program 1

1BM19EC173
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```
import java.util.*;
import java.lang.*;
public class RootsOfQuadraticEquation{
public static void main(String args[])
{
  double firstRoot=0, secondRoot=0;
  Scanner sc = new Scanner(System.in);
  System.out.println("Enter the value of a:");
  double a = sc.nextDouble();
  System.out.println("Enter the value of b:");
  double b = sc.nextDouble();
  System.out.println("Enter the value of c:");
  double c = sc.nextDouble();
  double d = (b*b) - (4*a*c);
  double sqrt = Math.sqrt(d);
  if(d>0)
  {
    firstRoot = (-b+sqrt)/(2*a);
    secondRoot=(-b-sqrt)/(2*a);
    System.out.println("Roots are real and distinct");
    System.out.println("Roots are : "+firstRoot+" and "+secondRoot);
  }
  else if(d==0)
  {
    System.out.println("Roots are real and equal");
    System.out.println("Root is : "+(-b+sqrt)/(2*a));
  }
```

```
else
{
    double realPart = -b/(2*a);
    double imagPart = Math.sqrt(-d)/(2*a);
    System.out.println("Roots are imaginary");
    System.out.println("Roots are : "+realPart+"+i"+imagPart);
    System.out.println("Roots are : "+realPart+"-i"+imagPart);
  }

 }

}
```