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LAB-program

1) ## Quadratic Equation

```java
import java.util.Scanner;
class Quadratic
{
    int a, b, c;
    double r1, r2, d;
    void getd()
    {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter the coefficients of a b c");
        a = s.nextInt();
        b = s.nextInt();
        c = s.nextInt();
    }
    void compute()
    {
        while (a==0)
        {
        System.out.println("Not a quadratic equation");
        System.out.println("Enter a non zero value for a:");
        Scanner s = new Scanner(System.in);
        a = s.nextInt();
        }
        d = b*b - 4*a*c;
        if (d==0)
        {
        r1 = (-b)/(2*a);
        System.out.println("Roots are real and equal");
        System.out.println("Root1 = Root2 = "+r1);
        }
        else if (d>0)
        {
```

```java
        r1 = ((-b) + (Math.sqrt (d))) / (double) (2*a);
        r2 = ((-b) - (Math. sqrt (d))) / (double) (2*a);
        System. out. println ("Roots are real and distinct");
        System. out. println ("Root 1 = "+r1+" Root 2= " +r2);

    }

    else if (d<0)
    {

        System. out. println ("Roots are imaginary");
        r1 = (-b)/(2*a);
        r2 = Math. sqrt (-d)/(2*a);
        System. out. println ("Root 1 = "+r1+" " + i" +r2);
        System. out. println ("Root 2 =" +r1 +" - i" +r2);

    }

    }

}

class Quadratic Main
{
    public static void main (String args[])
    {
        Quadratic q = new Quadratic ();
        q. getd ();
        q. compute ();
        System. out. println (shreyas. K _ 1BM22CS271);

    }

}
```

Output

Q Enter the coefficients of a, b, c

1

2

1

Roots are real and equal
Root 1 = Root 2 = -1.0
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② Enter the coefficients of a, b, c

1

3

2

Roots are real and distinct
Root 1 = -1.0 Root 2 = -2.0
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③ Enter the coefficient of a, b, c

2

1

3

Roots are imaginary
Root 1 = 0.1 + i1.1289578808
Root 2 = 0.0 - i1.1989578808
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10

12/12/23