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Lab 4 Design Document & Report

Report:

Files Changed:

1. shm.c: implement shm_open and shm_close functions for utilizing shared memory.

Design Document:

These functions allow a memory page to be shared between multiple processes (in this case, a shared counter variable). In shm_open, the shared memory table (shm_table) is scanned for the passed in id. If it exists, a page is mapped to the current process, the virtual address pointer is set, and the reference count is increased. If it doesn't exist, then a page is allocated, and then it is the same as the previous step. In shm_close, the id that is passed in should correspond to a page in memory that is being shared, and if that page exists and is being shared, then it will decrement the number of processes that are sharing the page, and upon the exit of the final process it will clear out the entry of smh_table. If the id doesn't exist then it will return as an error.