* Assignment - 2

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.

Ans:

```
import java.util.*;
public class student
  {
  string Name;
  int roll-no;
  }
  student ()
  {
  Name = John;
  roll-no = 2;
  }
  disp void display()
  {
system.out.println ("Name :" + Name);
system.out.println ("Roll-no:" + roll-no);
  }
public static void main (string args[])
  {
student s1 = new student ();
  s1.display();
  }
  }
```

o/p:-

```
Name : John
Roll-no : 2
```

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

```
class student
{
```

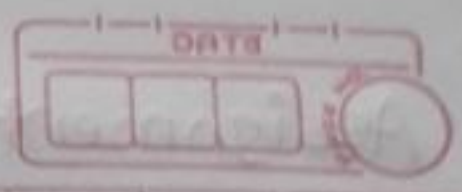
Q 2)

Ans:

```
class student
{
string name;
string address;
Long phoneno;
int rollno;
student (string a, string b, Long c, int d)
{
name = a;
Address = b;
phoneno = c;
rollno = d;
}
}
class Test {
public static void main (String args[])
{
student s1 = new student ("sam", "pune"
                9021450861, 1);

student s2 = new student ("John", "pune"
                8263081911, 2);

System.out.println ("Rollno:" + s1.rollno
                + "\nName:" + s1.name
" + \nAddress:" + s1.address + "\n phone
no.:" + s1. phone no);
```




```
System.out.println("Rollno : "+s2.
  rollno+"\n Name : "+s2.name+"\n
Address : "+s2.address+"\n Phone no
  : "+s2.phoneno);
  }
  }
```

O/P :- Roll no : 1
Name : same
Address : pune
Phoneno : 9021450861
Rollno : 2
Name : John Addr.
Phone no : 8263081911
Address : Latur.

Q2.

Q3) 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 Traingle without any parameter in its constructor.

Ans:

```
import.java.util.*;
class Traingle
 {
int a, b, c;
public double getArea()
 {
double s = (a+b+c)/2.0;
return = Math.pow(s*(s-a)*(s-b)*(s-
        ,.5);
 }
public double getPerimeter()
 {
return (a+b+c)/2.0;
 }
 }
class Ans {
 public static void main(String args[])
{
```

Q4.

```
Triangle t1 = new Triangle ();
    t1.a = 2;
    t1.b = 5;
    t1.c = 6;

~~System.out.println(t.getArea());~~
~~System.out.println(t.getPermeter());~~
    }
}

System.out.println("Area OF Triangle is
    :" + t1.getArea());

System.out.println("Perimeter of Triangle
    is :" + t1.getPerimeter());
    }
}
```

O/P :- Area of ~~Tri~~Triangle is : 6.5

Perimeter of Triangle is : 21.93

Q4. 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 with constructer the three sides as its

Ans:-

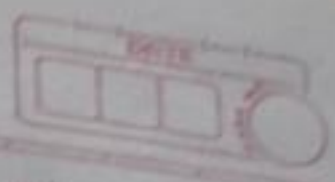
```
import java.util.*;
public class Traingle
{
void area(int a, int b, int c).
{
Float s = ((a+b+c) / 2.0);
Float A = sqrt(s*(s-a)*(s-b)*(s-c));

System.out.println("Area of a traingle
is": + A " sq.units");
}

void perimeter(int a ,int b, int c)
{
system.out.println(" Perimeter of a
Traingle is:" + a+b+c " units\n");
}
public static void main (string args[])
{
int side1 = 3, side2 = 4, side3 = 5;
Triangle T1 = new traiangle();
T1.area(side1, side2, side3);
T1.perimeter(side1, side2, side3);
}
}
```

O/P:- Area of Triangle is 6.5
perimeter of Triangle is: 21.935

5) Ans:



Q5. Write a program to print the area of two rectangles having sides of (4,5) and (5,8) respectfully by creating a class named 'Rectangle' with a method named 'Area' which returns the area & length & breadth passed as parameters to its constructor.

