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-Tone™ 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 412 are:
     None, 3a5 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! */