Project - 1
CSC 4304 – Systems Programming
Due: October 3rd @11:59pm

1. Preparation

Before beginning your work, read Chapter 4 from Stevens book as well as the lecture slides from Lecture VI (Sep 9th) carefully.

2. Programming Task: Implement "ls" command:

The objective of this project is to implement the "ls" command in UNIX using C programming language. To learn more about the "ls" command, do "man ls" in your Unix shell. You do not need to implement all options of "ls" command. The options you need to implement are:

-a, : do not ignore entries starting with a dot (.)
-C : list entries by columns
-d, : list directory entries instead of contents, and do not dereference symbolic links
-l : use a long listing format
-L : if argument is a symbolic link, list the file or directory the link references rather than the link itself.
-p : write a slash (`/') after each filename if that file is a directory.
-r : reverse the order of the sort
-R, : list subdirectories recursively
-S : sort by file size
--help : display usage information (with options and their purpse) and exit

The options can be used separately as well as together (i.e. "ls -a -l -R" or "ls -alR").

You need to use **dirent** and **stat** structures for the implementation as discussed in the class. You are not allowed to use *fork()*, *exec()* or any similar external execution function calls.

3. How to Submit

After you finish implementation of your project, you can submit your source code as a single C file (renamed to **prj1_yourlastname**) by emailing to thanks@csc.lsu.edu and cc'ing to kosar@cct.lsu.edu. Please make sure you receive a message from the TA acknowledging the receipt of your submission, otherwise assume it is not submitted successfully.

4. Requirements

No report is required for this project. However, you are expected to submit the program with clear and sufficient comments and explanations. Presentation will be counted as a part of grading. Also make sure you perform all necessary error checks. All the programs should be submitted by **October 3rd @11:59pm.**