Right Stroke Full Stack Training

Assignment-2

1.Matrix Addition

Program:

```
import java.util.Scanner;
class MatrixAdd
{
public static void main(String args[])
{
Scanner sc=new Scanner(System.in);
int a=Integer.parseInt(args[0]);
int b=Integer.parseInt(args[1]);
int matrix1[][]=new int[a][b];
int matrix2[][]=new int[a][b];
int result[][]=new int[a][b];
System.out.println("enter elements into the matrix1");
for(int i=0;i<a;i++)
{
for(int j=0;j<b;j++)
  matrix1[i][j]=sc.nextInt();
}
```

```
System.out.println("enter elements into the matrix2");
for(int i=0;i<a;i++)
{
for(int j=0;j<b;j++)
  matrix2[i][j]=sc.nextInt();
}
for(int i=0;i<a;i++)
{
for(int j=0;j<b;j++)
{
result[i][j]=matrix1[i][j]+matrix2[i][j];
}
}
System.out.println("the addition of two matrices is :");
for(int i=0;i<a;i++)
{
for(int j=0;j<b;j++)
{
System.out.print(result[i][j]+" ");
}
System.out.println();
}
```

```
}
}
```

Output:

```
E:\fullstackjava>javac MatrixAdd.java
E:\fullstackjava>java MatrixAdd 3 3
enter elements into the matrix1
1
2
3
4
5
6
7
8
9
enter elements into the matrix2
2
3
4
5
6
7
```

8

9

10

the addition of two matrices is :

3 5 7

9 11 13

15 17 19

2.Matrix Multiplication

Program:

```
import java.util.Scanner;
class MatrixMultiplication
{
public static void main(String args[])
{
Scanner sc=new Scanner(System.in);
int a=Integer.parseInt(args[0]);
int b=Integer.parseInt(args[1]);
int matrix1[][]=new int[a][b];
int matrix2[][]=new int[a][b];
int result[][]=new int[a][b];
System.out.println("enter elements into the matrix1");
for(int i=0;i<a;i++)
```

```
{
for(int j=0;j<b;j++)
  matrix1[i][j]=sc.nextInt();
}
System.out.println("enter elements into the matrix2");
for(int i=0;i<a;i++)
{
for(int j=0;j<b;j++)
  matrix2[i][j]=sc.nextInt();
}
for(int i=0;i<a;i++)
{
for(int j=0;j<b;j++)
{
result[i][j]=0;
for(int k=0;k<a;k++)
   result[i][j]+=matrix1[i][k]*matrix2[k][j];
}
}
System.out.println("the addition of two matrices is :");
for(int i=0;i<a;i++)
{
```

```
for(int j=0;j<b;j++)
{
System.out.print(result[i][j]+" ");
}
System.out.println();
}
}
}
```

Output:

```
E:\fullstackjava>javac MatrixMultiplication.java
E:\fullstackjava>java MatrixMultiplication 3 3
enter elements into the matrix1
1
2
3
4
5
6
7
8
9
enter elements into the matrix2
```

2

3

4

5

6

7

8

9

10

the addition of two matrices is :

36 42 48

81 96 111

126 150 174

3.Method Overloading

Program:

```
class MethodOverloading
{
public void show(int a,int b)
{
int c=a+b;
System.out.println(c);
}
```

```
public void show(int a,int b,int c)
{
int result=a*b*c;
System.out.println(result);
}
}
class Display
{
public static void main(String args[])
{
MethodOverloading mo=new MethodOverloading();
mo.show(8,5);
mo.show(2,3,4);
}
}
```

Output:

```
E:\fullstackjava>javac Display.java
E:\fullstackjava>java Display
13
24
```

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

Program:

```
import java.lang.*;
class Trail
{
private int x,y;
public Trail()
{
 x=10;
 y=20;
}
public Trail(int r)
{
 x=r;
 y=20;
}
public Trail(int a,int b)
{
 x=a;
 y=b;
```

```
}
public int add()
{
  return x+y;
}
public int sub()
{
  return Math.abs(x-y);
}
public int multi()
{
  return x*y;
}
}
class Show
{
public static void main(String args[])
{
Trail t1=new Trail();
System.out.println("Constructor with default values");
System.out.println("add: "+t1.add()+" sub: "+t1.sub()+" multiplication: "+t1.multi());
```

```
Trail t2=new Trail(15);

System.out.println("Constructor with one defined value");

System.out.println("add: "+t2.add()+" sub: "+t2.sub()+" multiplication: "+t2.multi());

Trail t3=new Trail(10,15);

System.out.println("Constructor with defined values");

System.out.println("add: "+t3.add()+" sub: "+t3.sub()+" multiplication: "+t3.multi());

}

}
```

