Operating Systems

Assignment: 1

Date: 14th October 2018

Instructions:

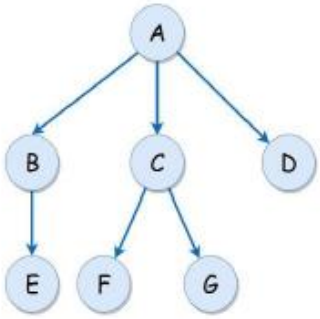
1. **Assignment must be attempted individually, acquire help from *books* and the world of internet considering Teachers and class fellows unaware of OS.**
2. **DEAD LINE: 14th October 2018**

Scheduling:

1. **Write the C program for *any one* of the following scheduling algorithms. Time should be taken in float.**
    - **a.** First Come first served
    - **b.** Round Robin
    - **c.** Shortest Job First

Processes:

2. **Write a c program which will fork child process according the following tree.**
    - **a.** Parent process A will wait for all child process to complete.
    - **b.** Child process B will execute a shell script by passing 2 arguments. (shell script would perform addition, subtraction, multiplication and division of that numbers)
    - **c.** Child Process C sleeps 5 second and waits for its child to complete.
    - **d.** Child process D runs a shell script which asks user to enter his name, batch and id.
    - **e.** Child Process E calls exec to display mac address.
    - **f.** Child process F prints pid of his grandparent.
    - **g.** Child process G prints his own pid.



Shell scripting:

3. Write shell script for questions given below.

   a. Display files in the current directory with creation time.
   b. Write a shell script to rename file having extension sh to exe.
   c. Write a shell script to accept 10 number and tell how many are +ve, -ve and zero. Also display them in ascending order.
   d. Write a shell script to examine all the number from 1 to 999 and display all those number whose sum of cube of the digit is equal to the number. e.g. 371 = 3*3*3+7*7*7+1*1*1
   e. Write a shell script to display Date in different format along with Time.
   f. Write a script to find out String is palindrome or not.
   g. Write a scripts which copies the content of file1 to file2 without using cp command. It should check if file has a read permission if not it should print an error message. If file2 exists, then it should ask the user whether he wants to overwrite it.
   h. Write a shell script to list all the files of the current directory having read and write permission to the user.
   i. Write a script, disk_usage.sh, that given a directory, the script lists the n largest directories or files. The disk_usage.sh script takes argument to print n largest folders or files. If not specified, assume 10.

```
# Run on /etc
$ ./disk_usage.sh /etc
15M     /etc/
6.5M    /etc/udev
2.0M    /etc/ssl
1.9M    /etc/ssl/certs
1.8M    /etc/ca-certificates/extracted
1.8M    /etc/ca-certificates
1.1M    /etc/pacman.d/gnupg
1.1M    /etc/pacman.d
780K    /etc/ca-certificates/extracted/cadir
340K    /etc/ssh
```

Hint: Use ls, grep, mkdir, mv, copy, for loop, if, else, truncate, dd switch for conditions. In case of any ambiguity, first check the command manual "man truncate, man dd etc".

"Smart people learn from everything and everyone, average people from their experience and stupid people already have all the answers." Socrates

Give your Best