Course: JAVA **Session:** Classes and Objects **Timestamp:** 2021-8-31 10:24:59 **Register Number:** RA2031241010094

Q. Average and sum of array elements

Java program to find the sum and average of array elements

Mandatory:

1. Create a new class "Average" and the objectname for the class should be "obj"
2. Create a methods as follows:

a. Method name = computeAvg()
b. Type = void
c. Access Specifier = public
d. Argument Type = no arguments

3. Access the methods computeAvg() using the object name "obj" from the main method
4. The input details are promoted in computeAvg() and the result were printed in the main class

Source Code

```
import java.util.*;
class Average
{
  public
    double n;
  double a[]=new double[10];
  int sum=0;
  double avg;
  Scanner sc=new Scanner(System.in);
  public void computeAvg()
  {
    n=sc.nextInt();
    for(int i=0;i<n;i++)
    {
      a[i]=sc.nextInt();
    }
    for(int i=0;i<n;i++)
    {
      sum+=a[i];
    }
    avg=sum/n;
    System.out.println(sum);
  System.out.println(String.format("%.2f",avg));
  }
}
public class TestClass {
  public static void main(String[] args) {
       Average obj=new Average();
       obj.computeAvg();

 }
}
```

Sample Input

```
7
1 8 9 4 7 2 13
```

Sample Output

```
44
6.29
```

Result

Thus, Program " **Average and sum of array elements** " has been successfully executed

Course: JAVA **Session:** Classes and Objects **Timestamp:** 2021-8-31 10:25:20 **Register Number:** RA2031241010094

Q. PERSON

Create a class called Person with object name "objname" the following 3 private data members / member variables name of type string, yearOfBirth and yearOfDeath of type int.
Include 2 public member functions or methods: inputData() that accepts no arguments and its return type is void.
Get the values of the 3 data members from the user in this function. Assume that only the last 2 digits of the birth year and death year are given as input and if the person is still living, the death year is entered as -1.
display() that accepts no arguments and its return type is void.
Inside the display function, print the message as given in the sample input and output. In the main method / function, create an object of class person and test the 2 methods/ functions.

Source Code

```
import java.util.*;
class Person
{
  private String name;
  private int yearofbirth,yearofdeath;
  public void inputData()
  {
    Scanner sc=new Scanner(System.in);
    name=sc.nextLine();
    yearofbirth=sc.nextInt();
    yearofdeath=sc.nextInt();
  }
  public void display()
  {
    if(yearofdeath==-1)
      System.out.println(name+" is still alive");
    else
      System.out.println(name+" lived for "+(yearofdeath-yearofbirth)+" years");
  }
}
public class TestClass {
  public static void main(String[] args) {
       Person objname=new Person();
       objname.inputData();
       objname.display();

  }
}
```

Sample Input

```
Ram
1920
1990
```

Sample Output

```
Ram lived for 70 years
```

Result

Thus, Program " **PERSON** " has been successfully executed

Q. Simple object creation - STATIC METHOD

Create a Class and two methods to display the user details entered by the user. The user needs to enter name, designation, place of origin, age and marks percentage. The First three details are stored in String data type and age in Integer data type

Refer sample input and output test-cases section for more details

Mandatory:

1. Create a new class "Employee"

2. Create two methods as follows:

a. Method name = getDetails()
b. Type = void
c. Access Specifier = static
d. Argument Type = no arguments

a. Method name = displayDetails()
b. Type = void
c. Access Specifier = static
d. Argument Type = no arguments

3. Access the methods getDetails() and displayDetails() classname. methodname

4. The input details are promoted in getDetails() and the entered values are printed in displayDetails()

Source Code

```
import java.util.*;
class Employee
{
  static String s1,s2,s3;
  static int a;
  static float b;
  public static void getDetails()
  {
    Scanner sc=new Scanner(System.in);
    s1=sc.nextLine();
    s2=sc.nextLine();
    s3=sc.nextLine();
    a=sc.nextInt();
    b=sc.nextFloat();
  }
  public static void displayDetails()
  {
    System.out.println(s1);
    System.out.println(s2);
    System.out.println(s3);
    System.out.println(a);
    System.out.println(b);
  }
}
public class TestClass {
  public static void main(String[] args) {
       Employee methodname=new Employee();
       Employee.getDetails();
       Employee.displayDetails();

  }
}
```

Sample Input

```
Agathiyar
Tamil Siddhar
Kumari Continent
6000
99.99
```

Sample Output

```
Agathiyar
Tamil Siddhar
Kumari Continent
6000
99.99
```

Result

Thus, Program " **Simple object creation - STATIC METHOD** " has been successfully executed

Course: JAVA **Session:** Classes and Objects **Timestamp:** 2021-8-31 10:26:02 **Register Number:** RA2031241010094

Q. Factorial of a given Number

Write a program to find the factorial of a given number.
Mandatory
1.Create a new class named "Factorial" apart from the main class (TestClass)
2.Create a new method fact with no arguments.
3.Create an object "f" for the Factorial class in main class and access the fact method inside factorial class.