Ans:

```
class Rectangle
  {
  int length, breadth;
Public Rectangle (int a, int b){
    length = a;
    breadth = b;
   }
  public int getArea ()
   {
   return (length * breadth);
   }
  Public int getParameter()
   {
  return 2*(length + breadth);
   }
}

class Test {
  Public static void main (string args[])
   {
Rectangle a = new Rectangle (4,5);
Rectangle b = new Rectangle (5,8);
```

System.out.println("Area1:" +a.getArea();
"perimeter is" +a.getPerimeter();

System.out.println("Area2:" +a.getArea();
"perimeter2 is" +a.getPerimeter();
}
}

O/P:- Area1 is : 20
perimeter1 is: 18
Area2 is : 40
perimeter2 is : 26

96 Write a program to print the area of a rectangle by creating a class named 'Area' having two methods. First Method 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.

Ans:

```
import java.util.Scanner.*;
class Area
{
int length;
int breadth;
public int setDim(int l, int b)
{
length = l;
breadth = b;
}
```

```
public int getArea()
  {
  return (length * breadth);
  }

  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();
    a.setDim(l, b);
System.out.println("Area :" + a.getArea
                    ());
  }
  }
```

O/P :- Enter length

5

Enter breadth

4

Area : 20

97. Write a program to print the area of a rectangle by creating 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 through keyboard.

Ans:

```
import java.util.scanner.*;
    class Area
    {
    int length;
    int breadth;
  Public Area (int l, int b)
    {
    length = l;
    breadth = b;
    }
 public int return Area ()
    {
    return (length * breadth);
    }

 Public void static void main (string args[])
  {
 scanner s = new scanner (system.in);
     int l, b;
```

98.

Ans:

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 of rectangle:"
+ a.ge:return Area());
}
}

Qs. print the ~~average of three numbers~~ entered ~~by user by~~ creating a cl

O/P :- Enter length:
4
Enter breadth: 5
Area of rectangle: 20

Q8. print the average of three numbers entered by user by creating a class named Average having a method to calculate and print the average.

Ans:

```
import java.util.scanner.*;
public class Average
{
 int a, b, c;
```

```
Public Average (int n1, int n2, int n3)
{
  a = n1;
  b = n2;
  c = n3;
}
public int calculate average ()
{
return (a+b+c) /3;
}

Public static void main (string args[])
{
Scanner s1 = new scanner (system.in);
    int n1, n2, n3
System.out.println("Enter the n1:");
    n1 = s1.nextInt ();
system.out.println("Enter the n2:");
    n2 = s1.nextInt();
system.out.println("Enter the n3:");
    n3 = s1.nextInt();

  Average A1 = new Average (n1, n2, n3)

system.out.println("The average of
    entered numbers is:"+A1.calculate())
}
}
```

3) O/P: Enter the n1 : 90
Enter the n2 : 100
Enter the n3 : 95

The average of entered number is : 95

99. print the sum, difference and product of two complex number by creating a class named 'complex with separate methods for each operation whose real and imaginary part are entered by user.

Ans:
```
import java.util.*;
class complex {
int real;
int imag;
public complex (int r, int i)
{
real = r;
imag = i;
}
public static complex add (complex a, comple
                          x b) {
return new complex ((a.real + b.real), (a.imag
                          + b.image));
}
Public static complex diff (complex a, complex
b)
{
```

```
return new complex ((a.real - b.real),
 (a.image - b.imag ));
 }

public static complex product (complex a,
complex b ) {
return new complex (((a.real * b.real) -
 (a.imag * b.imag)), ((a.real * b.imag)
+ (a. imag * b.real)));

public void print complex () {
   if (real == 0 && imag != 0)
    {
system.out.println( imag + "i" );
 }
 else if (imag == 0 && real != 0)
  {
  system.out.println ( real ); }
 else {
 system.out.println ( real + " + " + imag" );
  }
  }
  }
  class Test {
public static void main (string args [])
  {
  complex c = new complex ( 4,5 );
  complex d = new complex (9,4)
```

complex c = complex.add(c,d)
complex F = complex.diff(c,d)
complex g = complex.product(c,d)

e.Print complex();
F.Print complex();
g.print complex();
}
}

o/p :- 13 + 9i
-5 + 1i
16 + 61 i

q 10) ——— ?

