10/10/23

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

```
import java.util.Scanner;
class quadractic
{
    int a,b,c
    double r1, r2, d;
    void getd()
    {
      Scanner s = new Scanner (System.in);
    System.out.println ("Enter coeffic of a,b,c");
    a = s.nextInt();
    b = s.nextInt();
    c = s.nextInt();
}
 void compute()
 {
    while (a==0)
    { 
     System.out.println ("Not a quad eq");
    System.out.println ("Enter non-zero a");
    Scanner sc = new Scanner (System.in);
    a = s.nextInt();
}
  d = b*b - 4ac;
```

```
if (d==0)
{
    r1 = (-b)/(2*a);
    System.out.println("Roots r real & equal");
    System.out.println("R1 = R2 =" + 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 r real & distinct");
System.out.println("R1=" + r1 + "R2 =" +r2);
}
  else if (d<0)
{
    System.out.println("Roots are imaginary");
    r1 = (-b)/(2*a);
    r2 = Math.sqrt(-d)/(2*a);
System.out.println("R1 =" +r1+ "+i" +r2);
System.out.println("R2=" +r1+ "-i" +r2);
  }
}
}
class quadraticmain
{
  public static void main(String args[])
  {
    Quadratic q = new quadratic();
    q.getd();
```

```
    q.compute();
}
}
```

Output:

```
Enter the coefficients of a, b, c
0
9
8
Not a quadratic equation
Enter a non zero value for a:
5
Roots are imaginary
Root1 = 0.0 + i0.88
Root2 = 0.0 - i0.88

Enter the coefficients of a, b, c
2
4
2
Roots are real and equal
Root1 = Root2 = -1

Enter the coefficients of a, b, c.
2
8
2
Roots are real and distinct.
Root1 = -0.2679          Root2 = -3.7320
```

10

Sw 12/12/23