**LAB-1**

import java.util.\*;

public class Quadratic {

public static void main(String[] args)

{

double a, b, c;

double root1, root2;

System.out.println("Enter values");

Scanner input = new Scanner (System.in);

a = input.nextDouble();

b = input.nextDouble();

c = input.nextDouble();

double determinant = b \* b - 4 \* a \* c;

// condition for real and different roots

if(determinant > 0)

{

root1 = (-b + Math.sqrt(determinant)) / (2 \* a);

root2 = (-b - Math.sqrt(determinant)) / (2 \* a);

System.out.println("Real and Different roots");

System.out.println("root1 and root2 ="+" " + root1 + " " + root2);

}

// Condition for real and equal roots

else if(determinant == 0)

{

root1 = root2 = -b / (2 \* a);

System.out.println("Real and Equal roots");

System.out.println("root1 = root2 = " +" "+ root1);

}

// If roots are not real

else

{

double realPart = -b / (2 \*a);

double imaginaryPart = Math.sqrt(-determinant) / (2 \* a);

System.out.println("There are no real solutions");

System.out.println("real part = "+" "+realPart+" "+"and imaginary part ="+" "+imaginaryPart);

}

}

