ASSIGNMENT:-1

QUESTION:-1

```
import java.util.Scanner;
public class fact
{
    public static void main(String aer[])
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter Any number");
        int n=sc.nextInt();
        int f=1;
        for(int i=n;i>0;i--)
        {
            f=f*i;
        }
        System.out.println("Factorial of "+n+" is "+f);

    }
}
```

QUESTION:-2

```
import java.util.Scanner;
public class operation
{
    public static void main(String aer[])
    {
        Scanner sc=new Scanner(System.in);
    while(true){
        System.out.println("\nEnter two numbers");
        int a=sc.nextInt();
        int b=sc.nextInt();
        System.out.println("What you
        Want\n1:Addition\n2:Subtraction\n3:Multiplication\n4:Division\n5:Minimum\n6:Maximum\n7
        :Exit");
        switch(sc.nextInt())
        {
            case 1:
                System.out.println("Sum of Two Number is "+(a+b));
                break;
            case 2:
                System.out.println("Difference of Two Number is "+(a-b));
                break;
            case 3:
                System.out.println("Multiplication of Two Number is "+(a*b));
                break;
            case 4:
                System.out.println("Quotient = "+(a/b)+"\nRemainder = a%b");
                break;
            case 5:
                System.out.println("Maximum of Two Number is "+Math.max(a,b));
                break;
            case 6:
                System.out.println("Minimum of Two Number is "+Math.min(a,b));
                break;
            case 7: return;
        }
        }
    }
}
```

QUESTION:-3

```
import java.util.Scanner;
public class quadratic
{
    public static void main(String aer[])
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter Coefficients a, b & c of Quadratic equation");
        double a=sc.nextInt();
        double b=sc.nextInt();
        double c=sc.nextInt();
        double root1=((-b+Math.sqrt(b*b-4*a*c))/2*a);
        double root2=((-b-Math.sqrt(b*b-4*a*c))/2*a);
        System.out.println("Roots of the equation
        are:\nRoot1="+(float)root1+"\nRoot2="+(float)root2);

        if(Math.sqrt(b*b-4*a*c)==0)
            {
                System.out.println("Root Are Equal");
            }
        else if(Math.sqrt(b*b-4*a*c)>0)
            {
                System.out.println("Root Are Real");
            }
        else{
                System.out.println("Root Are Imaginary");
            }

    }
}
```

QUESTION:-4

```
import java.util.Scanner;
public class reci
{
    public static void main(String aer[])
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter number of terms");
        int n=sc.nextInt();
        double sum=0;
        for(int i=1;i<=n;i++)
        {
            System.out.print("1/"+i+"+");
            sum=sum+1.0/i;
        }
        System.out.println("="+(float)sum);

    }
}
```

QUESTION:-5

```
import java.util.Scanner;
public class Floyd
{
    public static void main(String aer[])
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("1) Floyd 1\n2) Floyd 2\n3)Exit\nEnter you choice\n");
        int ch=sc.nextInt();
        if(ch==1){
           System.out.println("Enter num of lines");
           int n=sc.nextInt();
           int k=1;
           for(int i=1;i<=n;i++){
            for(int j=0;j<i;j++,k++)
                   System.out.print(k+" ");
```

```
                System.out.println();
               }
            }
    else if(ch==2){
       System.out.println("Enter num of lines");
       int n=sc.nextInt();
       int a=0;
       for(int i=1;i<=n;i++){
       a=a^1;
        for(int j=0,k=a;j<i;j++){
           System.out.print(k+" ");
           k=k^1;
           }
           System.out.println();
        }

    }
    else
    return;
    }
}
```

