QUADRATIC EXPERIMENT

QUESTION:

Develop a Java program that prints all real solutions to the quadratic equation ax2+bx+c = 0. Read in a, b, c and use the quadratic formula. If the discriminate b2-4ac is negative, display a message stating that there are no real solutions.

INPUT:

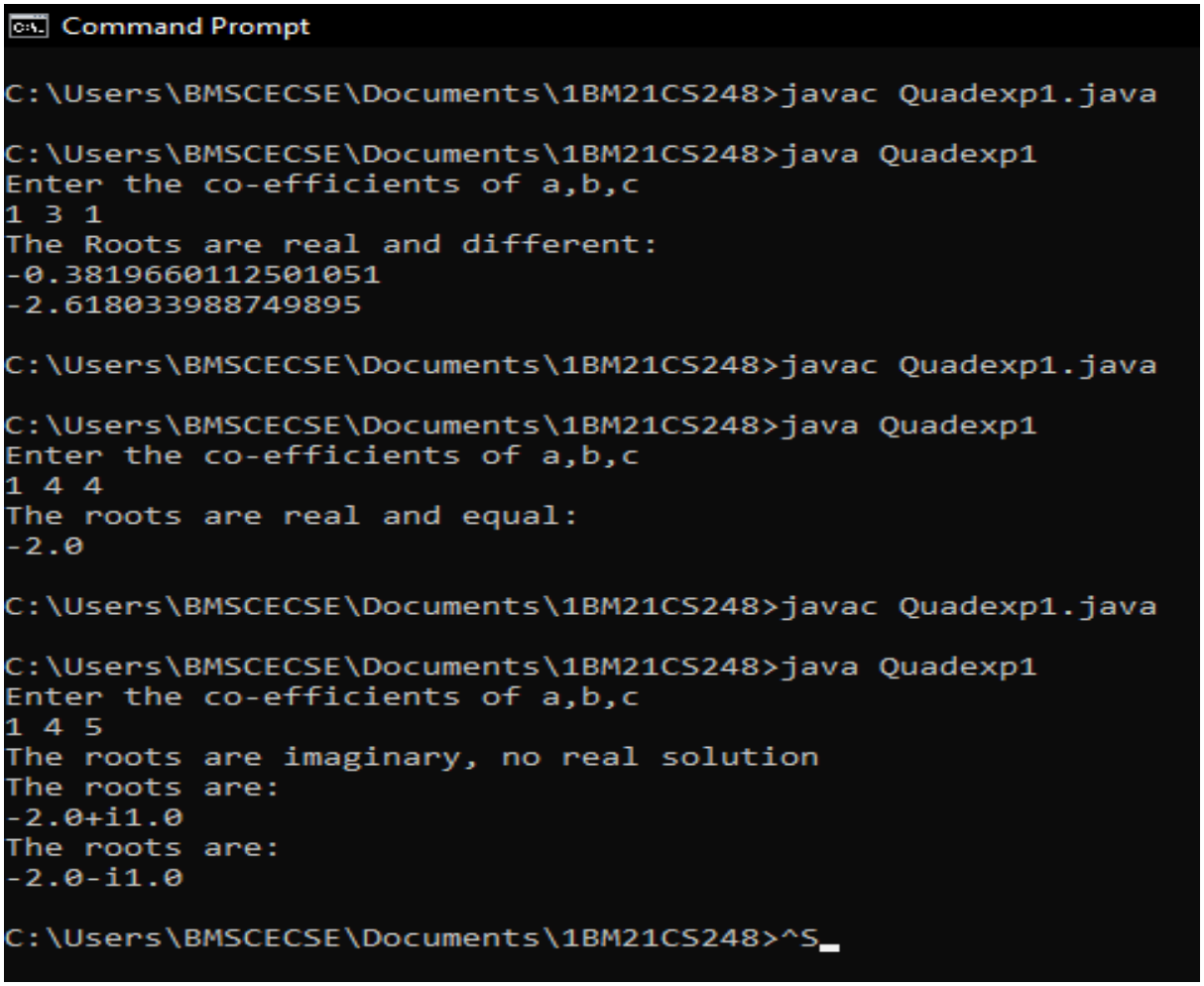
```
import java.util.Scanner;
import java.lang.Math;

class Quadexp1{
public static void main(String args[]){
Scanner ss = new Scanner(System.in);
System.out.println("Enter the co-efficients of a,b,c");
int a =ss.nextInt();
int b =ss.nextInt();
int c =ss.nextInt();
int disc = (b*b)-(4*a*c);
double r1,r2,r3,r4,r5;

if(disc>0){
        r1=(-b+(Math.sqrt(disc)))/(2*a);
```

```
        r2=(-b-(Math.sqrt(disc)))/(2*a);
        System.out.println("The Roots are real and different:\n" + r1
        +"\n" + r2);
        }
        else if(disc==0){
        r3=(-b)/(2*a);
        System.out.println("The roots are real and equal:\n" + r3);
        }
        else{
        System.out.println("The roots are imaginary, no real solution");
        double d;
        d = Math.abs(disc);
        r4=(-b)/(2*a);
        r5=(Math.sqrt(d))/(2*a);
        System.out.println("The roots are:\n" + r4 + "+i" + r5);
        System.out.println("The roots are:\n" + r4 + "-i" + r5);
        }
}
}
```

OUTPUT:


Command Prompt
C:\Users\BMSCECSE\Documents\1BM21CS248>javac Quadexp1.java
C:\Users\BMSCECSE\Documents\1BM21CS248>java Quadexp1
Enter the co-efficients of a,b,c
1 3 1
The Roots are real and different:
-0.3819660112501051
-2.618033988749895
C:\Users\BMSCECSE\Documents\1BM21CS248>javac Quadexp1.java
C:\Users\BMSCECSE\Documents\1BM21CS248>java Quadexp1
Enter the co-efficients of a,b,c
1 4 4
The roots are real and equal:
-2.0
C:\Users\BMSCECSE\Documents\1BM21CS248>javac Quadexp1.java
C:\Users\BMSCECSE\Documents\1BM21CS248>java Quadexp1
Enter the co-efficients of a,b,c
1 4 5
The roots are imaginary, no real solution
The roots are:
-2.0+i1.0
The roots are:
-2.0-i1.0
C:\Users\BMSCECSE\Documents\1BM21CS248>^S