Develop a Java program that all the classified solutions to quadratic equation $ax^2 + bx + c$, Read a, b, c. If the discriminate is -ve, display there are no real roots.

```java
import java.util.Scanner;

import java.lang.Math;

public class QuadraticEquation {

public static void main (String args[]) {

float a, b, c, d;

double root1, root2;

Scanner s = new Scanner(System.in);

System.out.println(" Enter coefficients :");

a = s.nextFloat();
b = s.nextFloat();
c = s.nextFloat();

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

if (a==0) {

System.out.println(" Not a quadratic equation.");
}

else if (d>0) {

root1 = (-b + Math.sqrt(d))/(4*a*c);
root2 = (-b - Math.sqrt(d))/(4*a*c);
```

```
System.out.println(" Real    and   distinct   roots
                        "+root1+"   and "+root2);

}

else if (d>0) {

root1 = -b/(2*a);
root2 = d/(2*a);

System.out.println(" Real    and   distinct   roots
                        : +root1+"   and "+root2);

}

else if (d<0) {

root1 = -b/(2*a);
root2 = d

else if (d==0) {

root1 = root2 = -b/(2*a);
System.out.println("Real  roots  are: "+root1" and +root2

}

}

}
```

1. Enter coefficient :
   1 -4 8

   Imaginary root are = 2.0 + i (-8.0) and 2.0 - i (-8)

2. Enter coefficient :

   0   5   6

   Not a quadratic equation.

3. Enter coefficients :

   1   10   5

   real and distinct root are : - 0.5278 and
   -9. 4721

4. Enter coefficients :

   2   4   2

   real roots are : -1.0 and -1.0.

```
C:\Users\STUDENT\Desktop>javac QuadraticEquation.java

C:\Users\STUDENT\Desktop>java QuadraticEquation
Enter coefficients:
0
1
2
Not a quadratic equation

C:\Users\STUDENT\Desktop>java QuadraticEquation
Enter coefficients:
2
4
2
Real roots are:-1.0and-1.0

C:\Users\STUDENT\Desktop>java QuadraticEquation
Enter coefficients:
1 -4 8
Imaginary roots and distinct are:2.0+i-8.0 and 2.0-i-8.0

C:\Users\STUDENT\Desktop>java QuadraticEquation
Enter coefficients:
0 5 6
Not a quadratic equation

C:\Users\STUDENT\Desktop>java QuadraticEquation
Enter coefficients:
1 10 5
Real and distinct roots are:-0.05278640450004204 and -0.947213595499958

C:\Users\STUDENT\Desktop>
```