CS314 Operating System
Spring 2024
Exercise Questions on January 18, 2024

EXERCISE #1

What problems will we have if our operating systems do not have a PCB for each process (mention at least three problems)?

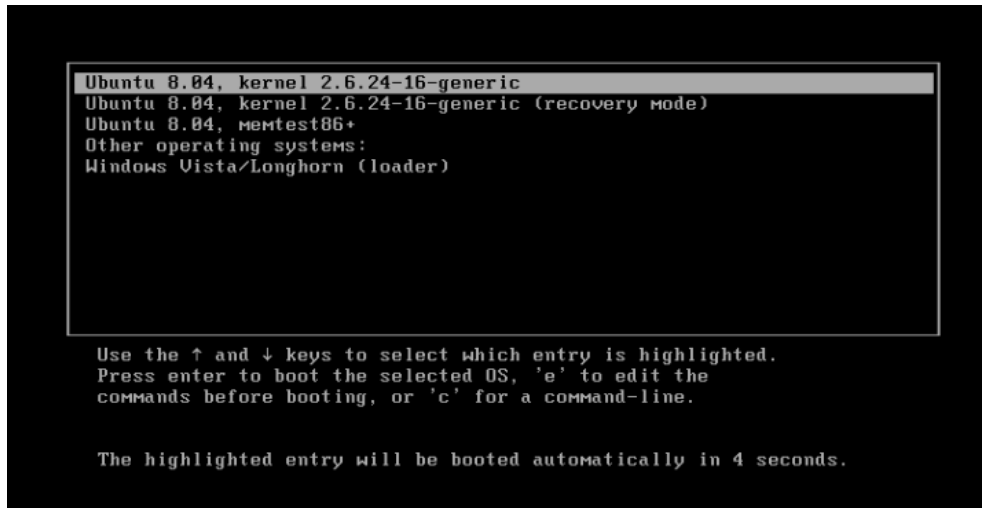## EXERCISE #2

Mention 12 examples for what are contained in PCB.

EXERCISE #3

Compare monolithic, external-commands, and micro-kernel architecture operating systems by completing the following table.

Factors	Monolithic	External Commands	Microkernel
Memory Footprint Size			
Bug Fixes			
Robustness			
Execution Speed			
Major Advantage(s)			
Major Disadvantage(s)			

EXERCISE #4

"Virtual machine" and "multi-boot (computer) systems" are two different concepts, while some people are confused about the two terms. What is the primary difference between the two concepts?

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Ubuntu 8.04, kernel 2.6.24-16-generic
Ubuntu 8.04, kernel 2.6.24-16-generic (recovery mode)
Ubuntu 8.04, memtest86+
Other operating systems:
Windows Vista/Longhorn (loader)




    Use the ↑ and ↓ keys to select which entry is highlighted.
    Press enter to boot the selected OS, 'e' to edit the
    commands before booting, or 'c' for a command-line.

    The highlighted entry will be booted automatically in 4 seconds.
```

(example of "multi-boot")

EXERCISE #5

(Microsoft) Windows were designed with the micro-kernel architecture. There were (are) two technical reasons. What were they?