Output:

```
E:\fullstackjava>javac Show.java

E:\fullstackjava>java Show

Constructor with default values

add: 30 sub: 10 multiplication: 200

Constructor with one defined value

add: 35 sub: 5 multiplication: 300

Constructor with defined values

add: 25 sub: 5 multiplication: 150
```

5. **Write a java program using static method.**

Program:

```
class Methodstatic
{
static int display(int a)
{
int area=a*a;
return area;
}
public static void main(String args[])
{
System.out.println("Inside static method: \n area of square is:"+display(2));
}
}
```

Output:

```
E:\fullstackjava>javac Methodstatic.java
E:\fullstackjava>java Methodstatic
Inside static method:
 area of square is:4
```

1.What is conditional statement?

Ans: A conditional statement is a statement in programming language that is used to decide which code has to be execute when a condition is true or false.

There are 5 conditional statements

a.if

b.if else

c.if else if

d.nested if

e.switch

2.Write the syntax of switch..case statement.

Ans:Switch is a conditional statement which is used to execute one statement from multiple conditions.

Syntax:

```
switch(expression)
{
    case value1:
                    statements
                     break(optional)
   case value2:
                     statements
                     break(optional)
.
```

.

.

.

.

.

default:

Statements

}

3.Write the difference between break and continue statement.

Ans:

Break: It is used to stop execution of a loop and comes out of the loop to execute remaining code.It simply terminates immediately from the loop and executes remaining code.

Continue:It is used to terminate the current iteration and resumes the control to the next iteration of the loop.if the statement is true then continue statement will directly points to next iteration by terminating the current iteration.

4.What is looping statement?

Ans:A looping statement is used to execute a series of steps or a sequence of statements repeatedly for many or zero times that satisfies the given condition.

It simply executes a block of statements until the limit specified in the loop exceeds.

The looping statement are for,while,do while .

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

Ans:While and do-while are looping statements which are used to execute a block of statements.

Difference between while and do-while are:

- In while loop,the given condition is executed at the start of the loop.If it is false then the loop will not execute at all.
- While loop executes if and only if the condition is true.
- In do-while,the condition is verified after the execution of the statement inside the loop.
- So,the iteration occurs at least once if the condition is false in do-while loop.

6.What is array? How it is created?

Ans: An array is a linear data structure which is used to store a bunch of elements of same data type.It is used to store multiple values in a single variable of same data type.

We can't store a elements of different datatypes in array.

Syntax:

datatype var_name=new datatype[size];

7.What is class?

Ans:A class is the basic building block of an object oriented language.It is represented as template that

describes the data and methods associated with the instance of that class.

It is the example of both data encapsulation and data abstraction.

8.What is constructor?

Ans:Constructor is a special method that is used to initialize the objects specified in a class.It is called when an object of a class is created.

There are three types of constructors:

1.default constructor

2.zero argument constructor

3.parameterized constructor

9.What is the use of copy constructor?

Ans:A copy constructor creates an object using another object of same class.It copy's an object that is used to pass as an argument to a function.

It simply creates an object by initializing it with using another object which is created previously.

10. What is the use of this keyword?

Ans:This is a special keyword which is used to eliminate confusion between the duplicate names of attributes or parameters.It refers to current object in a method or constructor.

11.What is method overloading?

Ans:Method overloading is static polymorphism/compile time polymorphism.

Method overloading allows a class to create a more than one method with same name but with different parameters.

12.What is static variable?

Ans:Static variable is a non access modifier.It is used to refer common properties of all objects of the class because it is a class level variable.The memory is allocated only once to static variables at the time of class loading.So only a single copy is created and shared among all the objects/instances of the class.

13.What is access modifier?

Ans: Access modifiers specifies the accessibility of a variable,method,constructor or class.

There are 4 types of access modifiers.

Private-It cannot be accessed from outside the class.

Default-It can be accessed only with in the package. If you do not specify any access level, it will be the default.

Protected-it can be accessed within the package and outside the package through the child class

Public-It can be accessed through everywhere.Within the class,outside the class,within the package and outside the package.

14.Write the difference between instance and static methods.

Ans: Instance method are methods which require an object of its class to be created before it can be called.

Static methods are the methods in Java that can be called without creating an object of class.

Static method means which will exist as a single copy for a class. But instance methods exist as multiple copies depending on the number of instances created for that class.

15. What is object? How it is created?

Ans:An object is an instance of a class which describes the state and behaviour of a methods.

Object is the basic concepts of Object Oriented Programming which describes the real world entities.

In Java, the new keyword is used to create new objects.

Syntax:object object_name=new object;