WEEK-3

LAB 1 : Roots of quadratic equation.

Algorithm :

Step 1 : Start

Step 2 : Read a, b, c in $ax^2 + bx + c$

Step 3 : $D = b^2 - 4ac$

Step 4 : if D is lesser than 0, Print invalid roots & exit else step 5

Step 5 : Calculate $x1 = \frac{-b + \sqrt{b^2-4ac}}{2a}$

and $x2 = \frac{-b - \sqrt{b^2-4ac}}{2a}$

Step 6 : Print x1 and x2.

Step 7 : Stop.

Program:

```
import java.util.*;
class quadratic
{
    public static void main (String [] args)
    {
        int a, b, c;
        double d, x1, x2;
        Scanner in = new Scanner (System.in);
        System.out.println ("Enter a, b, c in ax^2 + bx + c");
        a = in.nextInt();
        b = in.nextInt();
        c = in.nextInt();
```

```
d = (b*b) - (4*a*c);
if (d<0)
  {
    System.out.println ("Imaginary roots // No real solutions");
    return;
  }
x1 = ((-1*b) + Math.sqrt (d)) / (2*a);
x2 = ((-1*b) + Math.sqrt (d)) / (2*a);
System.out.println ("Root 1: " + x1 + "\n Root 2: " + x2);
  }
}
```

Output

Enter a, b, c in $ax^2 + bx + c$

1

10

4

Root 1 : -0.417

Root 2 : -9.582