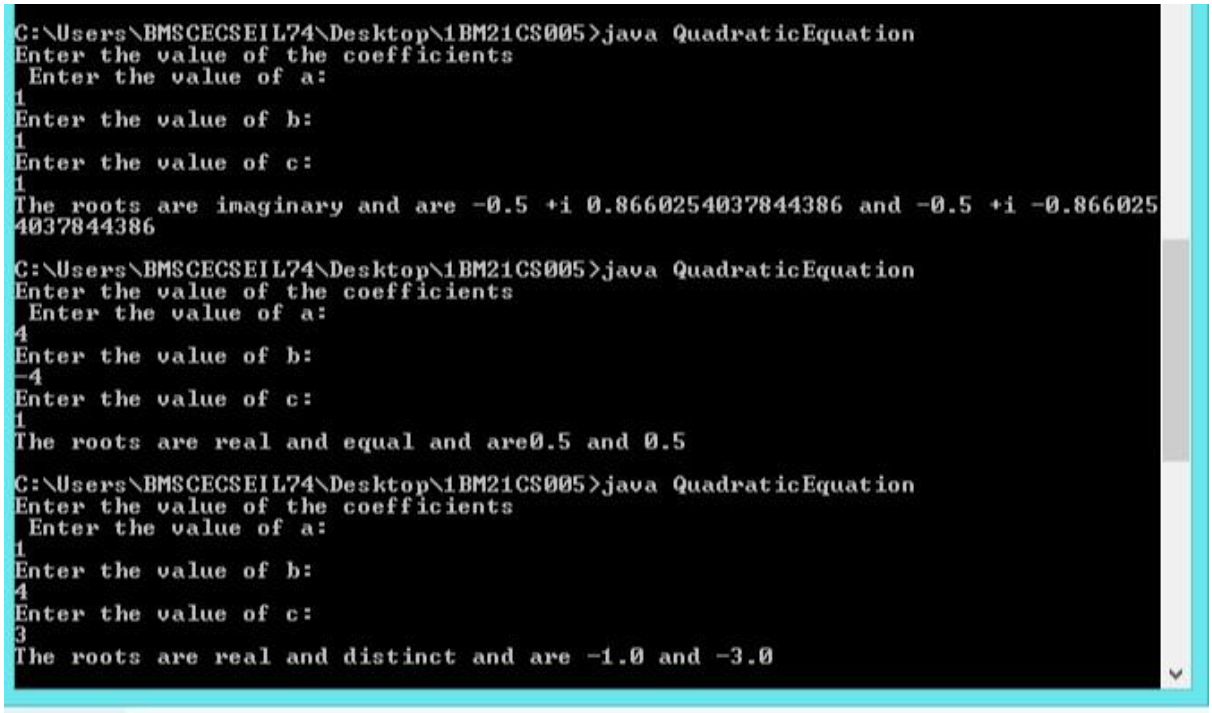
Lab program-1.

Develop a java program that prints all real solutions to the quadratic equation $ax^2+bx+c=0$. Read in a, b, c and use the quadratic formula. If the discriminate b^2-4ac is negative, display a message stating there are no real solutions.

```
import java.util.Scanner;
public QuadraticEquation
{
publicstatic void main(String xx[])
 {
Scanner input = new Scanner(system.in);
System.out.println("Enter the value of a:");
double a= input.nextDouble();
if (a==0.0)
system.out.println("The value of a cannot be 0");
system.out.println("Enter the value of b:");
double b=input.nextDouble();
system.out.println("Enter the value of c:");
double c=input.nextDouble();
double d=b*b-4.0*a*c;
if(d>0.0)
{
double r1=(-b+Math.sqrt(d,0.5))/(2.0*a);
double r2=(-b-Math.sqrt(d))/(2.0*a);
System.out.println("The roots are real and
distinct and "+r1" and "+r2);
}
else if(d==0.0)
```

```
{
double r1 = -b/(2.0*a);
system.out.println("The roots are equal and "+r1);
}
else
{
if (d<0.0)
{
r1 = (-b+Math.abs(Math.sqrt(d))/(2*a));
system.out.println("The roots are :"+r1+" i "+r1+"and"
+"i"+r2);
r3 = (-b-Math.abs(Math.sqrt(d))/(2*a));
System.out.println("The roots are imaginary and
"+" i "+r3+"and"+"i"+r4);
}
}
}
}
```


C:\Users\BMSCECSEIL74\Desktop\1BM21CS005>java QuadraticEquation
Enter the value of the coefficients
Enter the value of a:
1
Enter the value of b:
1
Enter the value of c:
1
The roots are imaginary and are -0.5 +i 0.8660254037844386 and -0.5 +i -0.866025
4037844386
C:\Users\BMSCECSEIL74\Desktop\1BM21CS005>java QuadraticEquation
Enter the value of the coefficients
Enter the value of a:
4
Enter the value of b:
-4
Enter the value of c:
1
The roots are real and equal and are0.5 and 0.5
C:\Users\BMSCECSEIL74\Desktop\1BM21CS005>java QuadraticEquation
Enter the value of the coefficients
Enter the value of a:
1
Enter the value of b:
4
Enter the value of c:
3
The roots are real and distinct and are -1.0 and -3.0