ITBU 373, Operating Systems Homework 02

Chapters 3 and 4, *Operating Systems, Three Easy Pieces*

Readings

Read chapters 3 and 4 in the *Operating Systems, Three Easy Pieces* book.

Discussion Questions

Answer the discussion questions in writing.

1. What is a *process*? Please be very, very sure not to confuse processes and threads. They are very different things although they perform the same job, more or less.
2. Describe briefly the technique of *time sharing*.
3. What does the book describe as *mechanisms*? Give a simple example of a mechanism.
4. What does the book describe as *policies*? Give a simple example of a policy.
5. What is the *program counter*? You will often see this referred to as the *instruction pointer*. Memorize the abbreviations PC and SP, as you will see these often and you will need to know what they mean.
6. What three things must the OS do to run a program? Briefly describe each "thing." This is how the OS gets a program up and running.
7. What is the *run-time stack*?
8. What is the *heap*?
9. What is the relationship between `malloc()` and `free()`? The failure of a developer to call `free()` appropriately was and still is the source of many defects in C programs. Why do you think that this is the case?
10. What is the purpose of the `main()` method in C? This is also true in other languages derived from C, such as Java, C++, C#, Objective C, Perl, Python, and so on.
11. Name the three *states* that a process can be in? A process can actually be in more than three states, but the book emphasizes only three. Briefly describe each one.
12. Copy the output of the `ps` or the `tasklist` command for your operating system. What two or three columns would you consider most important?