LAB 01:

Develop a Java program that prints all real solutions to the quadratic equation ax2 +bx+c = 0. Read in a, b, c and use the quadratic formula. If the discriminate b2 -4ac is negative, display a message stating that there are no real solutions.

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90	Develop a Java Program that prints all real solution to
	quantane equanon ax + bx+c=0. Kend in a, b, c and
	the quadratic formula. If the discriminate b2-trac is near
	display a message stating that there are no real solutions
	impost java. util. scanner
	class quadratic &
	public static void main (string ss []) {
	Scanner Sc = New Scanner (system in); (1647) bian state
	System . Out . printen l'Entre a coefficient a: ");
	double a = sc. next Double ();
	System. Out. println ("Enter a coefficient b:");
	double b = sc. next Double ();
	System. Out println ("Enter a coefficient c: ");
	double C = Sc. next Double ();
	double d= b + b - 4 * a * c ;
	if (470) {
	double 31 = (-b+ Math · sqot (a)) /2 * a;
	double &2 = (-b-Math. sgat (d))/2 *a;
	System. out. println ("Roots are" + " + 901 +" " + 902.
	21:0° (d==0) S
	else if (d == 0) f double 9:1 = b/2 # a;
	[18:18] 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
	System. Out. println ("Roots are" + " "+ re1 +" "+ x2)
1	System. Out. printlin (1500th are 7
	else if (d<0){
	System. Out. println (" rook are reational"); }
	else {
	System. out. println (" Invalid Input!!! "); }
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200	Output as a see of the property of the policy of the polic
	Enter a coefficient a:
	Entex a coefficient b:
	Enter a coefficient c:
	The fair of the contract of the prints
	Roots are real and distinct 2.0 and 1.0 (Distinct Real Roots)
	Enter a coefficient a:
	Enter a coefficient à bindonne = de distribute sint. -2
	Entex a coefficient le : de la madement this aum & alterna
	Comment to a man to make the same 26 Dillow topme him
	Roots are real and equal: 1.0 and 1.0 (Equal real roots)
	Enter a coefficient a:
	Entes a coefficient b:
/	2 1/4+ + straight bradmuns; a = 1 this sail
	Enter à "coefficient Co: 200 MAZE) Admire Andrews 200
160	System. Out. paint (" Futry mayles by support" + 17++7+" 1.
N	Roots are imaginary (9 mg i have troots) 197 adams
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	Surge and Charles (1)

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import java.util.*;
class Quadratic {
  public static void main(String args[]) {
     Scanner input = new Scanner(System.in);
     System.out.println("Enter coefficient of a:");
     double a = input.nextDouble();
     // Handling the case where 'a' is
     zero if (a == 0) {
       System.out.println("This is not a quadratic equation (a cannot be zero).");
       return; // Exit the program as the equation is invalid
     }
     System.out.println("Enter coefficient of b:");
     double b = input.nextDouble();
     System.out.println("Enter coefficient of c:");
     double c = input.nextDouble();
     // Calculating the discriminant
     double d = b * b - 4 * a * c;
     if (d > 0) {
       // Two real and distinct roots
       double r1 = (-b + Math.sqrt(d)) / (2 * a);
       double r2 = (-b - Math.sqrt(d)) / (2 * a);
       System.out.println("Roots are real and distinct: " + r1 + " and " + r2);
     } else if (d == 0) {
```

```
// One real root
double r1 = -b / (2 * a);
System.out.println("Root is real and repeated: " + r1);
} else {
    // Complex roots
    double realPart = -b / (2 * a);
    double imaginaryPart = Math.sqrt(-d) / (2 * a);
    System.out.println("Roots are complex: " + realPart + " + " + imaginaryPart + "i and " + realPart + " - " + imaginaryPart + "i");
}
Output:
```

```
D:\24BMSCE>javac Quadratic
Enter coefficient of a:
21
Enter coefficient of b:
23
Enter coefficient of c:
4
Roots are real and distinct: -0.21684657167976656 and -0.8783915235583286
```