class Employee {
private string name, address;
Private int year, salary;
public employee (string n, int y, int sal, string add)
{
name = n; year = y; salary = sal;
address = add;
}
Public string get Name() { return name;
}
public int get year() { return year; }
public int get salary() {
return salary }
public string get Address() {
return address; } }

class E{
public static void main (string args[])
{

```
Employee e1 = new Employee("Robert", 1994, 50000, "64C-
                wallsteel");
Employee e2 = new employee("John", 1999, 50000, "26B-
                wallstreet");
Employee e3 = new employee("sam", 2000, 74000,
                "68d-wallstree");
System.out.println(" e1.getname() + "\t"
  e1.getyear() + "\t\t\t" + e1.getsalary()
  + "\t" + e1.getaddress());

System.out.println(e2.getname() + "\t"
  e2.getyear() + "\t\t\t" + e2.getsalary()
  + "\t" + e2.getaddress());
System.out.println(e3.getname() + "\t"
  e2.getyear() + "\t\t\t" + e3.getsalary
  () + "\t" e3.getaddress());
}
}
```

O/P :-

Name	year of joing	Address
Robert	1994	64C-wallsstreet
sam	2000	68D-wallsstreet
John	1999	26B-wallsstreet

Q11. Add two distance in inch-feet by creating a class named "Add Distance".

Ans:

```
import java.util.*;
class Addistance
 {
  Private int Feet;
  private int inches;
  pubiic void getDistance()
  {
  Scanner sc = new scanner (system.in);
   system.out.print (" Enter feet:");
   feet = sc.nextInt();
  system.out.print ("Enter inches:");
     inches = sc.nextInt();
  }
  public void showDistance()
  {
  system.out.println ("feet:" +feet+"\t
                    Inches:" + inches);
  }
  public void addDistance (Distance D1, Distance
          D2)
  {
  inches = D1. inches + D2.inches;
     feet = D1.feet +D2.feet + (inches/12);
      inches = inches %12;
  }
}
```

```
Public class ADDTwoDistance
 {
Public static void main (string args[])
  {
  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 distance is:")
     D3.showDistance();
  }
  catch (Exception e)
   {
system.out.println (" Exception
occured :" +e.tostring());
  }
  }
}
```

O/P:- Enter First distance:-
Enter feet: 20
Enter inches: 10
Enter second distance:
Enter feet: 20
Enter inches: 10
Total distance is:
Feet: 41 Inches: 8

Q12. Write a program by creating an Employee class having the following methods and print the final salary.

1. 'getInfo()' which tates the salary, number of hours of work per day of employee as parameter.
2. Add sal() which adds $10 to salary of the empolyeee if the number of hours of work per day is 13.

Q13. Create a class called matrix containg constructer that initalizes the number of rows and number of columns of a new matrix object. The matrix class has follawin information

1. number of rows of matrix
2. number of column of matrix
3. elements of matrix th form of 2D array.

Q 12.

Ans:-

```
import java.util.*;
classEmployee Detail{
Private string name;
private float salary;
 hours;
public Employee Detail(){
   name="";
   Salary = 0;
   hours = 0;
   }
   public void getInfo(String n, float
sal, float hr) {
   name=n;
   salary = sal;
   hours = hr;
   }
public float Add Sal(){
 if (salary<500){
salary = salary+10;
 }
Salary
 return salary;
 }
public float Add work(){
 if (hours > 8)
 {
salary = salary +5;
}
```

```
return salary;
  }
  }
class TestEmployee {
  float salary;
public TestEmployee(float sal) {
  salary = sal;
  }
public void printsal() {
  System.out.println("salary:"+salary);
public void printsal() {
  System.out.println("salary:"+salary);
  }
  }
class Emp
{
public static void main(String args[])
{
EmployeeDetail emp = newEmpolyeeDetail();

Scanner sc=new Scanner(System.in);
System.out.println("Enter 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. of hours of work");
float hours = sc.nextFloat();

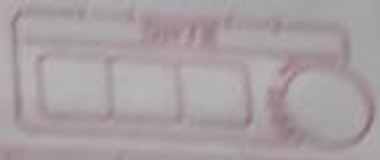
emp.getInfo(name, salary, hours);
salary = emp.Addsal();

emp.getInfo(name, salary, hours);
salary = emp.Addwork();

TestEmployee test = new TestEmployee(salary);
test.printsal();
}
}

O/P:-

Enter Name
Dipali
Enter salary
50000
Enter no. of hours of work
7
salary : 50005.0



q13. class matrix
{
private double[][] mat;
int row, column;
matrix()
{
row = 0;
column = 0;
}
int row, column;
matrix()
{
row = 0;
colum = 0;
}
matrix(int r, int c)
{
row = r;
column = c;
mat = new
double [row][column];
}
Public void get-input()
{
scanner s = new scanner(system.in);
scan
int i = 0, j = 0;

