Assignment 2

1. Write a java program for Matrix Addition.

import java.util.\*;

public class MatrixAdd {

public static void main(String[] args) {

Scanner s=new Scanner(System.in);

System.out.println("Enter size of matrix");

int n = s.nextInt();

int[][] a = new int[n][n];

int[][] b = new int[n][n];

System.out.println("Enter elements into first matrix");

for(int i=0;i<n;i++){

for(int j=0;j<n;j++){

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

}

}

System.out.println("Enter elements into second matrix");

for(int i=0;i<n;i++){

for(int j=0;j<n;j++){

b[i][j]=s.nextInt();

}

}

System.out.println("Resultant matrix after addition is");

for(int i=0;i<n;i++){

for(int j=0;j<n;j++){

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

}

System.out.println();

}

s.close();

}

}

Output :

Enter size of matrix

2

Enter elements into first matrix

1 7 3 5

Enter elements into second matrix

3 8 0 1

Resultant matrix after addition is

4 15

3 6

1. Write a java program for Matrix Multiplication.

import java.util.\*;

class program46{

public static void main(String args[]){

Scanner s=new Scanner(System.in);

int i,j,n,k;

System.out.println("enter the size of matrix");

n=s.nextInt();

int[][] a=new int[n][n];

int[][] b=new int[n][n];

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

System.out.println("enter the first matrix");

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

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

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

}

}

System.out.println("enter the second matrix");

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

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

b[i][j]=s.nextInt();

}

}

System.out.println("the resultant matrix is:");

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

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

for(k=0;k<n;k++){

c[i][j]=c[i][j]+a[i][k]\*b[k][j];

}

System.out.print(c[i][j+” ”]);

}

System.out.println();

}

}

}

Output :

Enter size of matrix

2

Enter elements into first matrix

1 7 3 5

Enter elements into second matrix

3 8 0 1

Resultant matrix after addition is

3 15

9 29

1. Write a java program to demonstrate method overloading.

public class MethodOverload {

public void Load(String s) {

System.out.println(s);

}

public void Load(char c) {

System.out.println(c);

}

public void Load(int i) {

System.out.println(i);

}

public void Load(double d) {

System.out.println(d);

}

public static void main(String[] args) {

MethodOverload m = new MethodOverload();

m.Load("krishna");

m.Load(5.8);

m.Load(55);

m.Load('k');

}

}

Output :

krishna

5.8

55

k

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

public class Point{

private int x,y;

Point (){

x=5;

y=8;

}

Point (int x,int y){

this.x=x;

this.y=y;

}

Point (Point p){

x=p.x+2;

y=p.y+2;

}

void display(){

System.out.println(“The values of x and y at different constructors: ”+x+" "+y);

}

public static void main(String[] args) {

Point p1=new Point ();

Point p2=new Point (7,3);

Point p3=new Point (p2);

p1.display();

p2.display();

p3.display();

}

}

Output :

The values of x and y at different constructors: 5 8

The values of x and y at different constructors: 7 3

The values of x and y at different constructors: 9 5

1. Write a java program using static method.

public class StaticMethod {

static void sum(int a,int b){

System.out.println(a+b);

}

public static void main(String args[]) {

int i=Integer.parseInt(args[0]);

int j=Integer.parseInt(args[1]);

sum(i,j);

}

}

Output :

java StaticMethod 1 7

8

1. What is conditional statement?

A **conditional statement** is a statement that computer programming language used to decide which code has to be run when the true condition is met or which code has not to be run when the true condition is not met.

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

switch(expression){

case value1:

statements;

break;

case value2:

statements;

break;

case valueN:

statements;

break;

default:

statements;

}

1. Write the difference between break and continue statement.

**Break:** The break statement terminates the loop and transfers execution to the statement immediately following the loop.

**Continue:** The continue statement causes the loop to skip the remainder of its body and immediately retest its condition prior to reiterating.

1. What is looping statement?

A loop statement allows us to execute a statement or group of statements multiple times. There are three types of loops in java. They are:

* for loop : Execute a sequence of statements multiple times and abbreviates the code that manages the loop variable.
* while loop : Repeats a statement or group of statements while a given condition is true. It tests the condition before executing the loop body.
* do-while loop : Like a while statement, except that it tests the condition at the end of the loop body.

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

While loop : A while loop is a control flow statement that allows code to be executed repeatedly based on a given Boolean condition. The while loop can be thought of as a repeating if statement.

Do-while loop : A do while loop is similar to while loop with the only difference that it checks for the condition after executing the statements, and therefore is an example of  **Exit Control Loop.**

1. What is array? How it is created?

Array is a data structure, which stores a fixed-size sequential collection of elements of the same type. An array is used to store a collection of data, but it is often more useful to think of an array as a collection of variables of the same type.

Declaration : To use an array in a program, you must declare a variable to reference the array, and you must specify the type of array the variable can reference.

Syntax :datatype[] arrayname ;

1. What is class?

A class is a group of objects which have common properties. It is a template or blueprint from which objects are created. It is a logical entity. It can't be physical.

1. What is constructor?

A constructor is a block of codes similar to the method. It is called when an instance of the class is created. At the time of calling constructor, memory for the object is allocated in the memory.

1. What is the use of copy constructor?

A copy constructor is a member function which initializes an object using another object of the same class.

1. What is the use of this keyword?

In java, this is a **reference variable** that refers to the current object. This keyboard has different usages. They are :

* this can be used to refer current class instance variable.
* this can be used to invoke current class method (implicitly).
* this() can be used to invoke current class constructor.
* this can be passed as an argument in the method call.
* this can be passed as argument in the constructor call.
* this can be used to return the current class instance from the method.

1. What is method overloading?

Method Overloading is a feature that allows a class to have more than one method having the same name, if their argument lists are different. It is similar to constructor overloading in Java, that allows a class to have more than one constructor having different argument lists.

There are three ways to overload method. They are:

* Number of parameters.
* Data type of parameters.
* Sequence of Data type of parameters.

1. What is static variable?

The static variable can be used to refer to the common property of all objects (which is not unique for each object), for example, the company name of employees, college name of students, etc. The static variable gets memory only once in the class area at the time of class loading.

1. What is access modifier?

Access modifier helps to restrict the scope of a class, constructor , variable , method or data member. In Java, we have four types of access modifiers. They are:

* Defaut
* Private
* Public
* Protected.

1. Write the difference between instance and static methods.

Instance Method : Instance method are methods which require an object of its class to be created before it can be called. To invoke a instance method, we have to create an Object of the class in within which it defined.

Static Method : Static methods are the methods in Java that can be called without creating an object of class. They are referenced by the **class name itself** or reference to the Object of that class.

1. What is object? How it is created?

**Object : An object is an instance of a class.** It is a basic unit of Object Oriented Programming and represents the real life entities. An object consists of

* **State**: It is represented by attributes of an object. It also reflects the properties of an object.
* **Behavior**: It is represented by methods of an object. It also reflects the response of an object with other objects.
* **Identity**: It gives a unique name to an object and enables one object to interact with other objects.

**Creation :** An object can be created using new keyword.

classname ref = new classname();