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.

```
import java.util.Scanner;
import static java.lang.Math.sqrt;
class Lab1{
	public static void main(String args[]){
		Scanner ss=new Scanner(System.in);
		double a,b,c,d,r1,r2;
		int temp;
		System.out.println("Enter the three co-efficients a,b,c of the quadratic equation");
		a=ss.nextDouble();
		b=ss.nextDouble();
		c=ss.nextDouble();
		d=((b*b)-(4*a*c));
		if(d==0)
		{
			temp=1;
		}
		else if(d>0)
		{
			temp=2;
		}
		else
```

```
		{
			temp=3;
		}
		switch(temp)
		{
			case 1:System.out.println("The roots are real and equal");
				r1=r2=(-b/(2*a));
				System.out.println("The roots are "+r1+" and
"+r2+"");
				break;
			case 2:System.out.println("The roots are real and distinct");
				r1=(-b+sqrt(d))/(2*a);
				r2=(-b-sqrt(d))/(2*a);
				System.out.println("The roots are "+r1+" and
"+r2+"");
				break;
			case 3:System.out.println("The roots are imaginary,that is
there are no real solutions to the given quadratic equation");
				break;
			default:System.out.println("Invalid input");
				break;
		}
		}
		}
```

```
C:\Users\win10\Documents\Java lab programs>java Lab1
Enter the three co-efficients a,b,c of the quadratic equation
1
2
3
The roots are imaginary,that is there are no real solutions to the given quadratic equation
```

```
C:\Users\win10\Documents\Java lab programs>java Lab1
Enter the three co-efficients a,b,c of the quadratic equation
4
8
4
The roots are real and equal
The roots are -1.0 and -1.0
```

```
C:\Users\win10\Documents\Java lab programs>java Lab1
Enter the three co-efficients a,b,c of the quadratic equation
5
10
2
The roots are real and distinct
The roots are -0.2254033307585166 and -1.7745966692414832
```