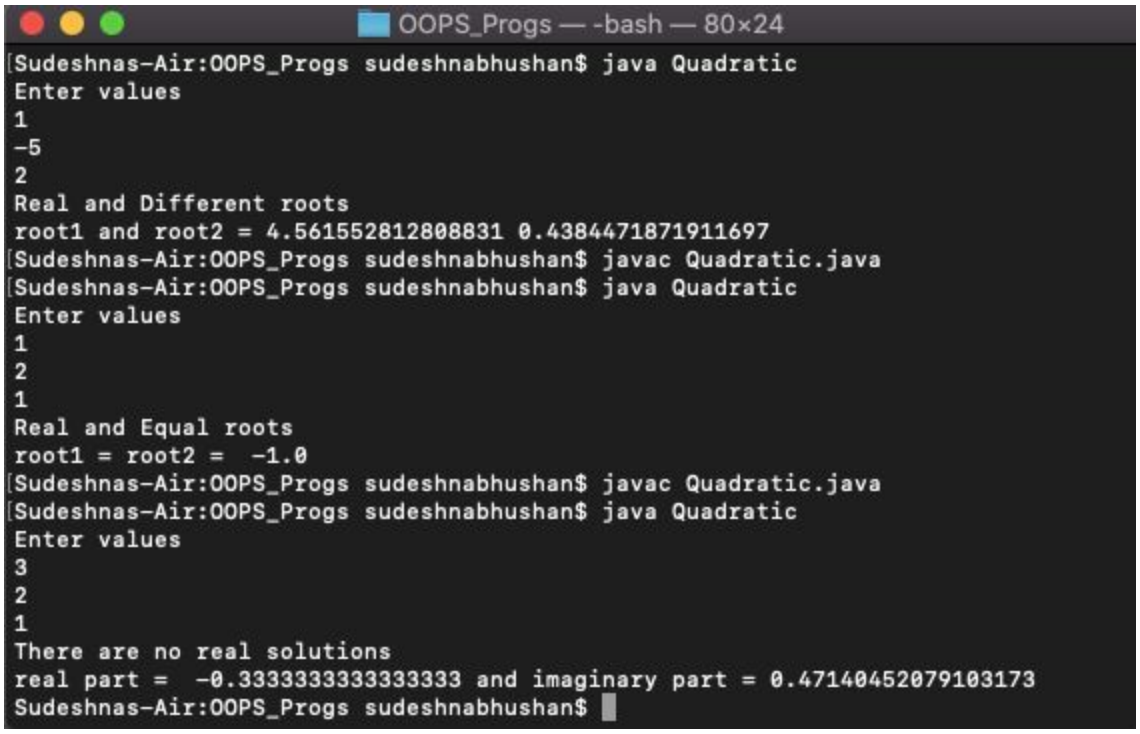
LAB 1

```
import java.util.*;
public class Quadratic {

   public static void main(String[] args)
   {

      double a, b, c;
      double root1, root2;
      System.out.println("Enter values");
      Scanner input = new Scanner (System.in);
      a = input.nextDouble();
      b = input.nextDouble();
      c = input.nextDouble();

      double determinant = b * b - 4 * a * c;

      // condition for real and different roots
      if(determinant > 0)
      {
         root1 = (-b + Math.sqrt(determinant)) / (2 * a);
         root2 = (-b - Math.sqrt(determinant)) / (2 * a);
         System.out.println("Real and Different roots");

         System.out.println("root1 and root2 ="+" " + root1 + " " + root2);
      }
      // Condition for real and equal roots
      else if(determinant == 0)
      {
         root1 = root2 = -b / (2 * a);
         System.out.println("Real and Equal roots");


         System.out.println("root1 = root2 = " +" "+ root1);
      }
      // If roots are not real
      else
      {
         double realPart = -b / (2 *a);
         double imaginaryPart = Math.sqrt(-determinant) / (2 * a);

         System.out.println("There are no real solutions");

         System.out.println("real part = "+" "+realPart+" "+"and imaginary part ="+" "+imaginaryPart);
      }
   }
```

}


OOPS_Progs — -bash — 80×24
Sudeshnas-Air:OOPS_Progs sudeshnabhushan$ java Quadratic
Enter values
1
-5
2
Real and Different roots
root1 and root2 = 4.561552812808831 0.4384471871911697
Sudeshnas-Air:OOPS_Progs sudeshnabhushan$ javac Quadratic.java
Sudeshnas-Air:OOPS_Progs sudeshnabhushan$ java Quadratic
Enter values
1
2
1
Real and Equal roots
root1 = root2 = -1.0
Sudeshnas-Air:OOPS_Progs sudeshnabhushan$ javac Quadratic.java
Sudeshnas-Air:OOPS_Progs sudeshnabhushan$ java Quadratic
Enter values
3
2
1
There are no real solutions
real part = -0.3333333333333333 and imaginary part = 0.47140452079103173
Sudeshnas-Air:OOPS_Progs sudeshnabhushan$