QUESTION:-6

```
import java.util.Scanner;
public class Area
{
    void Area(float b,float h)
    {
        System.out.println("Area of Triangle is "+(0.5f*b*h));
    }
    void Area(double a)
    {
        System.out.println("Area of Square is "+(float)(a*a));
    }
    void Area(float r)
    {
            System.out.println("Area of Circle is "+(Math.PI*r*r));
    }
    void Area(double a,double b)
    {
            System.out.println("Area of Rectangle is "+(float)(a*b));
    }
    public static void main(String argd[])
    {
        Area Obj=new Area();
        Scanner sc=new Scanner(System.in);
        while(true){
        System.out.println("Enter your choice\n1:Area of Triangle\n2:Area of Square\n3:Area
        of Circle\n4:Area of Rectangle\n5:Exit");
        switch(sc.nextInt())
            {
                case 1:
                    System.out.println("Enter Base and Altitude");
                    Obj.Area(sc.nextFloat(),sc.nextFloat());
                    break;
                case 2:
                    System.out.println("Enter length of Edge");
                    Obj.Area(sc.nextDouble());
                    break;
                case 3:
                    System.out.println("Enter Radius");
                    Obj.Area(sc.nextFloat());
                    break;
                case 4:
                    System.out.println("Enter Length and Breadth");
                    Obj.Area(sc.nextDouble(),sc.nextDouble());
                    break;
                case 5:
                    return;
            }
```

```
        }
    }
}
```

QUESTION:-7

```
import java.util.Scanner;
import java.io.*;
class OddAndEven{
    int countOfOdd;
    int countOfEven;
    void addNumber(int n)
    {
        if(n%2==0)
            countOfEven++;
        else
            countOfOdd++;
    }

  public String toString(){
        return "Number of Odd:"+countOfOdd+", Number of Even:"+countOfEven;
    }
}

class TestOddAndEven {
    public static void main(String arg[]){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter numbers");
        OddAndEven obj=new OddAndEven();
        while(true){
            int n=0;
            try{
            n=sc.nextInt();
            }
            catch(Exception e){
                break;
            }
            obj.addNumber(n);
        }
        System.out.println(obj.toString());
    }
}
```

QUESTION:-8

```
import java.util.Scanner;
import java.io.FileOutputStream;
import java.io.FileWriter;
class Employee{
    int EmployeeNo;
    String name;
    String Sex;
    float GS;
    Employee(int EmployeeNo,String name,String Sex,float GS)
    {
        this.EmployeeNo=EmployeeNo;
        this.name=name;
        this.Sex=Sex;
        this.GS=GS;
    }

       public String toString(){
            return EmployeeNo+"  "+name+"  "+Sex+"  "+GS;
        }

}

class ab24510_A1_8{
    public static void main(String arg[]){
        Employee obj[]=new Employee [10];
```

```
        Scanner sc=new Scanner(System.in);
        int i=0,k=0;

                try{

                while(true){

                    System.out.println("Enter your choice\n1:Create a file of employee
                    data\n2:Append the data of a new employee joining the firm.\n3:If a
                    given employee leaves, delete his record.\n4:If gross salary of a given
                    employee increases, update the gross salary.\n5:Display the record of
                    (i) a given employee or (ii) all employees");
            switch(sc.nextInt())
        {
            case 1:
                    System.out.println("Enter Employee No, Name, Sex, Gross Salary.");
                     FileWriter fw=new FileWriter("file.txt");
                                    fw.write("Employee Id   Name    Sex   Gross
                                    salary\n");
                                    fw.close();
                     System.out.println("File file.txt is created\n");
                                     break;
                        case 2:
                                    System.out.println("Enter Employee No, Name, Sex, Gross
                                    Salary.");
                                        obj[i]=new
                                        Employee(sc.nextInt(),sc.next(),sc.next(),sc.nextFloat
                                        ());
                                            fw=new FileWriter("file.txt");
                                          for(int j=0;j<=i;j++)
                                           fw.write(""+obj[j].toString()+"\n");
                                           fw.close();
                                           k=i;
                                             i++;
                                           break;
                        case 3:
                            fw= new FileWriter("file.txt");
                            fw.write("");
                            fw.close();
                           System.out.println("Enter Employee NO whose recrd is to be delete\n");
                           int n=sc.nextInt();
                                fw=new FileWriter("file.txt",true);
                                    fw.write("Employee Id   Name    Sex   Gross
                                    salary\n");
                            for(int j=0;j<=k;j++){
                            if(obj[j].EmployeeNo!=n)
                                fw.write(""+obj[j].toString()+"\n");
                            else
                            System.out.println("jfkdhsk");
                            }
                            fw.close();
                            break;
                       case 4:
                            fw=new FileWriter("file.txt");
                            fw.write("");
                            fw.close();
                            System.out.println("Enter Employee NO whose recrd is to be
                            update\n");
                              int id=sc.nextInt();
                            System.out.println("Enter Updated Gross salary");
                            float G=sc.nextFloat();
                            for(int j=0;j<=k;j++)
                            if(obj[j].EmployeeNo==id)
                            {
                                obj[j].GS=G;
                            }
                                 fw=new FileWriter("file.txt",true);
                                    fw.write("Employee Id   Name    Sex   Gross
                                    salary\n");
                        for(int j=0;j<=k;j++){
                        fw.write(""+obj[j].toString()+"\n");
```

```
                    }
                    fw.close();
                    break;
            case 5:
                System.out.println("(1) a given employee \n (2) all employees");
                int ch=sc.nextInt();
                int j=0;
                if(ch==1)
                {
                    System.out.println("Enter employeeNo");
                    int t=sc.nextInt();
                    for(j=0;j<=k;j++)
                    if(obj[j].EmployeeNo==t)
                    break;
                    System.out.println("Employee Id   Name    Sex   Gross
                    salary\n"+obj[j].toString());

                }
                else{
                System.out.println("Employee Id   Name    Sex   Gross salary\n");
                    for(j=0;j<=k;j++)
                    System.out.println(""+obj[j].toString());
                }
                break;
            case 6:
                return;


                }
                }
                }
                catch(Exception e){
                    System.out.println(""+e);
                }
        }
    }
```

