Lab Program 1:

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 discriminant b2-4ac is negative, display a message stating that there are no real solutions.

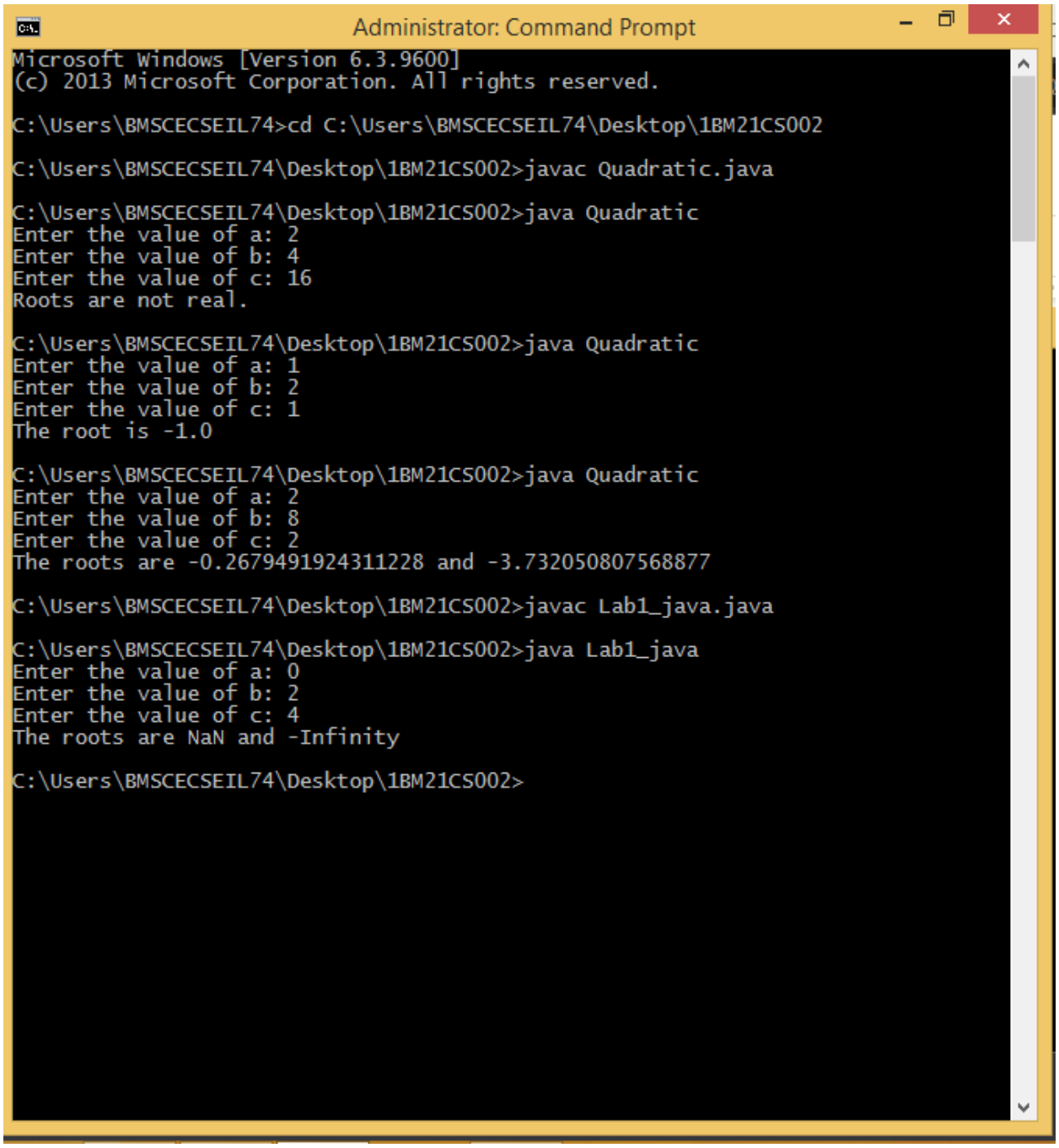
Code:

Quadratic - Notepad

File Edit Format View Help

```
import java.util.Scanner;
public class Quadratic
{
public static void main(String[] Strings)
{
Scanner input = new Scanner(System.in);
System.out.print("Enter the value of a: ");
double a = input.nextDouble();
System.out.print("Enter the value of b: ");
double b = input.nextDouble();
System.out.print("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.pow(d, 0.5)) / (2.0 * a);
double r2 = (-b - Math.pow(d, 0.5)) / (2.0 * a);
System.out.println("The roots are " + r1 + " and " + r2);
}
else if (d == 0.0)
{
double r1 = -b / (2.0 * a);
System.out.println("The root is " + r1);
}
else
{
System.out.println("Roots are not real.");
}
}
}
```

Output:


Administrator: Command Prompt
Microsoft Windows [Version 6.3.9600]
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C:\Users\BMSCECSEIL74>cd C:\Users\BMSCECSEIL74\Desktop\1BM21CS002
C:\Users\BMSCECSEIL74\Desktop\1BM21CS002>javac Quadratic.java
C:\Users\BMSCECSEIL74\Desktop\1BM21CS002>java Quadratic
Enter the value of a: 2
Enter the value of b: 4
Enter the value of c: 16
Roots are not real.
C:\Users\BMSCECSEIL74\Desktop\1BM21CS002>java Quadratic
Enter the value of a: 1
Enter the value of b: 2
Enter the value of c: 1
The root is -1.0
C:\Users\BMSCECSEIL74\Desktop\1BM21CS002>java Quadratic
Enter the value of a: 2
Enter the value of b: 8
Enter the value of c: 2
The roots are -0.2679491924311228 and -3.732050807568877
C:\Users\BMSCECSEIL74\Desktop\1BM21CS002>javac Lab1_java.java
C:\Users\BMSCECSEIL74\Desktop\1BM21CS002>java Lab1_java
Enter the value of a: 0
Enter the value of b: 2
Enter the value of c: 4
The roots are NaN and -Infinity
C:\Users\BMSCECSEIL74\Desktop\1BM21CS002>