

Homework 7

Files to submit: **foo.c**

Time it took Matthew to Complete: **10 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, call other functions, and assign variables values.
- **You must solve this problem recursively**
- **You may only make ONE recursive call in the recursive case**

For this assignment you will be writing a program to calculate the value of the function `foo`. The value of `foo` is defined as follows

$$foo(0)=2$$

$$foo(1)=3$$

$$foo(2)=5$$

$$foo(n)=foo(n-1)+foo(n-2)+foo(n-3)$$

Specifications

1. The value of **n** is accepted through the command line
2. You may only make 1 recursive call in the recursive case
 1. If you don't you will fail many of the tests with a timeout issue
3. You must solve the problem recursively

Example

1. `./foo.out 2`
`foo(2) = 5`
2. `./foo.out 10`
`foo(10) = 697`