* Lab Program 1. Quadratic Equation

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

```
import java.util.Scanner;
 import java.
class Quadratic
{
public static void main(String ar[])
 { Scanner SC = new Scanner(System.in);
 System.out.println("Pannaga R. Bhat");
 System.out.println("1BM22CS189");
 System.out.println("Enter values of a,b,c");
double  a, b, c;
  a=SC.nextInt();      a = sc.nextDouble();
  b=SC.nextInt();      b = sc.nextDouble();
  c=SC.nextInt();      c = sc.nextDouble();
double
  r1, r2;
  if (a==0)
  {
  System.out.println("Roots cannot
                      be formed");
  System.exit(0);
  }
```

```
else
{
int 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)
 {
 r1 = (-b + (Math.sqrt(d)))/(2*a);
 r2 = (-b - (Math.sqrt(d)))/(2*a);
System.out.println("Roots are real and
                     distinct");
System.out.println("Root1 = " + r1);
System.out.println("Root2 = " + r2);
}

else
   System.out.println("Roots are imaginary");
 }
}
}
```

Output :-

a) Pannaga R. Bhat
1BM22CS189
Enter values of a, b, c
1
2
1
Roots are real and equal
Root1 = Root2 = -1.0

b) Pannaga R. Bhat
1BM22CS189
Enter values of a, b, c
1
-3
2
Roots are real and distinct
Root 1 = 2.0
Root 2 = 1.0

c) Pannaga R. Bhat
1BM22CS189
Enter values of a, b, c
1
1
2
Roots are imaginary.

d) Pannaga R. Bhat
1BM22CS189
Enter values of a, b, c
0
4
2
Roots cannot be formed

12/12