ASSIGNMENT – 2

1. Write a java program for Matrix Addition.

Program :

```
import java.util.Scanner ;

class matadd{

public static void main(String [] x){

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of rows ");

int r=sc.nextInt();

System.out.println("Enter no of columns ");

int c= sc.nextInt();

int a[][]= new int[r][c];

int b[][] = new int[r][c];

int n[][] = new int[r][c];

System.out.println("Enter the numbers for 1st matrix ");

int i,j;

for(i=0;i<r;i++){

for(j=0;j<c;j++){

a[i][j]=sc.nextInt();

}

}

System.out.println("Enter the numbers for 2nd matrix ");

for(i=0;i<r;i++){

for(j=0;j<c;j++){

b[i][j]=sc.nextInt();
```

```
}

}

for(i=0;i<r;i++){

for(j=0;j<c;j++){

n[i][j]=a[i][j]+b[i][j];

}

}

System.out.println("The addition between the two matrixes are :");

for(i=0;i<r;i++){

for(j=0;j<c;j++){

System.out.print(n[i][j]+"    ");

}

System.out.println();

}

}

}
```

OUTPUT :

```
Enter no of rows

3

Enter no of columns

3

Enter the numbers for 1st matrix

1 2 3 4 5 6 7 8 9

Enter the numbers for 2nd matrix

1 2 3 4 5 6 7 8 9
```

The addition between the two matrixes are :

2 4 6

8 10 12

14 16 18

2 . Write a java program for Matrix Multiplication.

Program :

```
import java.util.Scanner ;

class matmul{

public static void main(String [] x){

Scanner sc = new Scanner(System.in);

System.out.println("Enter no of rows for matrix 1");

int r1=sc.nextInt();

System.out.println("Enter no of columns for matrix 1");

int c1= sc.nextInt();

System.out.println("Enter no of rows for matrix 2");

int r2=sc.nextInt();

System.out.println("Enter no of columns for matrix 2");

int c2= sc.nextInt();

int a[][]= new int[r1][c1];

int b[][] = new int[r2][c2];

int n[][] = new int[r1][c2];

System.out.println("Enter the numbers for 1st matrix ");

int i,j,k;

for(i=0;i<r1;i++){

for(j=0;j<c1;j++){

a[i][j]=sc.nextInt();
```

```
}
}
System.out.println("Enter the numbers for 2nd matrix ");
for(i=0;i<r2;i++){
for(j=0;j<c2;j++){
b[i][j]=sc.nextInt();
}
}
for(i=0;i<r1;i++){
for(j=0;j<c2;j++){
int s=0;
for(k=0;k<r2;k++){
s=s+(a[i][k]*b[k][j]);
}
n[i][j]=s;
}
}System.out.println("The multiplication between the two matrixes are :");
for(i=0;i<r1;i++){
for(j=0;j<c2;j++){
System.out.print(n[i][j]+"    ");
}
System.out.println();
}
}
}
```

Output :

Enter no of rows for matrix 1

4

Enter no of columns for matrix 1

3

Enter no of rows for matrix 2

3

Enter no of columns for matrix 2

4

Enter the numbers for 1st matrix

1 2 3 4 5 6 7 8 9 10 11 12

Enter the numbers for 2nd matrix

1 2 3 4 5 6 7 8 9 10 11 12

The multiplication between the two matrixes are :

38 44 50 56

83 98 113 128

128 152 176 200

173 206 239 272

3 . Write a java program to demonstrate method overloading.

Program :

```
class methodoverloading{

int  add(int a,int b)

{

        return a+b;

}

double add(double a,double b,double c)
```

```
{
        return a+b+c;
}
public static void main(String [] args)
{
methodoverloading obj = new methodoverloading();
int sum=obj.add(3,4);
System.out.println("The addition between the two integer datatype numbers is : "+sum);
double summ = obj.add(4.6,7.8,12.6) ;
System.out.println("The addition between the three double datatype numbers is : "+summ);
}
}
```

Output :

The addition between the two integer datatype numbers is : 7

The addition between the three double datatype numbers is : 25.0

4 . Write a java program to create a class Point with two data members x & y. Include all constructors and display().

