CS 2073
Computer Programming with Engineering Applications
Assignment 2
Due Wednesday October 3

1. (100 pts) Write a program that determines the roots of a quadratic equation. Given an equation of the form

$$ax^2 + bx + c = 0 \tag{1}$$

The roots of the equation can be computed using the formula

$$x_{1,2} = \frac{-b \mp \sqrt{b^2 - 4ac}}{2a} \tag{2}$$

Your program should read the coefficients from user and display one the following messages depending on the value of roots.

- *No real roots*
  This means $b^2 - 4ac < 0$
- *Two equal roots*
  This means $b^2 - 4ac = 0$
- *Two distinct roots*
  This means $b^2 - 4ac > 0$

Test your program for the following cases

(a)
```
Equation is of the form ax^2+bx+c=0
Enter a, b, c:
1 2 1
Two equal roots
```

(b)
```
Equation is of the form ax^2+bx+c=0
Enter a, b, c:
1 3 1
Two distinct roots
```

(c)
```
Equation is of the form ax^2+bx+c=0
Enter a, b, c:
1 1 1
No real roots
```

Submit your program electronically using the blackboard system

The program you submit should be your own work. Cheating will be reported to office of academic integrity. Both the copier and copiee will be held responsible.