```
System.out.println("Enter the matrix
    elements (row-wise)");
For (i=0; i<row; i++)
 {
For (j=0; j<column; j++)
{
mat[i][j] = s.nexDouble(); }
}
}
public void print-matrix()
 {
 int i=0,j=0;
system.out.println("The matrix is
:>>");
 for(i=0; i<row; i++)
  {
system.out.println(" ");
for(j=0; j<column; j++)
{
System.out.println(" " +mat[i][j]
 }
 }
 }
 }
class Text
{
private static matrix m1, m2, ans;
```

```
public static void main (string args[])
{
int i=0, j=0; r=0, c=0;
 scanners = new scanner(system.in);
system.out.println("Enter no. of rows:");

r= s.nextInt();
system.out.println("Enter no. of
   columns:");
   c= s.nextInt();

system.out.println("Enter the first
          Matrix :>>");
   m1 = new matrix(r,c);
   m1.get_input();
   m1.print_matrix();
}
}
```

O/P:- Enter no. of rows:

2

Enter no. of columns:

2

Enter the first matrix :>>

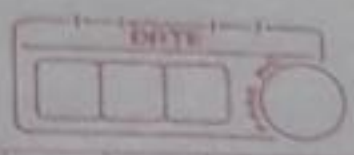
Enter the matrix element (rowwise)

1

2

3

4.

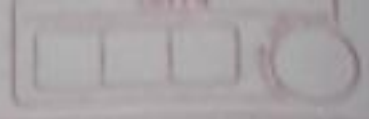


Q14. The matrix class has method for each of the following.

1. get the number of rows.
2. get the number of columns
3. set the elements of the matrix at given position(i,i)
4. adding two matrices. If the matrices are not addable, "matrice cannot be added" will be displayed.
5. multiplying the two matrices

Ans:

```
class Matrix {
  int row;
  int column;
  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]; }
```



```
public void setElement (int r, int c, int
                        element ) {
        a[r][c] = element;
}
public static matrix add (matrix x, matrix y)
{
if((x.row == = y.row) && (x.column == y.
                          column))
{
Matrix m = new matrix (x.row, x.column);
for (int i = 0 ; i < m.row; i++)
{
for(int j = 0 ; j < m ; column ; j++)
{
m.setElement (i, j, (x.getElement
  (i,j) + y.getElement (i, j)));
}
}
return m;
}
else {
system.out.println (" matrices c
an not be added");
        return new matrix (0,0);
}
}
public static Matrix Product (Matrix x,
  Matrix y ) {
```

```
Matrix m = new matrix (x.row, y.column);
  for (int j = 0 ; j< x.row ; j++)
   {
for (int i = 0 ; i <y.column ; i++)
  {
  int sum = 0;
for (int k = 0 ; k < x.column; k++)
  {
  sum = sum+(x.getElement (j, k)* y.
  getElement (k,i)) ; }
m.setElement (j, i, sum) ; } }
    return m; }
public void printMatrix() {
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. print matrix ();
  n. print matrix ();
  Matrix o = matrix. add (m, n);
  o. print matrix ();

  Matrix p = matrix. product (m, n);
  p. print Matrix ();
  }
}
```

o/p: Matrix is :

1	3	5
7	9	11
13	15	17

Matrix is :

2	4	6
8	10	12
14	16	18

Matrix is

3	7	11
15	19	23
27	31	35

matrix is

96	114	132
240	294	348
384	474	564

Q 11. Ad
cl

Ans: