

EGRE-246

Homework #1 – Structures and Pointers

This homework must be your own (individual) work as defined in the course syllabus and discussed in class.

- 1) Write a C program that behaves like a password manager (no encryption is needed). This password manager can hold up to 5 entries where each entry contains the following items:

- Name of the website - char array of size 32
- Username for the website – char array of size 32
- Password for the website – char array of size 32

Each entry containing the above items should be coded as a struct in your main() program and you should then also create an array of structs that can hold 5 entries. The type-name of the struct should be “entry”.

- a) At the beginning of the program the program has to ask the user to input all the entries in to the password managers (the program has to ask the user 5 times for a website name, username and password). This should be done by calling a function with the following declaration:

void requestEntry(struct entry *data);

The above function asks the user to input one entry requesting the website’s name, username and password and stores this in the “data” structure. The user input does not have to be validated. All inputs are considered to be sentences without spaces.

```
tim@tim-laptop:~/Dropbox/EGRE-246/spring_2014/assignments/hw1$ ./hw1
Please enter the following items:
Website name: stackoverflow
Username: john
Password: john
Please enter the following items:
Website name: cplusplus
Username: john
Password: doe
Please enter the following items:
Website name: amazon
Username: john
Password: petsname
Please enter the following items:
Website name: ebay
Username: john
Password: donotbuy
Please enter the following items:
Website name: bankofamerica
Username: john
Password: nomoneyinthebank

Summary:
1 - stackoverflow
2 - cplusplus
3 - amazon
4 - ebay
5 - bankofamerica

Type in a number from 1 to 5 to pull up the entry or type 0 to exit: █
```

- b) Once all entries are requested and entered by the user, the program should display a list with the array index and the website's name. This should be done by calling the following function:

void displaySummary(struct entry *data, int numberOfEntries);

See above screenshot for how the summary is displayed.

- c) The user can then input any index number from 1 to 5 to display the full information of website name, username and password. This should be done again by calling a function with the following declaration:

void displayEntry(struct entry *data);

```
Type in a number from 1 to 5 to pull up the entry or type 0 to exit: 2
Website name: cplusplus
Username: john
Password: doe

Summary:
1 - stackoverflow
2 - cplusplus
3 - amazon
4 - ebay
5 - bankofamerica

Type in a number from 1 to 5 to pull up the entry or type 0 to exit: █
```

To exit the program the user has to type in 0. The user input should be checked and if an incorrect key is pressed the user should be warned by a message.

```
Type in a number from 1 to 5 to pull up the entry or type 0 to exit: 8
Invalid entry!

Summary:
1 - stackoverflow
2 - cplusplus
3 - amazon
4 - ebay
5 - bankofamerica

Type in a number from 1 to 5 to pull up the entry or type 0 to exit: █
```

- 2) The functions requestEntry(), displaySummary(), and displayEntry() should be placed in a separate source file (functions.c) with accompanying header file (functions.h). The header file should also include the struct declaration.

For this assignment, you must turn in a zip file with all of your C header files, source code files, and a working Makefile to compile your solution. Turn in your assignment by attaching the zip file to the assignment submission page.

Remember the class policy on late submissions – no late submissions are allowed unless prior arrangement is made with the instructor.