Source Code

```
import java.util.*;
class Factorial
{
  public
    int n;
  int p=1;
  public void fact()
  {
    Scanner sc=new Scanner(System.in);
    n=sc.nextInt();
    for(int i=1;i<=n;i++)
    {
      p*=i;
    }
    System.out.println(p);
  }
}
public class TestClass {
  public static void main(String[] args) {
       Factorial f=new Factorial();
       f.fact();

 }
}
```

Sample Input

5

Sample Output

120

Result

Thus, Program " **Factorial of a given Number** " has been successfully executed

Course: JAVA **Session:** Classes and Objects **Timestamp:** 2021-8-31 10:26:22 **Register Number:** RA2031241010094

Q. Find Reminder Using Static

Write a program to find the Remainder when two given numbers are divided.

Input
The first line contains an integer T, total number of test cases. Then follow T lines, each line contains two Integers A and B.
Output
Find remainder when A is divided by B.

Mandatory:

1. Create a new class Reminder

2. Create a methods as follows:

a. Method name = computeReminder()
b. Type = void
c. Access Specifier = static
d. Argument Type = no arguments

3.Call the method calculate from the main method using classname.methodname

Reminder.computeReminder();

Source Code

```
import java.util.*;
class Reminder
{
   static int t,a,b,r;
  public static void computeReminder()
  {
    Scanner sc=new Scanner(System.in);
    t=sc.nextInt();
    for(int i=0;i<t;i++)
    {
      a=sc.nextInt();
      b=sc.nextInt();
      r=a%b;
    System.out.println(r);
    }
  }
}
public class TestClass {
  public static void main(String[] args) {
       Reminder methodname=new Reminder();
       Reminder.computeReminder();

 }
}
```

Sample Input

```
5
19 5
73 4
7 3
18 4
68 2
```

Sample Output

```
4
1
1
2
0
```

Result

Thus, Program " **Find Reminder Using Static** " has been successfully executed

Q. Finding of Biggest of Two Numbers

Mandatory
1.Create a new class named "Biggest" apart from the main class(TestClass)
2.Create two methods readNumber() and biggest() to read two integers and to find the biggest of two numbers respectively with no arguments and of type void.
3.Create an object "bs" for the Biggest class in the main class and access readNumber() and biggest() methods created inside Biggest class.

Source Code

```
import java.util.*;
class Biggest
{
  public
  int a,b;
  public void readNumber()
  {
    Scanner sc=new Scanner(System.in);
    a=sc.nextInt();
    b=sc.nextInt();
  }
  public void biggest()
  {
    if(a>b)
      System.out.println(a);
    else
      System.out.println(b);
  }
}
public class TestClass {
  public static void main(String[] args) {
       Biggest bs=new Biggest();
       bs.readNumber();
       bs.biggest();

 }
}
```

Sample Input

98 89

Sample Output

98

Result

Thus, Program " **Finding of Biggest of Two Numbers** " has been successfully executed

Course: JAVA **Session:** Classes and Objects **Timestamp:** 2021-8-31 10:27:00 **Register Number:** RA2031241010094

Q. Votes by Static method

An election is contested by 5 candidates which are numbered from 1 to 5 and voting is done by marking the candidate number on ballet paper .

WAP to count the number of votes obtained by all the candidates.

(Note: Enter candidate number s input FROM 1- 5) and if the input is more than 5 then it is considered to be disqualified vote

Mandatory:

1. Create a new class "Election"
2. Create a methods as follows:

a. Method name = getVotes()
b. Type = void
c. Access Specifier = static
d. Argument Type = no arguments

3. Access the methods displayResults() using classname.methodname
4. The input details are promoted in getVotes() and the result were printed in the main class

Source Code

```
import java.util.*;
class Election
{
  static int a[]={0,0,0,0,0,0};
  public static void getVotes()
  {
    Scanner sc=new Scanner(System.in);
    int n=sc.nextInt();
    int s;
    for(int i=0;i<n;i++)
    {
      s=sc.nextInt();
      if((s<1)||(s>5))
        s=0;
      a[s]++;
    }
  }
  public static void displayResults()
  {
    for(int i=1;i<=5;i++)
      System.out.println("Candidate "+i+" are: "+a[i]);
    System.out.println("Disqualified="+a[0]);
  }
}
public class TestClass {
  public static void main(String[] args) {
       Election obj=new Election();
       Election.getVotes();
       Election.displayResults();

  }
}
```

Sample Input

```
10
1 3 5 5 1 1 2 5 2 4
```

Sample Output

```
Candidate 1 are: 3
Candidate 2 are: 2
Candidate 3 are: 1
Candidate 4 are: 1
Candidate 5 are: 3
Disqualified=0
```

Result

Thus, Program " **Votes by Static method** " has been successfully executed

Course: JAVA **Session:** Classes and Objects **Timestamp:** 2021-8-31 10:27:20 **Register Number:** RA2031241010094

Q. Area of Rectangle

Write a program to find the Area of the Rectangle using class and objects.

