Lab Program 1:

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 discriminate b2

-4ac is negative, display a message stating that there are no real solutions.

Code:

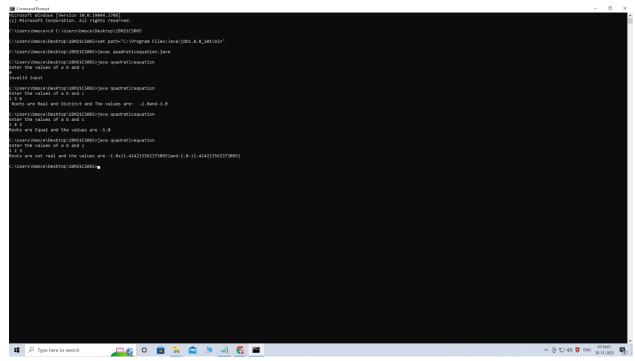
else

```
import java.util.Scanner;
class quadraticequation
 public static void main(String args[])
   Scanner S = new Scanner(System.in);
   System.out.println("Enter the values of a b and c");
   double a,b,c,d,r1,r2;
   a=S.nextFloat();
   if(a==0)
    System.out.println("invalid input");
   }
   else
   b=S.nextFloat();
   c=S.nextFloat();
   d=(b*b)-(4*a*c);
   if(d>0)
     r1=(-b+Math.pow(d,0.5))/(2*a);
     r2=(-b-Math.pow(d,0.5))/(2*a);
       System.out.println(" Roots are Real and Distinct and The values are: " + r1 + "and" +
r2);
       else if(d==0)
       r1=-b/(2*a);
          System.out.println("Roots are Equal and the values are " + r1);
```

```
r1=-b/(2*a);
              r2=(Math.sqrt(Math.abs(d)))/(2*a);
                System.out.println("Roots are not real and the values are " + r1 + "+i" +Math.abs(r2)+
"and" + r1+ "-i" +Math.abs(r2));
     }
   }
Screenshot of code:
   public static void main(String args[])
  if(d>0)
     System.out.println(" Roots are Real and Distinct and The values are: " + rl + "and" + r2); } else if(d=0) {
    {
    r1--b/(2*a);
    System.out.println("Roots are Equal and the values are " + r1);
} else
  {
    r1--b/(2*a);
    r2-(Math.spr((Math.abs(d)))/(2*a);
    r2-(Math.spr((Math.abs(d)))/(2*a);
    System.out.println("Roots are not real and the values are " + r1 + "+i" +Math.abs(r2)+ "and" + r1+ "-i" +Math.abs(r2));
    }
}
                                                                                                                                                                   100% Windows (CRLF) UTF-8
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```

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Output:



Observation:

PROGRAM 1 1 18/11/22

QUADRATIC EQUATIONS

```
class quadratic equation
 3
  Public static void main (string args[])
  3
   Scanner S = new Scanner (8 ystim-in);
   System out Println ("Enter the values a b and c");
     double
   fine a.b. c.d, r. r2;
a = 8. next Float ();

if (a == 0) { System. out. Println ("invalid input"); }

clse { b = 8. next Float ();
     C = S. next Float();
      d= (b*b)- (4 * a * d);
   4 (a>>)
      Y 1 = (-b + 89/74 (d)) / (2 * d).
      72 = (-b - sqrt(a))/(2*d);
   System out Println ("Roots or ""+ r1 + "and + r2).
                           real and distinct. The values or
   clse if (d==0)
```

r1 = - b / (5+a):

system out Println (Roots ou equal and value is "+ r1): More . 11 = 6/(2*a); 12 = (Math. Sqrt (Math. abs (d)))/(2*a); System . out . Println ("Roots are not real "Ind the values are " + 11 + "+i" + Maths. abs (12) + "and" + 17 "-i" + Maths als (re)); } } } } } output !-Enter the values of a b and come show should share 2 49 Roots are Equal and the values are -1 Ento the values of a b and c 1 5 6 Roots are Real and Distinct and the values are -2 and -3. Check hear and Enter the values of a band c 1 93

Roots ou not Real