CST 334: Operating Systems

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# Caching: LRU replacement policy

**Instructions**. Copy the following tar file (on mlc104) to a directory of your own and untar it.

/home/CLASSES/brunsglenn/cst334/hw/hw8/cache.tar

It contains code that models storage with a cache, as in our last homework. You should be familiar with most of the code from last week’s homework. If you type ‘make rand’ in bash, a simulator will be created that uses a cache with a random replacement policy. The code that implements a cache with a random replacement policy is in random\_cache.h and random\_cache.c.

**Your job is to edit files lru\_cache.h and lru\_cache.c such that they implement a least-recently-used replacement policy. Do not modify any other files!**

I will test your code by running the simulator, and also by running unit tests. When I run the simulator that uses the random replacement policy, I get:

hits: 73548; misses: 26452

When I run the simulator using my cache implementation with a least-recently-used replacement policy, I get (and you should get):

hits: 78399; misses: 21601

**Testing your code**. Included in the tar file are some C unit test files: test1.c, test2.c, etc. Look in the Makefile to see how to compile them. Look at the test files to see what kinds of tests are being performed. I recommend you perform additional tests. When I test your code for homework scoring I will modify some of the tests.

**Submission**: Submit two files -- your edited **lru\_cache.c** and **lru\_cache.h** -- on iLearn. Be sure to use these exact file names.

**Grading**: I will run 5 tests. You receive 10 points for each test that passes.