University of Windsor

School of Computer Science
Faculty of Science
COMP-2560: System Programming, Fall 2022

Lec#	Date	Title	Due Date	Grade Release Date
Lec07	Week 07	**Process Manager**	Two-Week Lec Nov. 09, 2022, Wednesday 4:00 AM EDT	Nov. 14, 2022

The objectives of the weekly lecture assignments (Lecs) are to practice on topics covered in the lectures as well as improve the student's *critical thinking and problem-solving skills in ad hoc topics that are closely related but not covered in the lectures*. Lecture assignments also help students with research skills, including accessing, retrieving, and evaluating information (information literacy).

Lecture Assignments Deliverables

You should answer **two questions** below using an editor like MS Word, Notepad, and the likes or pen in papers. In the latter case, you must scan the papers clearly and merge them into a **single file** `lec07_uwindid.pdf` containing your name, uwinid, student#. **Please note that if your answers cannot be read, you will lose marks.** Please follow the naming convention as you lose marks otherwise. Instead of uwindid, use your own account name, e.g., mine is hfani@uwindsor.ca, so my submission would be: `lec07_hfani.pdf`

Lecture Assignments

Select two questions based on your preference!

1. In the output from the `size` command, why are not any sizes given for the heap and the stack?
2. Is it able to reuse the `bss` segment for dynamic allocation of memory locations? Justify your answer.
3. Like dynamic allocation of memory locations, is it able to deallocate the allocated memory locations at runtime? Justify your answer.
4. What are the system calls for dynamic memory allocation?
5. Based on the memory layout of a process, is there any way for a function that is called by `main` to examine the command-line arguments without (a) passing `argc` and `argv` as arguments from `main` to the function or (b) having `main` copy `argc` and `argv` into global variables?
6. When happens when you press `CTRL+C` or `CTRL+Z` to end a running program? Is it a normal or abnormal exit? What is the exit status?
7. It's been said that shell can get the PID of the last executed process by `echo $?`. Is this true? Justify your answer.
8. There is an error called `stack overflow`. What are the causes of this error in a program/process?
9. Is it able to call the `main` function from another function? Justify your answer.