```
import java.util.Scanner;

class Quad
{
double a,b,c;

Quad(double a,double b,double c)
{
this.a=a;
this.b=b;
this.c=c;
}

void calc()
{
double d=b*b-4*a*c;
double root1,root2;

if(a==0)
{
System.out.println("Please enter valid quadratic equation");
}

else
{
if(d==0)
{
System.out.println("Roots are real and equal:");
System.out.println("Root1 = Root2: "+(-b/2*a));
}
```

```
else if(d>0)
{
System.out.println("Roots are real and distinct:");
root1=(-b+Math.sqrt(d))/(2*a);
root2=(-b-Math.sqrt(d))/(2*a);
System.out.println("Root1: "+root1+"\nRoot2: "+root2);

}
else
{
root1=(-b)/(2*a);
root2=Math.abs(d)/(2*a);
System.out.println("Roots are imaginary: ");
System.out.println("Root1: "+root1+" +i "+root2);
System.out.println("Root2: "+root1+" -i "+root2);

}
}
}
}

class Quadrun
{
public static void main(String[] args)
{
Scanner input=new Scanner(System.in);
System.out.print("Enter value of a: ");
double a=input.nextDouble();
System.out.print("Enter value of b: ");
double b=input.nextDouble();
System.out.print("Enter value of c: ");
```

```
double c=input.nextDouble();
Quad quadratic=new Quad(a,b,c);
quadratic.calc();
input.close();
}
}
```

OUTPUTS:

```
Enter value of a: 1
Enter value of b: 5
Enter value of c: 6
Roots are real and distinct:
Root1: -2.0
Root2: -3.0

Enter value of a: 1
Enter value of b: 5
Enter value of c: 6
Roots are real and distinct:
Root1: -2.0
Root2: -3.0

Enter value of a: 3
Enter value of b: 1
Enter value of c: 4
Roots are imaginary:
Root1: -0.16666666666666666 +i 7.833333333333333
Root2: -0.16666666666666666 -i 7.833333333333333
```

Enter value of a: 0

Enter value of b: 4

Enter value of c: 5

Please enter valid quadratic equation