Arab Academy for Science, Technology, and Maritime Transport
College of Engineering and Technology
CC418 - Operating Systems
Lecturer: Dr. Ayman Adel Abdel-Hamid
TA: Eng. Shereen Oraby
Term: Spring 2012

Section Assignment #2

Date Assigned: Week of Sunday, Mar. 5th (Week 3)
Date Due: Week of Sunday, Mar. 12th (Week 4). Late assignments will not be accepted.
Submissions should be typed. Be sure to write your name, registration number, assignment number, and lecturer and TA name in the header.

Part I

The following problems are taken from Chapter 2 of "Operating Systems: Internals and Design Principles" by William Stallings (7th Edition).

2.2) An I/O-bound program is one that, if run alone, would spend more time waiting for I/O than using the processor. A processor-bound program is the opposite. Suppose a short-term scheduling algorithm favors those programs that have used little processor time in the recent past. Explain why this algorithm favors I/O-bound programs and yet does not permanently deny processor time to processor-bound programs.

2.3) Contrast the scheduling policies you might use when trying to optimize a time-sharing system with those you would use to optimize a multi-programmed batch system.

2.4) What is the purpose of system calls, and how do system calls relate to the OS and to the concept of dual-mode (kernel-mode and user-mode) operation?

Part II

Research the Linux `fork()` system call.

Your written report should include:
- Detailed description of the call function.
- Expected return values.
- Simple program excerpt demonstrating the call's function.