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USN : 1BM19CS216

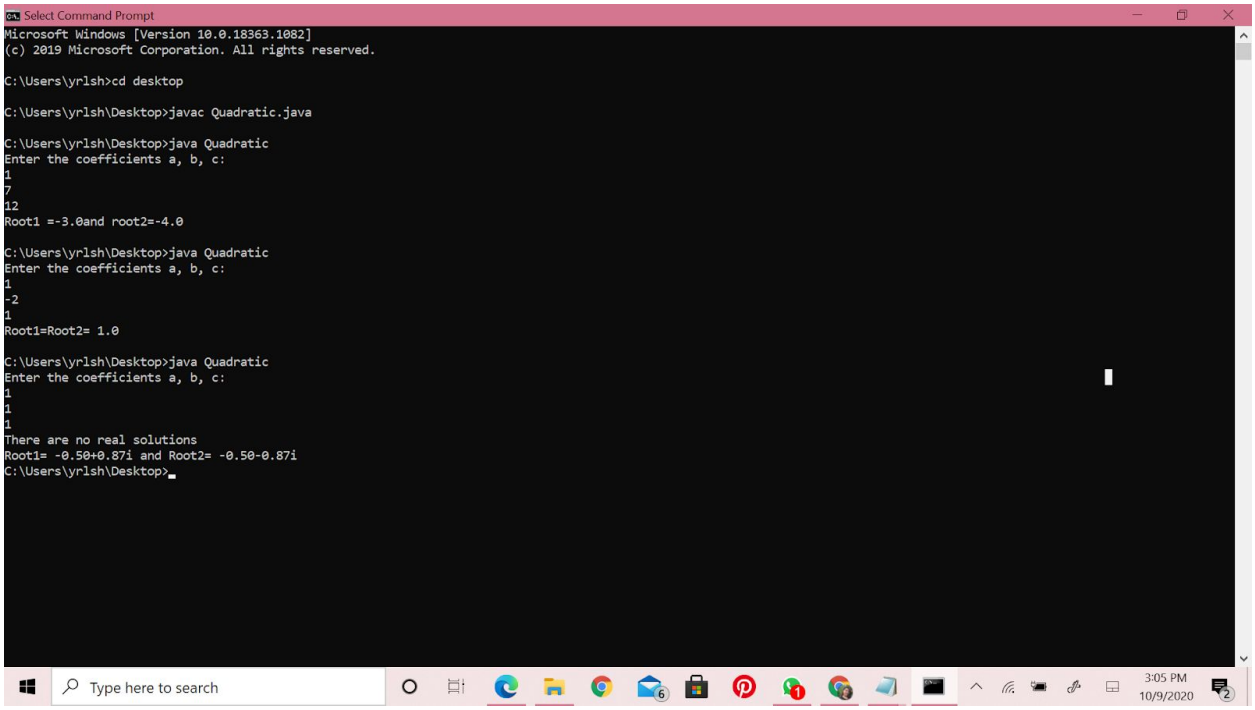
LAB1

Develop a Java program that prints all real solutions to the quadratic equation ax2 +bx+c = 0. Read in a, b, c and use the quadratic formula. If the discriminant b2-4ac is negative, display a message stating that there are no real solutions.

```
import java.util.Scanner;
import java.lang.Math;
class Quadratic
{
   public static void main(String args[])
   {
   double r1,r2;

   Scanner scan = new Scanner(System.in);
   System.out.println("Enter the coefficients a, b, c: ");
   double a = scan.nextFloat();
   double b = scan.nextFloat();
   double c = scan.nextFloat();
   double d=(b*b)-(4*a*c);
   if(d>0)
   {
   r1=(-b+Math.sqrt(d))/(2*a);
   r2=(-b-Math.sqrt(d))/(2*a);
   System.out.println("Root1 ="+r1+ "and root2="+r2);
   }
   else if(d==0)
   {
   r1=r2=-b/(2*a);
   System.out.println("Root1=Root2= "+r1);
   }
   else
   {
   System.out.println("There are no real solutions");
   double r=-b/(2*a);
   double i=Math.sqrt(-d)/(2*a);
   System.out.printf("Root1= %.2f+%.2fi and Root2= %.2f-%.2fi",r,i,r,i);
   }
   }
}
```

THE OUTPUT:


Select Command Prompt
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.
C:\Users\yrlsh>cd desktop
C:\Users\yrlsh\Desktop>javac Quadratic.java
C:\Users\yrlsh\Desktop>java Quadratic
Enter the coefficients a, b, c:
1
7
12
Root1 =-3.0and root2=-4.0
C:\Users\yrlsh\Desktop>java Quadratic
Enter the coefficients a, b, c:
1
-2
1
Root1=Root2= 1.0
C:\Users\yrlsh\Desktop>java Quadratic
Enter the coefficients a, b, c:
1
1
1
There are no real solutions
Root1= -0.50+0.87i and Root2= -0.50-0.87i
C:\Users\yrlsh\Desktop>
Type here to search
3:05 PM
10/9/2020