

CS3204 Operating Systems - Fall 2000

Instructor: Dr. Craig A. Struble

Homework 5

Assigned: Wednesday, Nov. 8, 2000

Due: Tuesday, Nov. 14, 2000

1. *[5 pts.]* Exercise 1 in Nutt, Chapter 12. Your answer must be written concisely and in complete sentences.

2. *[15 pts.]* Assume that we have 4 blocks of main memory and the page reference stream $\omega = 2\ 3\ 4\ 3\ 2\ 4\ 3\ 2\ 4\ 5\ 6\ 7\ 5\ 6\ 7\ 4\ 5\ 6\ 7\ 2\ 1$ is generated by a process. For each algorithm, show the page allocation sequence and determine the number of page faults incurred. Include an indication of where each page fault occurs in your allocation sequence diagram.

- Belady's optimal algorithm
- FIFO algorithm
- LRU approximation algorithm

3. *[10 pts.]* In pseudocode, write an algorithm to perform address translation in a demand paging system. Be sure to clearly identify the inputs, outputs, and global data used in your algorithm. Also, you should handle the situation when the address referenced resides in a page not in main memory. You may assume that virtual addresses are within the valid address space of the process.