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#####
# CS:APP Cache Lab
# Directions to Instructors
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This directory contains the files that you will need to run the CS:APP cache lab, which develops the student's understanding of caches.

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1. Overview
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In this lab, the student works on two C files called `csim.c` and `trans.c`. There are two parts: Part (a) involves implementing a cache simulator in `csim.c`. Part (b) involves writing a function that computes the transpose of a given matrix in `trans.c`, with the goal of minimizing the number misses on a simulated cache.

Each time a student with login "foo" compiles their work, the Makefile automatically generates a handin file, called `foo-handin.tar`, that contains the `csim.c` and `trans.c` file. Students hand this tar file in to the instructor.

The driver program (`driver.py`) evaluates the correctness of the cache simulator in `csim.c`, and the performance and correctness of the transpose functions in `trans.c`. See the writeup for details.

Requirements:

- The lab must be done on a 64-bit x86-64 system.
- The driver requires a version of Valgrind (<http://valgrind.org>) that supports the "`--tool=lackey`" option.

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2. Files
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Makefile	Builds the entire lab
README	This file
grade/	Autograding scripts for the instructor
src/	Source code of this lab
cachelab-handout/	Handout directory that goes to the students.
This directory	is completely generated from files in the src directory
	Never put any hard state in this directory.
cachelab-handout.tar	Tar file of handout directory that goes out to the students.
writeup/	Latex writeup about the lab. Modify to reflect your environment.

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3. Building the Lab
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To build the default version of the lab, modify the Latex lab writeup in `./writeup/cachelab.tex` for your environment. Then type the following in the current directory:

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unix> make clean
unix> make
```

This will build the `cachelab-handout/` directory and its `cachelab-handout.tar` archive that you can handout to students. The command:

```
unix> make dist DEST=<DIR>
```

will copy the tarfile and copies of the writeup to directory <DIR>, where the students can access it.

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4. Handing in the Lab  
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Each time a student with login "foo" compiles their work, the Makefile automatically generates a handin file called foo-handin.tar. If you want to autograde the handins, collect all of the student handin tar files in the ./grade/handin directory.

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5. Autograding the Lab  
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You can run the driver program manually on each student's handin, or you can use the autograding scripts in ./grade to automatically grade each of the .tar files in the handin/ directory.

See ./grade/README for instructions.