CS3500 - Operating System, August 2022

Lab1: Basic System Calls and Shell Scripting

Due Date: Friday, 12th August 12PM in Moodle.
Evaluation: Friday, 12th August 2-5pm at DCFE (CSE) Lab (must be physically present)

Note: Use CLI to run and display the output.

1. Write a shell script to list all of the directory files in a directory **2 marks**

2. A password is said to be strong if it satisfies the following criteria:
    1. It contains at least one lowercase English character.
    2. It contains at least one uppercase English character.
    3. It contains at least one special character. The special characters are: !@#$%^&*()-+
    4. Its length is at least 8.
    5. It contains at least one digit.

   Given a string, find its strength. Let a strong password is one that satisfies all above conditions. A moderate password is one that satisfies first three conditions and has length at least 6. Otherwise, password is week.
   Write a shell script to check the strength of string. **3 marks**

3. Write a C program to mimic the shell scripting. Name it as simple_shell.c.
   Requirements of shell:
    - While waiting for input, the shell should run continuously and display a prompt (>). Full path of the current directory should also be visible in the prompt followed by the “>” sign (ex: home/os/assignment_1>).
    - Shell should read a line from input one at a time.
    - After parsing and lexing the command, the shell should execute it.
    - Shell should be able to implement the following commands.
        - clear: clear the screen
        - pwd: prints the current directory
        - mkdir: creates a directory called "dir"
        - rmdir: removes the directory called "dir"
        - ls: lists files in the current directory such that the ls -l option also needs to be supported.
        - history: displays the last commands the user ran, with an offset next to each command. Last commands can be stored in a file and may be displayed to the user when the command is issued.
        - exit: exits the shell

   5 marks