Assignment 2

Q.1] Create a class named 'student' with string variable 'name' and integer variable 'roll-no'. Assign the value of roll-no as '2' and that of name as "John" by creating an object of the class student.

```
class student
{
  String name;
  int roll-no;
}void getdata (String s,int i)
  {
    name=s;
    roll-no=i;
  }
  void putdata()
  {
System.out.println("name:-"+name);
System.out.println("roll-no:-"+roll-no)
}
Public Static Void main(String args[])
{
Account a student s = new student();
    s.getdata("John", 2);
    s.putdata();
  }
}
```

Q.2] Assign and print the roll number, phone number and address of two students having names "Sam" and "John" respectively by creating two objects of class 'student'.

```
Public class student
{
int phone_no, Roll_no
 String address;
void getdata (int a, int b, string c)
{
  Phone_no = a p q
  Roll_no = r b
  address = z c
  };
   Void putdata ()
{
System.out.println ("Phone_no=" + phone_no, \n
"Roll_no=" + Roll_no \n" address = + address
}
Public static Void main (String args[])
{
Student S = new student (9767520G7, 2, 'Sam')
        S. getdata ();
        S. putdata ();
    }
```

```
Student S1 = new Student (97685267, 3, 'Joh
    S1.getdata();
    S1.putdata();
  }
}
```

Q.3] Write a program to print the area and perimeter of a triangle having sides of 3, 4 and 5 units by creating a class named 'Triangle' without any Parameter in its constructor.

```
class triangle
{
 int a,b,c;
Public double getarea (){
double 5 = (a+b+c)/2.0;
return Math.Pow((5*(5-a)*(5-b)*(5-c)),5);
}
Public double getperimeter (){
  return (a+b+c)/2.0;
}
}
  class Ans
  {
  Public Static Void main (String args[])
  {
Triangle t = new triangle ();
      t.a=3;
      t.b=4;
      t.c=5
System.out.Println(t.getarea());
```

```
System.out.println(t.getPerimeter());
}
}
```

PAGE NO.:
DATE: / /

2.4] Write a program to print the area and perimeter of a triangle having sides of 3, 4, 5 units by creating a class named 'Triangle', with constructor having the three sides as its parameter.

→
```
import java.util.*;
Public class triangle
{
 void area (int a, int b, int c)
{
float s = ((a+b+c)/2);
float A = Sart (s*(s-a)*(s-b)*(s-c));
System.out.Println ("Area of triangle is:A"
     Sq. Units");
}
void Perimeter (int a, int b, int c)
{
System.out.println ("Parimeter of a triangle
 is:"+ a+b+c " Units\n");
}
Public static void main (String args[])
{
 int side1 = 3, side2 = 4, side3 = 5;
Triangle t1 = new triangle ();
T1. area (side1, side2, side3);
```

SAPNA
PAGE NO.:
DATE: / /

Tr. Parimeter (side1, side2, side3);
}
}

PAGE NO.:
DATE: / /

5] Write a program to Print the area of two rectangles having sides (4,5) and (5,8) respectively by creating a class named 'Rectangle', with a method named 'Area' which returns the area and length and breadth passed as parameters to its constructor.

→

```
class Rectangle
{
 int length;
 int breadth;
Public Rectangle (int l, int b)
{
  length = l;
 breadth = b;
}
Public int getarea (){
 return length * breadth
}
Public int getPerimeter (){
 return 2 * (length + breadth);
}
}
class Ans {
public static void main (String args[]).
```

```
{
Rectangle a = new rectangle (5,8);
System.out.Println("Area :"+a.getArea()+"
Perimeter is "+ a.getPerimeter());
System.out.println("Area :"+b.getPerimeter(
}
}
```

6] Write a program to print the area of a rectangle by creating a class named 'Area' having two methods. first second named as "setDim" takes length and breadth of rectangle as Parameters and the second method named as 'getarea' returns the area of the rectangle length and breadth of rectangle are entered through keyboard.

→
```
Class Rectangle
{
int length, breadth;
Void setDim (int l, int w)
{
  length = l;
  width = w;
  }
  Void getarea ()
  {
area = length x breadth
}
Void putdata ()
{
System.out.println ("length" = + length);
System.out.println ("width" = " + width);
}
```

```
Public static void main (String args[])
{
Rectangle Rect1 = new Rectangle;
  Rect1.setDim (4,5);
   Rect1.getarea();
   Rect1.Putdata();
  }
  }
```

PAGE NO.
DATE: / /

1 Write a program to print the area of rect. angle by creating a class named 'Area' taking the values of its length and breadth as Parameters of its constructor and having a method named 'returnArea' which returns the area of the rectangle. length and breadth of rectangle are entered thro keyboard.

```
import java.util.*;
class Area
{
int length;
int breadth;
Public Area (int l, int b)
{
  length = l;
  breadth = b;
}
Public int getArea()
{
return length * breadth;
}
}
class Ans {
Public static void main (String args[])
```

```
Scanner s = new Scanner (System.in);
  int l, b;
System.out.println ("Enter length");
    l = s.nextInt ();
System.out.println ("Enter breadth");
    b = s.nextInt ();
 Area a = new Area (l, b);
System.out.println ("Area :"+a.getArea());
}
}
```

8] Print the average of three number entered by user by creating a class named 'Average' having a method to calculate and print the average.