QUESTION:-9

```
import java.util.Scanner;
class Circle{
    float radius;
    int x;
    int y;
    Circle(float r,int x,int y){
        radius=r;
        this.x=x;
        this.y=y;
    }
    void Area(){
        float area=(float)Math.PI*radius*radius;
        System.out.println("Area of Circle is "+area);
    }

    void Perimeter(){
        float per=(float)(2*Math.PI*radius);
        System.out.println("Perimeter of Circle is "+per);
    }

    boolean Check(int a,int b){
        float dis=(float)Math.sqrt((x-a)*(x-a)+(y-b)*(y-b));
        if(dis<radius){
            System.out.println("Given point is inside the circle");
           return true;
        }
        else if(dis>radius){
                System.out.println("Given point is outside the circle");
                return false;
       }
        else{
```

```
            System.out.println("Given point is on the circle");
               return false;
        }
    }
}

class ab24510_A1_9{
    public static void main(String arg[]){
        Scanner sc=new Scanner(System.in);
   while(true){
            System.out.println("\nEnter radius, x And y-coordinate of center of circle");
                   Circle obj=new Circle(sc.nextFloat(),sc.nextInt(),sc.nextInt());
        System.out.println("\nEnter your choice\n1:To find Area.\n2:To find
        Perimeter.\n3:To find whether the point is inside or not.\n4:Exit.");

        switch(sc.nextInt()){
            case 1:
                   obj.Area();
                   break;
            case 2:
                   obj.Perimeter();
                   break;
            case 3:
            while(true){
                   System.out.println("Enter x and y-coordinates to check whether or not
                   the point is inside the circle");
                   if(obj.Check(sc.nextInt(),sc.nextInt()))
                       break;
                   }
                   break;
            case 4:
                   return;
           }
    }
   }
}
```

QUESTION:-10

```
import java.util.Scanner;
class Person{
    String name;
    int year;
   Person(String name,int year){
       this.name=name;
       this.year=year;
   }
}

class Student extends Person{
    float Fees;
    Student(String name,int year,float Fees){
        super(name,year);
        this.Fees=Fees;
    }
    String toStrings(){
        return name+"\t"+year+"\t"+Fees;
    }
}

class Instructor extends Person{
    float salary;
    Instructor(String name,int year,float salary){
        super(name,year);
        this.salary=salary;
    }
    String toStrings(){
        return name+"\t"+year+"\t"+salary;
    }
```

```
}

class ab24510_A1_10{
    public static void main(String arg[])
    {
        Scanner sc=new Scanner(System.in);
    while(true){
        System.out.println("\n1:Test for Student\n2:Test for Instructor");
        switch(sc.nextInt()){
            case 1:
                    System.out.println("\nEnter name, year of birth, Fees");
                    Student ob=new Student(sc.next(),sc.nextInt(),sc.nextFloat());
                        System.out.println(ob.toStrings());
                    break;
            case 2:
                    System.out.println("\nEnter name, year of birth, Salary");
                    Instructor obj=new Instructor(sc.next(),sc.nextInt(),sc.nextFloat());
                        System.out.println(obj.toStrings());
                    break;
        }
    }


    }
}
```