Lab Program:
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.

USN: 1BM19CS137 Date : 02/10/2020

```
// Java program to find roots of a quadratic equation
import java.util.Scanner;
import static java.lang.Math.*;
class quadratic
{
public static void main(String args[])
{
Scanner sc = new Scanner(System.in);
System.out.print("Enter the value of a ::");
float a = sc.nextFloat();
System.out.print("Enter the value of b ::");
float b = sc.nextFloat();
System.out.print("Enter the value of c ::");
float c = sc.nextFloat();
if (a == 0)
{
System.out.println("Invalid");
return;
}
float d = b*b - 4*a*c;
float sqrt_val = (float)Math.sqrt(abs(d));
float root1= (-b + sqrt_val) / (2 * a);
float root2=(-b - sqrt_val) / (2 * a);
if(d == 0)
{
System.out.println("Roots are real and equal :: "+root1);
  }
```

```
  else if (d > 0)
  {
     System.out.print("Roots are real and different \n");
     System.out.print(root1 + "\n"+ root2);
  }
  else
  {
     System.out.print("Roots are complex \n");
     System.out.print( -b / ( 2 * a ) + " + i"+ sqrt_val +
     "\n" + -b /( 2 * a )+ " - i" + sqrt_val);
  }
}
```

```
PS D:\sem3\ooj_lab\09-10-2020> java quadratic
Enter the value of a ::1
Enter the value of b ::2
Enter the value of c ::1
Roots are real and equal :: -1.0
PS D:\sem3\ooj_lab\09-10-2020> java quadratic
Enter the value of a ::0
Enter the value of b ::2
Enter the value of c ::5
Invalid
PS D:\sem3\ooj_lab\09-10-2020> java quadratic
Enter the value of a ::2
Enter the value of b ::4
Enter the value of c ::4
Roots are complex
-1.0 + i1.0
-1.0 - i1.0
PS D:\sem3\ooj_lab\09-10-2020>
```