Program 1: Matrix Addition

```java
import java.util.Scanner;

public class MATRIX {
  public static void main(String args[])
  {
    int m = Integer.parseInt(args[0]);
    int n = Integer.parseInt(args[1]);
    int A[][] = new int[m][n];
    int B[][] = new int[m][n];
    int C[][] = new int[m][n];
    Scanner in = new Scanner(System.in);
    System.out.println("Enter the elements of Matrix A: ");
    for(int i=0;i<m;i++)
    {
      for(int j=0;j<n;j++)
      {
        A[i][j] = in.nextInt();
      }
    }
    System.out.println("Enter the elements of Matrix B: ");
    for(int i=0;i<m;i++)
    {
      for(int j=0;j<n;j++)
      {
        B[i][j] = in.nextInt();
      }
    }
```

```java
        for(int i=0;i<m;i++)
        {
            for(int j=0;j<n;j++)
            {
                C[i][j] = A[i][j] + B[i][j];
            }
        }
        System.out.println("Elements of Matrix C: ");
        for(int i=0;i<m;i++)
        {
            for(int j=0;j<n;j++)
            {
                System.out.print(C[i][j]+"  ");
            }
            System.out.println();
        }

    }
}
```

Program 2: Stack Operations

```java
import java.util.Scanner;

class stack
    {
    int top = -1;
    int stk[]=new int[5];
    void push(int ele)
    {
        if(top==stk.length-1)
        {
            System.out.println("Stack is full ");
            return;
        }
        stk[++top]=ele;
        System.out.println(ele+" is pushed succesfully ");
    }
    void pop()
    {
        if(top==-1)
        {
            System.out.println("Stack is empty");
            return;
        }
        System.out.println(" Succesfully Popped "+stk[top--]);
    }
    void display()
```

```java
    {
        if(top==-1)
        {
            System.out.println("Stack is empty");
            return;
        }
        System.out.println("Element of stark: ");
        for(int i=top;i>=0;i--)
            System.out.println(stk[i]);
    }
}
public class Prog2 {
    public static void main(String args[])
    {
        stack ob=new stack();
        Scanner in = new Scanner(System.in);
        while(true)
        {
            System.out.println(" 1.Push 2.Pop 3.Display 4.Exit");
            int ch=in.nextInt();
            switch(ch)
            {
                case 1: System.out.println("Enter the element to be inserted");
                        int element = in.nextInt();
                        ob.push(element);
                        break;
                case 2: ob.pop();
                        break;
                case 3: ob.display();
```

```java
                break;
        case 4: System.exit(0);
                break;
        default: System.out.println("Invalid choice");
                break;


    }
    }


    }
}
```

Program 3: Raise Salary

```java
import java.util.Scanner;

class employee
{
    int id;
    String name;
    double salary;
    Scanner in = new Scanner(System.in);

    void input()
    {
        System.out.println("Enter your Name: ");
        name= in.next();
        System.out.println("Enter your ID: ");
        id= in.nextInt();
        System.out.println("Enter your Salary: ");
        salary= in.nextDouble();
    }
    void display()
    {
        System.out.println(" Name: "+name);
        System.out.println(" ID: "+id);
        System.out.println(" Salary: "+salary);
    }
    void raisesalary(double per)
    {
```

```java
        double raise= (per/100)*salary;

        salary = salary+raise;

    }

}
public class Prog3 {

    public static void main(String args[])

    {

        double percentage;

        employee ob = new employee();

        ob.input();

        ob.display();

        System.out.println("Enter the percentage you want to raise");

        percentage= ob.in.nextDouble();

        ob.raisesalary(percentage);

        ob.display();

    }

}
```

Program 4: Test My point

import java.util.Scanner;

class Mypoint

{

   int x,y;

   Scanner in = new Scanner(System.in);

   Mypoint()

   {

     x=y=0;

   }

   Mypoint(int a,int b)

   {

     x=a;

     y=b;

   }

   void setXY()

   {

     System.out.println("Enter the value of X: ");

     x=in.nextInt();

     System.out.println("Enter the value of y: ");

     y=in.nextInt();

   }

   int[] getXY()

   {

     int a[]={x,y};

```java
      return a;
   }
   public String toString()
   {
      return "Point("+x+","+y+")";
   }
   double distance(int x,int y)
   {
      return Math.sqrt(Math.pow((this.x-x),2)+Math.pow((this.y-y), 2));
   }
   double distance(Mypoint another)
   {
      return Math.sqrt(Math.pow((x-another.x), 2)+Math.pow((y-another.y), 2));
   }
   double distance()
   {
      return Math.sqrt(Math.pow(x, 2)+Math.pow(y, 2));
   }
}
public class TestMyPoint {
   public static void main(String args[])
   {
      Mypoint origin = new Mypoint();
      Mypoint P1 = new Mypoint(10,5);
      Mypoint P2 = new Mypoint();
      System.out.println("Enter Co-ordinates of point P2: ");
      P2.setXY();
      System.out.println("Co-ordinates of point P2 are: ");
      for(int z:P2.getXY())
```

```java
        System.out.println(z);
    System.out.println(origin);

    System.out.println(P1);

    System.out.println(P2);

    System.out.println("Distance between P1 and point(2,3) "+P1.distance(2,3));

    System.out.println("Distance between P1 and point P2 "+P1.distance(P2));

    System.out.println("Distance between P1 and origin "+P1.distance());
    }
}
```

