Operating Systems

Ch 8
Memory Management
Different types of addresses

- Logical address
- Virtual address
- Physical address
What is this?

CPU → limit register (logical address < yes physical address → memory)

no trap: addressing error

relocation register → physical address
What is this?
Problem 8.16

Given five memory partitions of:

- 100 KB
- 500 KB
- 200 KB
- 300 KB
- 600 KB

How would the first-fit, best-fit and worst-fit algorithms place processes of:

- 212 KB
- 417 KB
- 112 KB
- 426 KB

Which algorithm makes the most efficient use of memory?
What is this?
What is this?
How are page tables structured?
Hierarchical page tables
Inverted page tables

```
CPU -> pid p d
     |   |   |
     v   v   v
search

page table

logical address

physical address

physical memory
```
What is this?
What is this?
Problem 8.3

Why are segmentation and paging sometimes combined into one scheme?
Problem 8.4

Most systems allow a program to allocate more memory to its address space during execution. Allocation of data in the heap segments of programs is an example of such allocated memory. What is required to support dynamic memory allocation in the following schemes?

a) Contiguous memory allocation
b) Pure segmentation
c) Pure paging