→ Lab Program 1.   Date → 12/12/2023

* Develop a Java Program that prints all real
solutions to the quadratic equation $ax^2+bx+c=0$.
Read in a, b, c & use the quadratic formula. If the
discriminate b^2-4ac is negative, display a message
stating that there are no real solutions.

Quadratic Main.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 coefficient of
                 a, b, c");
            a = s.nextInt();
            b = s.nextInt();
            c = s.nextInt();

        }

```java
void compute
{
    while (a == 0)
    {
        System.out.println("Not a quadratic
            equation");
        System.out.println("Enter a non zero val
            ue of 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 a
            equal:");
        System.out.println("Root1 = Root2 ="
    }
}
```

```java
else if (d>0)
{
    r1 = ((-b) + (Math.sqrt(d))) / (double)(2*a);

    r2 = ((-b) - (Math.sqrt(d))) / (double)(2*a)

    System.out.println ("Root 1 =" + r1 + " and
                Root 2 =" + r2);
    Roots are real & diffrent
    System.out.println ("Root 1 = " + r1 " and
            Root 2 + "+r2);
}

else if (d<0)
{
    System.out.println ("Root are imaginary")

    r1 = (-b) / (2*a)

    r2 = Math.sqrt(-d) / (2*a);

    System.out.println ("Root 1 = "    + r1 + " +i"+r2
    System.out.println ("Root 1 ".    + r2 + " -i"+r2).
}
```

class QuadraticMath

{

  public static void main(String args[])

  {

    System.out.println ("My name is PUNEETH

      B T");

    System.out.println (" UEN is : 2023BMP02031");

    Quadratic q = new Quadratic M :

    q.getd();

    q.compute();

  }

}

Output:

My name is PUNEETH GJDZ B T

UEN is: 2023BMP02031

Enter the coefficient of a,b,c

1

5

3

Root1 = -0.6977224 and Root 2 = -4.30277

op'' ⑥

Key name & PUNEETH ⑧ 7D I BT

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Enter the coefficient of a, b, c

2

6

4

Roots are real & distinct

Root1 = -1.0 and Root2 = -2.0