Mandatory

1.Create a new class named "Rectangle" apart from the main class (TestClass).

2.Create a method named read and display with no arguments to read the width and length to calculate and display the area of the rectangle

Method name = read()
Arguments = No argument
Return type = void
Access Specifier = public

Method name = display()
Arguments = No argument
Return type = void
Access Specifier = public

3.Create an object "a" for the class Rectangle in the main class and access the method area() and display () using that object.

Source Code

```
import java.util.*;
class Rectangle
{
  public
    int a,b,ar;
  public void read()
  {
    Scanner sc=new Scanner(System.in);
    a=sc.nextInt();
    b=sc.nextInt();
  }
  public void display()
  {
    ar=a*b;
    System.out.println(ar);
  }
}
public class TestClass {
  public static void main(String[] args) {
  Rectangle a=new Rectangle();
       a.read();
       a.display();
 }
}
```

Sample Input

45 10

Sample Output

450

Result

Thus, Program " **Area of Rectangle** " has been successfully executed

Course: JAVA **Session:** Classes and Objects **Timestamp:** 2021-8-31 10:27:37 **Register Number:** RA2031241010094

Q. Welcome Message

In order to welcome the users who visit the site, you have decided to display a personalized welcome message on the Home page after each user logs in. Create a class named Welcome with 3 private member variables name of type String, gender of type String and relation of type String. Include the appropriate getter and setter methods. Include a method named displayMessage that accepts no arguments and its return type is void. In this method display the message [if the relation is self and gender is female] Welcome Ms.! All the best to get a suitable groom for you

[if the relation is self and gender is male] Welcome Mr.! All the best to get a suitable bride for you

[if the relation is parent and gender is male] Welcome Mr.! All the best to get a suitable life partner for your son or daughter [if the relation is parent and gender is female] Welcome Ms.! All the best to get a suitable life partner for your son or daughter In the main method, create an instance of the Welcome class and invoke the corresponding methods.

Mandatory:

1. Create a new class "Welcome" and the object name for the class should be "obj"

2. Create two methods as follows:

a. Method name = welcomeMessage()
b. Type = void
c. Access Specifier = public
d. Argument Type = no arguments

3. Access the methods welcomeMessage() using the object name "obj" from the main method

4. The input details are promoted in welcomeMessage() and the appropriate welcome message needs to be printed.

Source Code

```
import java.util.*;
public class TestClass {
  public static void main(String[] args){
  TestClass obj=new TestClass();
       obj.welcomeMessage();
 }
  public void welcomeMessage()
  {
    Scanner sc=new Scanner(System.in);
    String name=sc.nextLine();
    String gender=sc.nextLine();
    String rel=sc.nextLine();
    if(gender.equalsIgnoreCase("Female")&&rel.equalsIgnoreCase("Self"))
    {
      System.out.println("Welcome Ms."+name+"! All the best to get a suitable groom for you");
    }
    else if(gender.equalsIgnoreCase("Male")&&rel.equalsIgnoreCase("Self"))
    {
      System.out.println("Welcome Mr."+name+"! All the best to get a suitable bride for you");
    }
    else if(gender.equalsIgnoreCase("Male")&&rel.equalsIgnoreCase("Parent"))
    {
      System.out.println("Welcome Mr."+name+"! All the best to get a suitable life partner for your son or daughter");
    }
    else if(gender.equalsIgnoreCase("Female")&&rel.equalsIgnoreCase("Parent"))
    {
      System.out.println("Welcome Ms."+name+"! All the beat to get a suitable life partner for your son or daughter");
    }
   }
}
```

Sample Input

```
Nikitha
Female
Self
```

Sample Output

```
Welcome Ms.Nikitha! All the best to get a suitable groom for you
```

Result

Thus, Program " **Welcome Message** " has been successfully executed

Course: JAVA **Session:** Classes and Objects **Timestamp:** 2021-8-31 10:27:57 **Register Number:** RA2031241010094

Q. bobThere

Return true if the given string contains a "bob" string, but where the middle 'o' character can be any character.

Mandatory:

1. Create a method named "bobThere(String str)" which takes one String argument inside mainclass (Testclass)

Method name = bobThere
Argument = single argument with type argument String
Method Type = boolean
Access Specifier = static method

2. Use boolean type to store the final answer in the main method and print the final answer either as "true" or "false"

Hint for second mandatory;
boolean output= bobThere(str)
System.out.println(output)
use "return" in the bobThere(String str) method

Source Code

```
import java.util.*;
public class TestClass {
  static boolean bobThere(String str)
  {
    char a[]=str.toCharArray();
    int n=a.length;
    for(int i=0;i<n-2;i++)
    {
      if(a[i]=='b'&&a[i+2]=='b')
      {
        return true;
      }
    }
    return false;
  }
  public static void main(String[] args) {
  TestClass x=new TestClass();
      Scanner sc=new Scanner(System.in);
      String str=sc.nextLine();
      System.out.println(x.bobThere(str));
 }
}
```

Sample Input

abcbob

Sample Output

true

Result

Thus, Program " **bobThere** " has been successfully executed