CSC 227 Operating Systems
Assignment 1

Due date: Wednesday, July 3rd, 2019 (by 11:59pm)

This is an individual assignment.
The homework must be **submitted electronically through LMS**

Part I (50%)

The use of Virtualization nowadays is widespread. Cloud computing utilize virtualizations among other things to provide cloud services. You are asked to install Linux on top of a virtual machine. There are no restrictions on

1. Linux distribution
2. Virtual machine (VM)

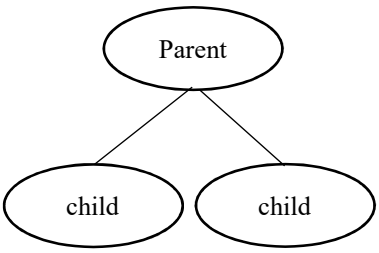
Write about your experience including (not limited to) the reasons of choosing the preferred VM, and the preferred Linux distribution (minimum of 150 words). Also, include some screenshots showing that you have successfully installed Linux on the top of VM.

Part II (50%)

1. Using the installed Linux operating system (Part I), write a C program that defines a global variable that has a value (e.g., 100). Your program will create 3 processes: parent and only two child processes as shown in the figure below.
   - The parent process will simply print the value of the global variable.
   - The 1st child process will increment the global variable and print its new value.
   - The 2nd child process will decrement the global variable and print its new value.

   i) Discuss the order of the output from the parent and children processes.
   ii) Why the value of the global variable isn't affected by the increment/decrement operations in other processes?

   You should submit your answers for the two questions above as well as your code and screenshots of your output.



2. Using the installed Linux operating system (Part I), use "ltrace" with proper parameters to show the list of system calls used by your program. Discuss in details the system calls used by your program.