Program 5: Draw and Erase

```java
class shape420
{
    void draw()
    {
        System.out.println("Drawing succesfully..");
    }
    void erase()
    {
        System.out.println("Erasing Succesfully...");
    }
}
class circle extends shape420
{
    void draw()
    {
        System.out.println("Drawing Circle..");
    }
    void erase()
    {
        System.out.println("Erasing Circle..");
    }
}
class triangle extends shape420
{
    void draw()
    {
        System.out.println("Drawing Triangle..");
```

```java
        }
    void erase()
    {
        System.out.println("Erasing Triangle..");
    }
}
class square extends shape420
{
    void draw()
    {
        System.out.println("Drawing Square..");
    }
    void erase()
    {
        System.out.println("Erasing Square..");
    }
}
public class prog5 {
    public static void main(String args[])
    {
        circle c=new circle();
        c.draw();
        c.erase();
        triangle t=new triangle();
        t.draw();
        t.erase();
        square s=new square();
        s.draw();
        s.erase(); } }
```

Program 6: Calculate Area and Perimeter

```java
abstract class shape
{
    abstract void calculateArea();
    abstract void calculatePerimeter();
}


class circle extends shape
{
    double radius;
    circle(int x)
    {
        radius=x;
    }
    void calculateArea()
    {
        double area;
        area=Math.PI*radius*radius;
        System.out.println("Area of circle= "+area);
    }
    void calculatePerimeter()
    {
        double perimeter;
        perimeter=2*Math.PI*radius;
        System.out.println("Perimeter of circle= "+perimeter);
    }
}
class triangle extends shape
```

```java
{
    double a,b,c;
    triangle(double x,double y,double z)
    {
        a=x;
        b=y;
        c=z;
    }
    void calculateArea()
    {
        double area;
        double s=(a+b+c)/2;
        area=Math.sqrt(s*(s-a)*(s-b)*(s-c));
        System.out.println("Area of Traingle= "+area);
    }
    void calculatePerimeter()
    {
        double perimeter;
        perimeter=a+b+c;
        System.out.println("Perimeter of Triangle= "+perimeter);
    }
}
public class prog6 {
    public static void main(String args[])
    {
        circle c= new circle(4);
        c.calculateArea();
        c.calculatePerimeter();
        triangle t= new triangle(4,6,8);
```

```
        t.calculateArea();

        t.calculatePerimeter();

    }

}
```

Program 7: Resizable

```java
interface Resizeable
{
    void resizeWidth(int width);
    void resizeHeight(int height);
}
class Rectangle implements Resizeable
{
    int width,height;
    Rectangle(int w,int h)
    {
        width= w;
        height= h;
    }
    public void resizeWidth(int w)
    {
        width=w;
    }
    public void resizeHeight(int h)
    {
        height=h;
    }
    void printsize()
    {
        System.out.println("Width= "+width+"  Height= "+height);
    }
}
public class prog7 {
```

```java
public static void main(String args[])
{
    Rectangle r= new Rectangle(200,100);
    System.out.println("Reactangle height and width before resizing");
    r.printsize();
    r.resizeWidth(150);
    r.resizeWidth(250);
    System.out.println("Reactangle height and width After resizing");
    r.printsize();
}
}
```

Program 8: Outer and Inner

```java
class outer
{
  void display()
  {
    System.out.println("Inside outer class... ");
  }
  class inner
  {
    void display()
    {
      System.out.println("Inside inner class...");
    }
  }
}
public class prog8 {
  public static void main(String args[])
  {
    outer ob=new outer();
    outer.inner in=ob.new inner();
    ob.display();
    in.display();
  }
}
```

Program 9: Exception

```java
class MyException extends Exception
{
  public String toString()
  {
    return"DivideByZero Error";
  }
}
class demo4
{
  void compute(int a,int b)
  {
    System.out.println("Computed Value is called by "+a+" and "+b);
    if(b==0)
    {
      try
      {
        throw new MyException();
      }
      catch(MyException e)
      {
        System.out.println(e);
      }
      finally
      {
        System.out.println("finally block.....");
      }
    }
```

```java
        else
        {
            int c=a/b;
            System.out.println("Result = "+c);
        }
    }
}
public class Prog9 {
    public static void main(String args[])
    {
        demo4 ob = new demo4();
        ob.compute(10, 5);
        ob.compute(9 , 0);
        ob.compute(50, 25);
    }
}
```

Program 10: package

```java
package MyAccount;
public class Accounts {
    String name;
    double bal;
    public Accounts(String n,double b)
    {
        name=n;
        bal=b;
    }
    public void show()
    {
    if(bal<0)
    {
        System.out.print("------->");
    }
    System.out.println("Name = "+name+" Balance = "+bal);
    }
}
```

Main function…..

```java
import MyAccount.Accounts;
public class prog10 {
    public static void main(String args[])
    {
        Accounts ob[]= new Accounts[3];
        ob[0]=new Accounts("Ismail",50000);
```

```
        ob[1]=new Accounts("Saahil",-50);

        ob[2]=new Accounts("Bangdo",20000);

        ob[0].show();

        ob[1].show();

        ob[2].show();
    }
}
```