LAB 1

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```
import java.util.Scanner;
class Quadratic
{
    int a,b,c;
    double r1,r2,d;
    void getd()
    {
        Scanner s=new Scanner(System.in);
        System.out.println("Enter the coefficients of a,b,c");
        a=s.nextInt();
        b=s.nextInt();
        c=s.nextInt();
    }
    void compute()
    {
        while(a==0)
        {
            System.out.println("Not a quadratic equation");
            System.out.println("Enter a non zero value for a:");
            Scanner s=new Scanner(System.in);
            a=s.nextInt();
        }
    }
    d=b*b-4*a*c;
    if(d==0)
    {
        r1=(-b)/(2*a);
        System.out.println("Roots are real and equal");
        System.out.println("Root1=Root2=" +r1);
```

```
}
else if(d>0)
{
    r1 = ((-b)+(Math.sqrt(d)))/(double)(2*a);
    r2 = ((-b)-(Math.sqrt(d)))/(double)(2*a);
    System.out.println("Roots are real and distinct");
    System.out.println("Root1 = "+r1+"  Root2 = "+r2);
}
else if(d<0)
{
    System.out.println("Roots are imaginary");
    r1 = (-b)/(2*a);
    r2 = Math.sqrt(-d)/(2*a);
    System.out.println("Root 1 = "+r1+" +i "+r2);
    System.out.println("Root 2 = "+r1+" -i "+r2);
}
}
class QuadraticMain
{
    public static void main(String args[])
    {
        Quadratic q = new Quadratic();
        q.getd();
        q.compute();
    }
    System.out.println("Shruti Khandelia. 1BM22CS274");
}
}
```

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Output 1

Enter the coefficients of a, b, c
1
-2
1
Roots are real and equal
Root 1 = Root 2 = 1.0
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Output 2

Enter the coefficients of a, b, c
3
5
6
Roots are imaginary
Root 1 = 0.0 + i 1.1426091000668406
Root 2 = 0.0 - i 1.1426091000668406
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Output 3

Enter the coefficients of a, b, c
1
6
3
Roots are real and distinct
Root 1 = -0.5505102572168211 Root 2 = -5.449489742783178
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