

**CS39002: Operating Systems Lab
Spring 2013**

**Assignment 6
Due: April 8, 2013, 1 pm**

In this assignment, you will need to simulate different page-replacement algorithms and compare their performances. Your simulations should be able to take in the required parameters from a data file in the following format:

- First line of the file contains two integers in this order - the no. of pages in the reference string and the no. of page frames
- The rest of the file contains page reference string as a sequence of integers that are the page numbers (in virtual address space) accessed by the process in sequence.

The simulator will simulate the behavior of the following page replacement algorithms on the reference string and report the number of page faults generated for each algorithm:

- FIFO
- LFU
- LRU
- Additional reference bits algorithm (with 4 bits, assume an interrupt after every 10 page accesses)
- Second chance algorithm

All the algorithms above are described in your text book. The simulator should take the following command line arguments (in this sequence): *the name of the data file*, a sequence of strings (max. 5) from the following sets: *FF*, *LF*, *LR*, *AR*, *SC* (meaning the above 5 algorithms respectively). The simulator simulates only the algorithms specified in the command line. If no algorithm is specified, all 5 are simulated.

Submit the file `page.c` containing a main function, and the implementation of the above five algorithms. Each of the algorithms should be implemented as a separate function that is called from the main function.