→
```
import java.util.scanner;
Public class average
 {
Public static void main (string args[])
 {
Scanner in = new Scanner (System.in);
System.out.Print("Enter the first no":);
 double x = in.nextdouble();
System.out.print (" Enter the second no :");
 double y = in.nextdouble ();
System.out.print (" Enter the third no:
 double z = in.nextdouble ();
System.out.Print ("The average Value is
  + average (x,y,z)+"\n");
Public static double average (double x,
 double y, double z)
  {
  return (x+y+z)/3;
  }
  }
```

SAPNA
PAGE NO.:
DATE: / /

Print the sum, diffence and Product of two complex number by creating a class named 'complex' with separate methods for each operation whose real and imaginary parts are entered by user.

```
public class complex
{
  double real;
  double imag;
Public complex (double real, double img);
 {
   this.real = real;
   this.img = imag;
 }
public static void main (String args[])
{
Complex n1 = new complex (2.3, 4.5);
   n2 = new complex (3.4, 5.0);
      temp;
 temp = add (n1, n2);
System.out.println ("sum = %.1f + %.1f
 1f", temp.real, temp.imag);
 }
Public Static Complex add (complex n1,
                complex n2)
```

```
Complex temp = new Complex(0.0, 0.0);
temp.real = n1.real + n2.real
temp.imag = n1.imag + n2.imag;
    return(temp);
  }
}
```

Q.10] Write a program that would print the information (name, year of joining salary, address) of three employees by creating a class named 'Employ

The output should be as follows:

Name	Year of Joining	Address
Robert	1994	64C - WallsStreet
Sam	2000	64D - Wallstreet
John	1999	26B - WallsStreet

→

```
Class Employee{
 String name, address;
 int Year_of_Joining, salary;
Public Employee (String n, int y, int sal,
 String add)
{
 name = n;
 year = y;
 Salary = Sal;
 address = add;
}
Public string getName()
{
 return name;
}
Public int getyear_of_Joining()
```

```
Public int return year of joining;
    }
    Public int getsalary()
    {
    return salary;
  }
  Public String getAddress()
    {
      return address;
    }
    }
    Class. Emp
    {
  Public static void main (String args[])
     {
Employee e1 = new Employee ("Robert"; 1994
5000, "64C - WallsStreat);
Employee e2 = new Employee ("Sam", 2000,
6000, "68D - WallsStreat");
Employee e3 = new Employee ("John", 1999.
7000, "26B - WallsStreat");
System.out.println ("Name\t year of
joining\t salary\t Address");
System.out.println (e1.getName()+"\t\t"+
e1.getyear()+"\t\t\t" + e1.getsalary()+
  + e1.getAddress());
```

```
System.out.println(e2.getName()+"\t"+e2
.getYear()+"\t\t"+e2.getSalary()+"\t"+
e2.getAddress());
System.out.println(e3.getName()+"\t"+
e3.getYear()+"\t\t"+e3.getSalary()+"
+e3.getAddress());
}
}
```

SAPNA
PAGE NO.:
DATE: / /

11] Add two distances in inch-feet by creating a class named 'Addn instance.

→
```
import java.Util.*;
class Adddistance
{
private int feet;
private int inch;}
Public void getDistance()
{
Scanner sc = new scanner (system.in);
System.out.println("Enter feet");
 feet = sc.nextInt();
System.out.println("Enter inches");
inches = sc.nextInt();
}
public void add distance()
{
inches = D1.inches + D2.inches;
feet = D1.feet + D2.feet + (inches/12);
inches = inches / 12
}
}
 public class Addtwodistance {
Public static void main (string arg
  {
   try {
```

```
Distance D1 = new Distance ();
Distance D2 = new Distance ();
Distance D3 = new Distance ();
System.out.println("Enter first distance")
    D1.getDistance ();
System.out.println ("Enter second distance,
    D2.getDistance ();
    D3.adddistance (D1, D2);
System.out.println ("Total distane is:"
    D3.showdistance ();
}
 catch (Exception e)
 {
System.out.println ("Exception occured+e.
          String ());
  }
  }
  }
```

