

LAB1: Roots of Quad-equation:

```

import java.util.Scanner;
class Lab1
{
    public static void main (String args[])
    {
        double a,b,c,x1,x2,d,sqrt;
        System.out.println ("Enter The Co-efficients
                            of Quadratic Equation (ax^2+bx+c):");
        Scanner get = new Scanner (System.in);
        a = get.nextDouble();
        b = get.nextDouble();
        c = get.nextDouble();
        d = (b*b) - (4*a*c);
        if (d > 0)
        {
            System.out.println ("The Roots are real and
                                distinct :");
            sqrt = Math.sqrt(d);
            x1 = (-b + sqrt) / (2*a);
            x2 = (-b - sqrt) / (2*a);
            System.out.printf ("Root 1 = %f and Root 2 = %f", x1, x2);
        }
        else
        if (d == 0)
        {
            System.out.println ("The Roots are real
                                and equal :");
            x1 = (-b) / (2*a);
            x2 = x1;
            System.out.printf ("Root 1 = %f", x1);
        }
    }
}

```

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and Root 2 = $90.4 \text{e}^{11}, 82, 82;$

{}

else

if ($d < 0$)

{ System.out.println ("The Roots are imaginary");
 System.out.println ("They are : Root 1 = $90.2 \text{e} + (90.2 \text{e})\text{i}$,
 and Root 2 = $90.2 \text{e} + (90.2 \text{e})\text{i}$);

{}

{}

{}

(Valid Input for $b = 0$)
 (Valid Input for $b = d$)
 (Valid Input for $b = c$)

$$(d^2 + d^2) - (d \times d) = b$$

$(a < b)$?

has been used about $a \neq 0$ in the program

; (if : true block)

$$(b) \text{ if condition} = 1.082$$

$$\therefore (a+b) / (1.082 + d) = c$$

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else part : used result in the program

;(else block) ; has b no true

{}

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$(a = b)$?

has been used about $a \neq 0$ in the program

; (if : false block)

$$(a * a) / (d - c) = c$$

so it is