CS 2213-001 Advanced Programming

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Homework 6 **Due date: check BB** !!!! NO LATE HOMEWORK WILL BE ACCEPTED !!! Total 5 points

(From our textbook Chapter 5)

Programming Exercise 5 (page 225-226): "On the standard Touch-ToneTM telephone dial, the digits are mapped onto alphabet ..."

This question asks you to simply implement ListMnemonics (char *str) function, and other subsidiary or utility functions (if any). In this assignment, however, we ask you to implement a mnemonics library which exports ListMnemonics (char *str); in mnemonics.h and implement it along with other subsidiary and utility functions (if any) in mnemonics.c.

Once your library is implemented, then you are asked to implement a client/driver program (e.g., driver.c) that gets different strings from the command line and calls the ListMnemonics() function for each string. Your driver program should check each string and make sure each string contains only digits between 2 and 9; otherwise, gives an error msg for that string.

If we run your program as follows

> program 723 41267 3a5b81

Your program should generate the following outputs

Mnemonics for 723 are: PAD PBD PCD RAD RBD RCD....(as given in the textbook) Mnemonics for 412 are: None, 412 contains a digit 1 Mnemonics for 3a5b81 are: None, 3a5b81 contains at least one alphabetic character

As usual, you should make sure you will release (free) the dynamically allocated memories if you allocate any in your programs.... So, before submitting your program, run it with valgrind to see if there is any memory leakage... Also if you need to debug your program, compile your programs with -g option and then run it with gdb and/or ddd.

What to return: !!!! NO LATE HOMEWORK WILL BE ACCEPTED !!!

- 1. Create a directory, say LASTNAME_ch06_recursion, and do all your work under that directory.
- 2. You will implement a simple library (mnemonics.h and mnemonics.c.) and use this library along with other libraries in your driver/client program, say driver.c.
- 3. To easily compile the library and driver program, you must have a Makefile and use "make" to compile your code.
- 4. After compiling, run your program a few times and save the output (using script) into output.txt file.

So you will have around 6-7 files in your LASTNAME_ch06_recursion directory.

- 5. Go to parent directory of LASTNAME_ch06_recursion, and use
- > tar -cf LASTNAME_ch06_recur.tar LASTNAME_ch06_recursion This will create a new file called LASTNAME_ch06_recur.tar and it contains all of your files. So just submit this .tar file.
- 6. Go to WebCT (BB), and just submit LASTNAME_ch06_recur.tar as **attachment** before the deadline. DO NOT submit other .h or .c files individually.
- /* Don't forget to include comments about the problem, yourself and each major step in your program! */

You must submit your work using Blackboard Learn and respect the following rules:

- 1) All assignments must be submitted as either a zip or tar archive file unless it is a single pdf file.
- 2) Assignments must include all source code.
- 3) Assignments must include an output.txt file which demonstrates the final test output run by the student.
- 4) If your assignment does not run/compile, the output.txt file should include an explanation of what was accomplished, what the error message was that prevented the student from finishing the assignment and what the student BELIEVES to be the underlying cause of the error.