

## Program 4

**DUE Saturday, October 8, 2016 by 11:59.59.99pm (before MIDNIGHT)**

**Submit your P4.c file to your Canvas "Homework PROGRAM 4" assignment in the Homework PROGRAMS group.**

### Preliminary Information:

Your goal is to submit a single file with your versions of the second structure discussed and presented in Meeting 11 (with one enhancement), and the linked list example presented in Meeting 12. If you have been keeping up, you may merely need to hand it in, with some modifications over what we did in class on 10/3/2016 and 10/6/2016.

### Program 4 Requirements:

Create your version of P4.c file and include all the contents demonstrated in class. Your version merely means you created it on your own. Your P4.c **must** include the following features:

1. Proper Comment Block at the head of the file.
2. Proper and appropriate "in-line" or "in the code" comments.
3. Proper use of function prototypes.
4. Code that mimics/produces the last few results, **as a function**, as seen in the structure, called "SecondStruct" displayed in Section III of Meeting 11 ("Structures and Arrays"), with the following additions:
  - a. The code displayed in Meeting 11 guide is not an absolutely complete "c" file, nor will it work as a function, **"as is,"** so you must make it so.
    - i. This means cleaning up the code so it does **not** display all the "test" data that is not useful for this exercise, namely, all of it that displays the addresses of the various struct elements.
    - ii. This also means making sure the program stores its data as an **array of structs**, not just a group of structs. You may have to alter Hoover's "demo\_function" or make some other changes to be certain this happen correctly.
  - b. You must also include, as a function, a version of the "DisplayStats" function Hoover "boilerplates" on pg. 120. This must be able to "step through" the array and print the proper content from each **struct** that is an element in the array.
  - c. Populate your array of structures with data for at least **5 additional** "people" (for a total of 7) that will be displayed by DisplayStats.
  - d. **NOTE:** This part of P4.c will not accept any user input, it merely produces output. It is up to you to "populate" the array of structs you create.
  - e. **ALSO NOTE:** You **do not** have to recreate **any** of FirstStruct from Section II of the Meeting 11 guide.
5. Code that mimics/produces the results seen in the Linked1.c example in Meeting 12. This code needs to preserve the interactive nature of the original, but still be incorporated into P4.c.

Remember, BE SURE you thoroughly comment your actual code and include the expected Heading Comment Block. These comments and comment block will represent 20 of your 100 points.

### Sample Output:

Your output for the first part of this program (structs) should look something like the following, with the last 5 entries actually filled in with **"plausible" data** instead of the placeholders you see.

```
Doe, Jane:    5.200000 PPG in 2004
Smith, Brian:  4.900000 PPG in 2005 [ppg and year added by Jeff for this example.]
, :    0.000000 PPG in 0      [Your version must have complete data for every entry.]
, :    0.000000 PPG in 0      [Your version must have complete data for every entry.]
, :    0.000000 PPG in 0      [Your version must have complete data for every entry.]
, :    0.000000 PPG in 0      [Your version must have complete data for every entry.]
, :    0.000000 PPG in 0      [Your version must have complete data for every entry.]
```

**NOTE:** All your functions will be in the single file P4.c and your structure output will run and **then** the following should appear.

For the linked list, your output should match what is shown in class, with a menu that looks like this:

```
[jwhitmer@silo.cs.indiana.edu] S1611test
```

```
-- Menu Selection --
```

```
0) Quit
```

```
1) Insert
```

```
2) Delete
```

```
3) Search
```

```
4) Display
```

```
4
```

```
Your choice: 'Display'
```

```
0
```

## Scoring:

Proper and adequate “in-code” Comments and proper Heading Comment Block: **20 points**

File compiles and runs and makes proper use of function prototypes: **10 points**

All structure features, equivalent to `SecondStruct.c`, including required additions to example, **and** a complete version of the "Display Stats" function, work correctly: **30 points**

All features equivalent to those in `Linked1.c` example work correctly: **40 points**

## Handing in your Assignment

As with all previous Programs and Assignments, you will have to use some form of “Secure FTP” program to submit your file to your Canvas “Homework PROGRAM 4” assignment in the Homework PROGRAMS group. It will usually take two steps: 1: Move the file from the silo to the computer you are using, 2. Upload the file from the computer you are using to Canvas with the usual method. If you have questions about this, ask them ASAP.