
MEMORY MANAGEMENT II

This assignment is due on Sunday, Nov. 17th at 11:00 PM. Post all your answers to the corresponding quiz in *eLearning*. Late assignments will not be accepted. See course syllabus for details on all course policies.

PROBLEM 1 – 2 POINTS

The virtual address space of a process is 1 GB large. Assume that the size of a page size is 4KB. What is the maximum size of a page table in memory if each page table entry requires 4 bytes?

PROBLEM 2 – 4 POINTS

Assume a 4KB large page and frame size. Consider the following page table associated with a process:

Page #	Frame #	Valid/Invalid
0	1	v
1	3	v
2	8	v
3	5	i
4	10	v

What are the physical addresses for the following virtual addresses? Mark PF, if a virtual address triggers a page fault.

a) 500, b) 6048, c) 15100, d) 8400

PROBLEM 3 – 4 POINTS

Assume a process has been allocated 4 frames in physical memory. Process execution generates the following reference string of pages: 1, 2, 2, 3, 4, 5, 3, 4, 1, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4, 5, 4, 2.

Assuming demand paging, how many page faults does the execution of your process generate under the following page replacement algorithms?

- a) First-In First-Out replacement
- b) Least Recently Used replacement