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New York University

Tandon School of Engineering

Department of Computer Science and Engineering

Introduction to Operating Systems Fall 2025

Assignment 9 (5 points)

- A) (0 points) Listen to the video titled “CS6233_Lect_12A_25F” in Brightspace under content/pre-recorded_videos.
- B) Suppose we have the following page trace: 2 5 1 3 4 1 2 1 3 5 1 4. Using LRU page replacement algorithm,
- If we had 3 frames in our paged memory system,
- I. (1 point) What is the number of page faults?
 - II. (1 point) Which pages reside in memory at the end of the page trace?
- If we had 4 frames in our paged memory system,
- III. (1 point) What is the number of page faults?
 - IV. (1 point) Which pages reside in memory at the end of the page trace?
- C) (1 point) In a single paragraph (no more than 3 sentences), please state your observations, including whether it's possible to encounter the Belady anomaly or not.

What to submit to [gradescope](#):

Please submit the following files individually:

- 1) Source file(s) with appropriate comments.
The naming should be similar to “**lab#_\$.c**” (# is replaced with the assignment number and \$ with the question number within the assignment, e.g. lab4_b.c, for lab 4, question b OR lab5_1a for lab 5, question 1a).
- 2) A single pdf file (for images + report/answers to questions), named “**lab#.pdf**” (# is replaced by the assignment number), containing:
 - Screen shot(s) of your terminal window showing the current directory, the command used to compile your program, the command used to run your program and the output of your program.
- 3) Your Makefile, if any. This is applicable only to kernel modules.

RULES:

- You shall **use kernel version 4.x.x or above**. You shall not use kernel version 3.x.x.
- You may consult with other students about GENERAL concepts or methods but copying code (or code fragments) or algorithms is NOT ALLOWED and is considered cheating (whether copied from other students, the internet or any other source).
- If you are having trouble, please ask your teaching assistant for help.
- You must submit your assignment prior to the deadline.

