

CS3204: Operating Systems

Spring 2003

Programming Project 4: Due by midnight 4/30/2003

Page Replacement Strategies

You are to simulate 4 page replacement strategies: FIFO, LRU, LRU Approximation and LFU. The maximum page number used is 25. You will keep a PMT and MBT. You will run each algorithm twice, the first time with an eight (8) page MBT and the second time with a fifteen (15) page MBT. You will read page references from the file "pagenum". The format of the file is a sequence of lines with each line containing a page number.

For the LFU algorithm the reference count is the number of times a page has been referenced over its CURRENT stay in memory, NOT over the lifetime of the program. Resolve ties by selecting the FIRST lowest count in a top-to-bottom search of the MBT.

For each run of each algorithm you will print out

- (1) the MBT after the first 50 page references have been made and after the complete set of page references and
- (2) the number of page faults and the page fault rate after the first 50 page references and after the complete set of page references.

Attend class for further details, answers to questions, and hints. You will be responsible for ALL that I say relative to this programming assignment!

Submission

You need to submit an electronic version of your project by anonymous FTP to:

[psmith.cs.vt.edu/pub/spring.2003/CS3204/project4](ftp://psmith.cs.vt.edu/pub/spring.2003/CS3204/project4)

Please use binary mode for saving your tar file, otherwise it will be corrupted. If you are using a command line FTP client, use the command "bin" after you are connected to the FTP server.

The submission should contain

- All source code,
- Files containing the listing of the output of your program, and
- A compiled version of the source code.
- A README file containing the name of the program, and its command line arguments. The README file should contain the name of the author and the VT ID (SSN).

Your source code should also contain a comment on the first few lines with the author of the code and VT ID number (SSN).

The submission format is tar. Use the UNIX tar program to archive the contents of your project directory as follows:

If your project directory is called project4 and it is under your home directory, then go to your home directory and issue the following command:

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tar cvf filename.tar project4
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filename.tar now contains the archived version of your project directory.

To submit the project, rename the archive (filename.tar) to <your ID>.<try number>.tar and upload the file.

<your ID> is the last 5 digits of your SSN.

<try number> is an integer between 1 and 3 (inclusive) that represents your submission number.

You are allowed 3 submissions with try numbers numbered 1, 2 and 3. Any submissions past 3 will be ignored. The last submission will be graded.