1.printStackTrace();
                        }

                        break;



                    }
                    case 2:
                    {

                        String name_l = new String();
                        String year = new String();
                        String max_year = new String();
                        String min_year = new String();

                        System.out.println("\nName\t\tMaxRain MaxYear Month MinRa
in MinYear Average Rain");

                        float f[] = new float[12],min=99999,max=-1,max1=-
1,avg=0,temp;

                        int count=0,index=0;
```

```
                        try{
                            File file = new File("Rainfall Data.txt");
                            FileReader fw = new FileReader(file.getAbsoluteFile()
);
                            BufferedReader br = new BufferedReader(fw);

                            String currentLine = br.readLine();
                            String str[] = currentLine.split("#");
                            name_l=str[0];

                            while(currentLine!=null)
                            {

                                str = currentLine.split("#");
                                if(str[0].equals(name_l))
                                {
                                    for(int i=0;i<12;i++)
                                    {
                                        f[i] = Float.valueOf(str[i+2]);
                                    }
                                    temp=Float.valueOf(str[14]);

                                    if(max<temp)
                                    {
                                        max = temp;
                                        max_year = str[1];
                                        max1=-1;
                                        for(int j=0;j<12;j++)
                                        {
                                            if(max1<f[j])
                                            {
                                                max1=f[j];
                                                index=j;
                                            }
                                        }

                                    }
                                    if(min>temp)
                                    {
                                        min = temp;
                                        min_year = str[1];
                                    }
                                    avg+=temp;
                                    count++;
                                    currentLine = br.readLine();
```

```
                                }
                                else
                                {

                                    System.out.println(name_l+"       "+max+"\t"+
max_year+"\t"+month[index]+"\t"+min+"\t"+min_year+"\t"+avg/count);
                                    max=-1;
                                    min=99999;
                                    name_l=str[0];
                                    avg=0;
                                    count=0;
                                }


                            }

                            System.out.println(name_l+"\t\t"+max+"\t"+max_year+"\
t"+month[index]+"\t"+min+"\t"+min_year+"\t"+avg/count);
                            br.close();
                            System.out.println();
                        }
                        catch(IOException e1) {
                            e1.printStackTrace();
                        }
                        break;
                    }
                    case 3:
                    {
                        System.out.println("\nGAURAV SAKARIYA\n19BCE233\nTHANK YO
U!!!!");
                        flag = false;
                        break;
                    }
                    default :
                    {
                        System.out.println("Enter Valid Choice !!!!!\n");
                    }
                }

            }while(flag);
        }
    }
```

Output:

Show Only One Data For Refrence

```
Main (2) [Java Application] C:\Program Files\Java\jdk-15.0.1\bin\javaw.exe  (Nov 25, 2020, 8:12:37 PM)
1. Add Data
2. Show Data
3. Exit
Enter Your Choice::
1
Enter the Name of Distrinct :
Anand
Enter The Year : 2004
Enter the Rainfall in Month of January : 0
Enter the Rainfall in Month of February : 0
Enter the Rainfall in Month of March : 0
Enter the Rainfall in Month of April : 0
Enter the Rainfall in Month of May : 3.3
Enter the Rainfall in Month of June : 41.5
Enter the Rainfall in Month of July : 186.8
Enter the Rainfall in Month of August : 526
Enter the Rainfall in Month of September : 4
Enter the Rainfall in Month of October : 9.7
Enter the Rainfall in Month of November : 0
Enter the Rainfall in Month of December : 0
```

```
1. Add Data
2. Show Data
3. Exit
Enter Your Choice::
2

Name            MaxRain MaxYear Month MinRain MinYear Average Rain
Ahmedabad       1258.9  2005    June    387.1   2009    873.5714
Amreli       1165.2     2005    June    513.1   2009    824.91425
Anand           1518.1  2005    July    357.1   2009    888.2857

1. Add Data
2. Show Data
3. Exit
Enter Your Choice::
3

GAURAV SAKARIYA
19BCE233
THANK YOU!!!!
```

Data In File When All Data Added

Rainfall Data - Notepad

File Edit Format View Help

```
Ahmedabad#2004#0#0#0#0#2.4#61.2#222.6#454.2#45.4#34#0.1#0#819.9
Ahmedabad#2005#0#0#0#0#0#393.2#301#223.3#341.4#0#0#0#1258.9
Ahmedabad#2006#0#0#0.4#0#0#84.9#433#268#108.5#0#0#0#894.8
Ahmedabad#2007#0#0.1#0#0#0.4#95.3#381.2#310#103.2#0#0#0#890.2
Ahmedabad#2008#0#0#0#0.7#0#26.7#221.9#233.6#273.5#8.4#0#2#766.8
Ahmedabad#2009#0#0#0#0#0#4.7#265.5#103.2#8.8#4.9#0#0#387.1
Ahmedabad#2010#0.2#0#0#0#0#46.7#335.9#421#241.7#0.9#50.7#0.2#1097.3
Amreli#2004#0#0#0#0#12#88.4#159.7#223.1#61.8#21.3#0.2#0#566.5
Amreli#2005#0#0#0#0#0#0.3#558.2#150.7#45.2#405.8#5#0#0#1165.2
Amreli#2006#0#0#1.5#0#0#181.2#479.3#77.6#80.7#3.7#1#0#825.0
Amreli#2007#0#0.4#0#0#0#118.2#278.8#306.4#338.4#0.1#2.8#0#1045.1
Amreli#2008#0#0#0#4.2#0#72.1#237#90.7#300.6#23.8#0#0#728.4
Amreli#2009#0#0#0#0#0#0#56.4#360.4#70.8#16.9#5.2#3.2#0.2#513.1
Amreli#2010#0#0#0#0#0#0#110.2#348.4#197.9#178.5#16.8#79.3#0#931.1
Anand#2004#0#0#0#0#3.3#41.5#186.8#526#4#9.7#0#0#771.3
Anand#2005#0#0#0#0#0#0#502.3#521.8#153.1#340.9#0#0#0#1518.1
Anand#2006#0#0#0#0#0#0#62.3#552.5#392.3#42.6#0#0#0#1049.7
Anand#2007#0#0.5#0#0#0#78.5#391.5#280.4#147.2#0#0#0#898.1
Anand#2008#0#0#0#0.4#0#38.4#151#276.8#292.1#1.4#0.1#0#760.2
Anand#2009#0#0#0#0#0#0#0.6#246.9#95.3#10#3#1.3#0#357.1
Anand#2010#0#0#0#0#0#0#35.3#192.1#433.7#170#0.2#32.2#0#863.5
```