Homework 2

Files to submit: **quad.c**
Time it took Matthew to Complete**: 5 mins**

- All programs must compile without warnings when using the -Wall and -Werror options
- Submit only the files requested
  - Do **NOT** submit folders or compressed files such as .zip, .rar, .tar, .targz, etc
- Your program must match the output exactly to receive credit.
  - Make sure that all prompts and output match mine exactly.
  - Easiest way to do this is to copy and paste them
- All input will be valid unless stated otherwise
- Print all real numbers to two decimal places unless otherwise stated
- The examples provided in the prompts do not represent all possible input you can receive.
- All inputs in the examples in the prompt are underlined
  - You don't have to make anything underlined it is just there to help you differentiate between what you are supposed to print and what is being given to your program
- If you have questions please post them on Piazza

Restrictions

- No global variables are allowed
- Your main function may only declare variables and call other functions.

1. quad.c (My time 5 min) A quadratic equation is an equation with the following form $ax^2 * bx * c$. The roots of a quadratic equation are the values of x that cause the equation to evaluate to 0 and can be solved using the quadratic formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ Write a program called **quad.c** that asks the user to enter the coefficients, a, b and c, and solves for x. Note that there can be either 2 real answers, 1 real answer, or no real answers depending on the values of a, b, and c.
   1. Name your executable **quad.out**
   2. Only use doubles for this problem
   3. Report your answer to 2 decimal places
   4. a will never be 0
   5. You may need to link in the math library in order to get your program to compile. To do this add the -lm command at the end of your compile statement. Your compile statement should look like: `gcc -g -Wall -o quad.out quad.c -lm`
   6. Examples:

```
1. Given a quadratic equation of the form a*x^2 + b * x + c
   Please enter a: 1
   Please enter b: 2
   Please enter c: 1
   There is one real solution: -1.00
2. Given a quadratic equation of the form a*x^2 + b * x + c
   Please enter a: 4
   Please enter b: 3
   Please enter c: 7
   There are no real solutions
3. Given a quadratic equation of the form a*x^2 + b * x + c
   Please enter a: 3
   Please enter b: 11
   Please enter c: 8
   There are 2 real solutions
   Solution 1: -1.00
   Solution 2: -2.67
```