→ Develope a Java program that prints all real solutions to the quadratic equations an² + bn + 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.

I/P:

```
import java.util.Scanner;
class Quadratic
{
    int a, b, c;
    double r1, r2, d;
    void getd()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter coefficients a, b, c");
        a = sc.nextInt();
        b = sc.nextInt();
        c = sc.nextInt();
    }

    void compute()
    {
        while(a == 0)
        {
            System.out.println("Not a quadratic equation");
            System.out.println("Enter a non zero value for a");
```

```java
        Scanner sc = 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 = Root 2= " + r1);
    }

    else if (d>0)

    {
        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 ("Root1= " + r1 + " Root2 = " + r2);
    }

    else if (d<0)

    {
            System.out.println (" Roots are imaginary");
            r1 = (-b) / (2*a);
            r2 = Math.sqrt (-d) / (2*a);
            System.out.println (" Root1 = " + r1 + " + i " + r2);
            System.out.println (" Root1 = " + r1 + " - i " + r2);
```

```
        {

        }

    }

class Quadratic Main
    {
        Public Static void main (String args[])
        {

            Quadritic q = new Quadratic();

            q.getd();

            q.compute();
         } System.out.println("S.Pranav Reddy - IBM22CS281");

        }
    }
```

o/p

1) Enter coefficients a,b,c

    1
    2
    1

    Roots are real and equal

    Root1 = Root2 = -1
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2) Enter coefficients a,b,c

    1
    2
    3

    Roots are imaginary
    Root1 = -1 + 1.4142135623731i
    Root2 = -1 - 1.4142135623731i
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3) Enter coefficients a, b, c

2
3
6

Roots are imaginary

Root1 = -0.75 + 1.5612494499 5996 i

Root1 = -0.75 - 1.5612494499 5996 i

roots complex

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4.) Enter coefficients a, b, c

1
4
1

Roots are Real and distinct

Root 1 = -0.2679491924311227

Root2 = -3.7320508075 68877

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