Program :

```
class Point{
int a,b;
Point()
{
a=10;
b=20;
}
Point(int a,int b)
```

```
{
this.a=a;
this.b=b;
}
Point(Point t)
{
a=t.a;
b=t.b;
}
void display()
{
System.out.println("A value is "+a+" B value is "+b);
}
public static void main(String [] args)    {
Point p = new Point();
Point p1 = new Point(100,200);
Point p2 = new Point(p1);
p.display();
p1.display();
p2.display();
}
}
```

Output :

A value is 10 B value is 20

A value is 100 B value is 200

A value is 100 B value is 200

5. Write a java program using static method.

Program :

```
class staticmethodimplementation

{

static void staticmethod(){

System.out.println("This is a static method which is called without creating any objet to the class.");

}

public static void main(String [] x)

{

staticmethod();

}

}
```

Output :

This is a static method which is called without creating any objet to the class.

Theoretical Questions :

1.What is conditional statement?

Conditional Statements are used to check whether a condition is satisfied if it is true it will go to if block ad if it is false it will go to else block.

Types of Conditional Statements:

1. IF Statement.
2. If-Else Statement.
3. If-Else-If Ladder.
4. Nested-If .

2. Write the syntax of switch case statement.

Syntax :

```
switch(expression){

case value1:
 //code to be executed;
 break;  //optional
case value2:
 //code to be executed;
 break;  //optional
default:
code to be executed if all cases are not matched;
```

3. Write the difference between break and continue statement.

Break: It is used to exit from the loop.

Continue: It is used to go to back again to the loop and the current process will not exit and it will not come out of the loop

4. What is looping statement?

A looping statement allows us to execute a statement or group of statements multiple times .There are three types of loops: for, while, and do while.

5. Write the difference between while and do..while statement.

While is a entry controlled loop where it first check the condition and allow the loop to perform the operation then if it is true else break out of the loop

Do..While is exit controlled loop which means the loop will check the condition after executing and it executes at least for one time.

6. What is array? How it is created?

Array: Array is an object which contains elements of a similar data type. Additionally,The elements of an array are stored in a contiguous memory location.

Creation of Arrays in Java:

1. Data type name []= new data type[size];
   Example: int a[] = new int[5];
2. Data Type name [] = {values};
   Example: int a[] ={1,2,3,4,5};

7. What is class?

Class: A class can be defined as a template/blueprint that describes the behavior/state that the object of its type support.

8. What is constructor?

Constructor: A constructor is a special method that is used to initialize objects. The constructor is called when an object of a class is created. It can be used to set initial values for object attributes.

9. What is the use of copy constructor?

Copy constructor is a constructor which creates an object by initializing it with an object of the same class, which has been created previously.

10. What is the use of this keyword?

this keyword is used in many ways :

1. this can be used to refer current class instance variable.
2. this can be used to invoke current class method (implicitly)
3. this() can be used to invoke current class constructor.
4. this can be passed as an argument in the method call.
5. this can be passed as argument in the constructor call.
6. this can be used to return the current class instance from the method.

11. What is method overloading?

If a class has multiple methods having same name but different in parameters, it is known as Method Overloading.

12. What is static variable?

The static variable is used to refer a common property of all the objects it is same for each and every object.

13. What is access modifier?

The access modifiers in Java specifies the accessibility or scope of a field, method, constructor, or class. We can change the access level of fields, constructors, methods, and class by applying the access modifier on it.

There are four types of Java access modifiers:

1. Public
2. Private
3. Protected
4. Default

14. Write the difference between instance and static methods.

Instance methods are to be called with the help of the object declaration and static method is called without any objet and these methods are same for every object and these values won't change with the respective of object calling.

15. What is object? How it is created?

Object: An entity that has state and behavior is known as an object .

Creation of the object:

```
ClassName objectName = new ClassName();
```

Example :

```
Student std1 = new Student();
```