Lab 10: ExTalker

Due: Must be demoed during TA office hours before next week's lab practicum.

Objectives:

- Practice top-down program design, problem solving in C
- Practice strings and arrays in C

Starting Point:

- lab10.c
- wordslist.txt

Process:

Creating a New Folder

Create a new folder named *lab10* in your *cpre185labs* folder on the U: drive. You will want to copy over explore.exe to the *lab10* folder.

Problem

People with speaking disabilities and limited mobility, such as famed physicist Stephen Hawking, often use speech synthesizers controlled by a simple input device. In this lab, we will write a tool that allows the user to generate sentences of text using the Esplora as input. This could then feed a speech synthesizer program.

The skeleton code takes a filename as a command line argument. The file will contain a list of up to 100 words, one per line. Each word will not exceed 10 characters. Your code should present the words in five columns ("%15s" perhaps) on the screen. To do this, you use the mvprintw function from the ncurses library like you did in ExMaze. **Do not use printf. It doesn't play nicely with ncurses**. More information about using mvprintw can be found in the development tips at the end of this lab.

Develop an input method so that a user can select one of the displayed words using the Esplora. You would be wise to use the joystick. Its values are found using the -j flag (./explore.exe -p COM? -t -b -j) You should indicate the word currently selected by placing a character next to it using the draw char function used in Exmaze.

Begin with an empty sentence at the bottom of the screen.

The up button will append a space to the current sentence followed by the selected word.

The down button will remove the last item (a word, punctuation, or letter) added. You need to be able to use the remove feature multiple times in a row. Think of it as an “undo” button in software you use on a daily basis. The down button also needs to remove everything in th e last command (including spaces).

The left button will append the word but without adding a space.

BONUS: (10 points). The right button will capitalize the first letter of the next word appended.

Update the current sentence at the bottom of the screen as words are added and deleted. The sentence can be limited to 80 characters.

A new sentence can be started by pressing down on the joystick. This should clear the bottom line of the screen.

Be sure to demonstrate your program and get it checked off by your TA.

Development Tips

- You will need to use ncurses as in Exmaze. **Do not use printf. It doesn’t play nicely with ncurses**. Instead of using printf, you should use the mvprintw function. Its prototype looks like: void mvprintw(int row, int col, char * format, arg1, arg2, arg3…). Hence, you can use it like mvprintw(3, 10, “%d is an integer”, 55) which will print 55 is an integer starting at row 3 in column 10.
- Be sure to call the refresh() function every time you want the screen to update.
- In order to use the down button, you may want to keep track of the lengths of the items in the sentence using an array.

Questions

For this lab, answer these questions in the comments of your code.

1. Describe how you keep track of the word selected on the screen and how this interfaces with the Esplora. Is the interface reasonable?

Turn-In:

There will not be a formal, paper lab report for this lab. You must demo your lab and have your TAs grade it before next week's lab period. The final lab period will be used for lab practicum #2.