The COMP 412 Lab 1 Auto-Grader
Fall 2022

The original version of this code was written by Lung Li when he was a graduate student at Rice.

The autograder in the ~comp412/students/lab1 directory on CLEAR is a subset of the full autograder. It should help you understand whether or not the archive that you intend to submit for grading will work correctly with the autograder.

The autograder is available in a tar archive, L1AG.tar. To set up a copy of the autograder, you should:

1. In your file system on CLEAR, create a new directory where you can unpack the auto-grader and test your submission. In a shell, run the commands:

   ```
   mkdir <name>
   cd  <name>
   tar –xvf ~comp412/students/lab1/autograder/L1AG.tar
   ```

   where <name> is the new directory's name.

   The README file will contains directions on how to use the autograder to test your submission. The rest of this document is similar to what the README file says. You might do well to read both, in case one of them omits something.

2. Go to the subdirectory "auto_grade" and update the string "base_name" in file auto_grade.py so that it specifies the directory where you unpacked the tar file in step 1. The base_name should include the full path and should end in a slash ('/').

3. The autograder comes with two demonstration archive files. They are in the TarFileGoesHere directory. To test the autograder, invoke the file "RunGrader". It should create a log file, named with a current TimeStamp and the suffix ".log", along with a pair of files in the "result" subdirectory.

   The archive comp412.tar should work with the autograder. The archive noway.tar does not work with the autograder. Look at the log file after running the autograder on the two test archives. That should show you the expected results.

4. To test your archive, remove comp412.tar and noway.tar from the TarFileGoesHere directory. Put your tar file into the "TarFileGoesHere" subdirectory.

5. Remove the log file. (Because of the timestamp in the name, it is easy to become confused as to which log file is current. I always remove the old file before running the grader.)

6. Invoke RunGrader

Examine the log file. It provides some detailed feedback on how the ILOC Front End in the tested archive performed.

The file result/results.txt contains a summary of the scores of the tested archives. The file result/failed.txt reports the name of any archive that does not unpack into a working lab.

If a tar files is ungradeable, it is listed in the file "failed.txt". The log file may provide insight into why the test failed. Common problems include:

1. The tar file is incorrect. It needs to unpack into the current directory. The auto-grader creates a test directory, moves into that directory, and unpacks the tar file. It expects your code, README, Makefile (if any), and script (if any) to be in that directory. If you created the tar file from one level higher in your file system tree, the auto-grader will not find the files that it needs.
2. Your README file does not contain the required NAME and NETID fields. The auto-grader uses these fields to assign your points to your NetId. These show up early in the log file. Check that they are correct.
3. Your submission does not run straight out of the box. The auto-grader is going to look for a Makefile. If it finds one, it will execute a "make clean" followed by a "make build". Those should produce an executable named ./412fe that the auto-grader can run.
4. Your Makefile or your script contain absolute pathnames. Remember, the auto-grader will build and execute your lab in some distant and unknown part of the file system. Check manually for absolute pathnames. (If you have one, and you test the code somewhere else in your file system, it will almost certainly work because you have access to the original file in its original location. That won't happen when **comp412** tries to run the code.)

The tar file verifier (in the ~/students/lab1/verify directory) reports more detailed feedback on an archive than the autograder does. It tries to provide specific diagnostic advice.