

University of Wollongong
School of Computing and Information Technology

CSCI251/851

Advanced Programming

Autumn 2018

Exercise 2

Demo Required in your Week 5 Lab Class

2 marks

Submit your work by 11:59pm Friday Week-5

Pointers

Instructions: ex2.cpp contains a partially completed implementation of a linked list of phone records including a main() function for testing the linked list. For this exercise you are to complete the code and test it using the main() provided. The output should look like the contents of output.txt. After you complete the exercise you should demo your program in your week-4 lab class to receive the 2 marks and submit via unix submit by 11.59pm Friday week-4 (see below and the “Resource” section on moodle on how to submit your file via banshee). If you need more time, ask your tutor for an extension. (Failure to comply with these instructions may result in zero marks for this exercise.) Information on linked lists can be found in the week 3 & 4 lecture notes.

Step 1: Complete the ReadFile(), AddRecord() and DeleteList() functions according to the pseudo code provided. ReadFile() reads records from the file and calls AddRecord(). AddRecord() adds a record to the tail of the list (see week-3 lecture notes). DeleteList() deletes all the dynamic memory (records) in the list. Test your code with the main() provided to see that the records are being read and displayed on the screen via the DisplayAllRecs() function.

Step 2: Implement the FindRecord() function according to the pseudo code provided. FindRecord() should ask the user for a phone number and display the found record on the screen. Test your code again using the main provided.

Step 3: Implement the RemoveRecord() function according to the pseudo code provided. RemoveRecord() should display the record at the head of the list on the screen and delete it. Again, test your code using the main() provided.

Step 4: Replace the fixed size Name and Address arrays in the PhoneRecord struct with dynamic memory that is the same size as the strings. To do this replace the Name and Address arrays in the struct with char* pointers and modify the AddRecord() function so that it reads the name and address into a temp array and then allocates the right amount of memory to the struct pointers and copies the strings into that memory. Also, modify DeleteList() so that it also deletes the memory allocated to the dynamic arrays. Test your program again and make sure the output looks like “output.txt”.

Submit:

You are required to BOTH demo your work in the lab to your lab supervisor and submit your files via UNIX submit command by the due date. i.e.:

\$ submit -u login -c CSC251 -a ex2 ex2.cpp

where 'login' is your UNIX login ID.

Note: Both CSCI251 and CSCI815 should submit to “-c CSCI251”. Check your submit receipt for errors. Marks will be deducted for untidy work or for failing to comply with the submission/demo instructions. Requests for alternative submission or demonstration arrangements will only be considered before the due date. An extension of time for submission or demonstration may be granted in certain circumstances. Any request for an extension of the submission deadline must be made to the Subject Coordinator or your Lab Supervisor before the deadline. Late undemonstrated work without cause will receive zero marks.