

WEEK-3

IBM19CS052

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1. Develop a Java Program that prints all real solutions to the quadratic equation $ax^2 + bx + c = 0$. Read in a, b, c and use the quadratic formula. If the discriminate $b^2 - 4ac$ is negative, display a message stating that there are no real solutions.

```
=> import java.util.Scanner;  
public class Lab-week3  
{  
    public static void main (String [] args)
```

```
{  
    Scanner sc = new Scanner(System.in);  
    int a, b, c;  
    double d, s1, s2;
```

```
    System.out.print ("Enter values of a, b, c of a  
    quadratic eqn: ");
```

```
    a = sc.nextInt();
```

```
    b = sc.nextInt();
```

```
    c = sc.nextInt();
```

```
    sc.close();
```

```
    d = (double) ((b*b) - (4*a*c));
```

```
    if (a == 0)
```

```
{
```

```
        System.out.println ("Invalid");
```

```
        return;
```

```
}
```

```

if (d < 0)
{
    System.out.println("No real solutions!");
}
else if (d == 0)
{
    s1 = (double) ((-b + Math.sqrt(d)) / (2 * a));
    s2 = (double) ((-b - Math.sqrt(d)) / (2 * a));
    System.out.printf("Roots are Real and Equal : %.4f\nand %.4f", s1, s2);
}
else
{
    s1 = (double) ((-b + Math.sqrt(d)) / (2 * a));
    s2 = (double) ((-b - Math.sqrt(d)) / (2 * a));
    System.out.printf("Roots are Real and Distinct\n: %.4f and %.4f", s1, s2);
}
}
}

```