12] Write a program by creating an 'Employee' class having the following methods and print the final salary.
1. 'getInfo()' which takes the salary, number of hours of work per day of employee as parameter.
2. 'Addsal()' which adds $10 to salary of employee if it is less than $500.
3. 'Addwork' which adds $5 to salary of employee if the number of hours of work per day is more than 6 hours.

```
import java.util.*;
Class Employee{
Private string name;
Private float salary, hours;
Public employee detail(){
    home = "";
    salary = 0;
    hours = 0;
}
Public void getInfo(String n, float s
    float hr){
        home = n;
        salary = sal;
        hours = hr;}
```

```
Public float Addsal (){
if (salary <500){ salary = salary +10; }
  return salary; }
Public float Addwork (){
  if (hours >6) {
  salary = salary +5; }
    return salary; } }
Class TestEmployee{
    float salary;
  Public TestEmployee (float +sal){
      salary = sal
  }
    public void Printsal (){
System.out. println ("salary" + salary); } }
      Class Emp {
Public static void main (string args []){
Employee detailemp = new employee detail
Scanner s = new Scanner (system.in)
system.out.println (" Enter the name"
 String name = sc. nextline ();
system.out.println (" Enter salary");
   sc. nextline ();
System.out.println (" Enter salary");
 float salary = sc. nextfloat ();
System.out. println (" Enter no. o
 float hours = sc. nextfloat ();
```

```
emp.getInfo (name, salary, hours);
  Salary = emp. Addsal ();
  emp.getInfo (name, Salary, hours);
    Salary = emp. addwork ();
Test employee Test = new testemployee();
      test. Printsal ();
  }
```

13] Create a class 'Matrix' containing constructor that initializes the number of rows and number of column of a new Matrix object The Matrix class has the following information :
1 - number of rows of matrix
2 - number of column of matrix
3 - elements of matrix in the from of 2D array.

→
```
class matrix
{
Private double [][] mat;
int row, column;
matrix ()
{
 row=0;
 Column=0;
}
int row, Column
matrix ()
{
 row=0
 Column=0;
}
 row=r;
 Column=c;
```

```
    mat = new;
double [row] [column];
  }
 return m;}
Public Void Print matrix (){
System.out.Println ("Matrix is :");
for (int i=0; i< row; i++) {
 for (int j=0; j< column; j++)
{
System.out.Println (a[i][j] + "\t");
}
System.out.Println (" ");
 }}
}
Class Test {
Public Static Void main (String args[])
{
Matrix m = new matrix (3,3);
matrix n = new matrix (3,3);
    int k=1;
for (int i=0; i<3; i++)
{
 for (int j=0; j<3 ; j++){
  m.setElement (i,j,k);
    k++;
  n.setElement (i,j,k);
    k++;
```

```
}
}
 m.printmatrix();
 n.printmatrix();
matrix o = matrix.add(m,n);
   o.printmatrix();
matrix p = matrix.product(m,n);
   p.print matrix();
   }
   }
```

14] The Matrix class has methods for each of the following:

1. get the number of rows
2. get the number of column
3. Set the elements of the matrix given position (i,j)
4. adding two matrices. if the matrices. if the matrices are not addable., "Matrices cannot be added" will be displayed.
5. Multiplying the two matrices download our A.

→

```
Class matrix {
    int row;
    int columns
```

```
    int [][] a;
Public matrix (int r, int c)
{
  row = r;
  Column = c;
a = new int [row][column];
}
Public int getrows (){
   return row;
}
   Public int getcolumn (){
      return column;
}
Public int getelement (int r, int c)
{
   return a[r][c] ;}
matrix M, = new matrix (n. row, colum)
 {
  return for (int j = 0; j<2; row; j++)
{
for (int i = 0 ; i< y ; column ; i++)
{
  int sum = 0;
for (int k = 0 ; k<2; column ; k++)
{
sum = sum + (a. getelement (j. k) * y)
```

```
getelement(k,i);}
  m.setelement(j,i,sum);}}
   return m;}
Public void Print matrix(){
System.out.Println("matrix is");
 for(int i=0;i<row;i++){
 for(int j=0;j<column;j++)
 {
System.out.Println(a[i][i]+"\t");
}
System.out.Println("");
 }}
 }
 class Test{
Public Static void main(String args[])
 {
matrix m= new matrix(3,3);
matrix n= new matrix(3,3);
    int k=1;
for(int i=0;i<3;i++)
 {
for(int j=0;j<3;j++){
    m.setElement(i,j,k);
      k++;
    n.Setelement(i,j,k);
      k++;
```

```
        m.Printmatrix();
        n.Printmatrix();
    matrix o = matrix.odd(m,n);
        o.Printmatrix();
    matrix P = matrix.Product(m,n);
        p.Print matrix();
    }
}
```