Project: Virtual Memory

Protocol for Project Submission and Testing

Documentation

- Submit your source code to EEE by the due date (see course web page if you need help with EEE submissions)
- The code you submit must be *exactly* the code you use for your testing. If you need to make any changes after submission then inform the TA prior to testing.
- No other documentation is necessary.

Testing

- You need to see the TA during one of the time windows on the due date (time and place will be announced by email).
- You should bring your own laptop for the test. If you do not have a laptop or prefer not to use it, then you can run your program on one of the lab computers.
- Your program must be able to read text files (.txt extension, similar to the one posted on the web) from a USB memory stick, and write text files (similar to the one posted on the web) to the same memory stick.
- When you start your program, it should perform the following steps
    - first read the text file input1.txt from a memory stick that will be given to you; this is to initialize the VM memory hierarchy
    - next read the file input2.txt and attempt to translate each VA into a PA without using the TLB
    - write all outputs of this run to a single text file on the same memory stick; name the file nnn1.txt, where nnn is your 8-digit student number
    - next clear out your physical memory and reinitialize it using the same file input1.txt
    - then read the same file input2.txt again and attempt to translate each VA into a PA but now using the TLB
    - write all outputs of this run to a text file on the same memory stick; name the file nnn2.txt, where nnn is your 8-digit student number
- You only get one chance to run the test, except when there is some minor problem that results in a catastrophic failure and can be fixed on the spot, e.g., the program crashes and produces no results.
- We will evaluate the output of your program and report the results to you (not during the demo session). You can then see the TA during office hours to see the test cases you failed. If you have a valid justification for why your results are different, we may accept the results or award additional credit.
- I suggest that you test the protocol before coming to the demo session to avoid unnecessary delays/problems:

- copy the sample input file from the web page onto a memory stick
- run the above protocol
- check your memory stick to make sure it contains a file nnn.txt that matches the output file on the web page

Expectations

- All data in both input file will have correct format (see sample input1 and input2). Specifically:
  - input1 will specify a valid memory hierarchy
  - input2 will contains pairs, o_i VA_i, where o_i is either a 0 or 1 and VA_i is within the limits of |s|, |p|, and |w|
- PM will be large enough to accommodate all pages and tables, i.e., no page fault will ever occur
- The file output1 file should consists of a single line, containing only integers (one for each valid PA) or the strings “pf” or “err”, all separated by blanks (see the sample output1 file).
- The file output2 file should show the same information as output1 but each item should be preceded by “m” or “h” to indicate TLB miss or hit (see the sample output2 file).
- To facilitate grading, do not output any additional information.