CSE141L Lab 4 S220

Deadline: September 6th, Monday, 6am PST

# Submission Options

**Option 1 (preferred)**:​ Record a video describing your design. Submit the project files along with a README to help us navigate through your work and tell us what worked and what didn't. Detailed instructions of this option can be found in the​ next page. ​ **You don't need to write a formal report for this option.**​

**Option 2 (No demo. Requires a formal report.):** Turn in all of the above (except the video),​ plus a full report describing your design. *The report must cover everything described in the*​  *video content section in the next page, but in the format of a formal report*​. You are strongly encouraged to cut and paste from Labs 1, 2, and 3.

*Why option 1 is preferred over option 2:*

* *Recording a video would take much less time than writing a formal report*
* *When you demonstrate to us that your programs work in video, we are mostly confident that they work as you showed, where we don't necessarily need to re-run your code*
* *Even when we decide that we need to run your codes, with a video describing your design, it is more clear to us on how to run your codes properly*
* *If you decide to write a formal report instead of recording a video, the only way we can verify your programs work is by running your codes. If some part of your report is unclear that leads us not able to set your project up properly, it's very possible that we cannot correctly run your codes and award the points.*
* *If the situation in the point above happens, although regrades are possible, it would be troublesome since you will need to again explain in detail what we probably did wrong and how to run properly. In addition, the regrade period would be short since we have a very close deadline in submitting the course grade to school for summer sessions.*

# Grading

Your course grade depends on Lab 4, specifically how well your design executes the three assigned programs.

* **A:** all three programs run with a variety of input operands (original message strings for​ program 1, padded and scrambled message strings for programs 2 and 3).
* **A-:** any two programs (presumably 1 and 2) work, 3 doesn't​
* **B:** program 1 works, others don't​
* **C:** hardware design compiles cleanly in ModelSim and Quartus (no errors); assembly​ and machine code written; programs give wrong answers or x's, but some level of effort

demonstrated

# Video Submission Guidelines

**Note: Since there could be technical issues for video recording and the link to the video takes time to be generated, please be sure to start early on recording the video (as there are less TA available during the weekend and there would be no TAs after midnight to help)**

Video Content:

Submit a short (2-4 min) video giving an overview of your design **(**​ **see the next section on how to record this video)**.​

* Go over the highlights from lab 1 (number of registers, instruction formats, bit breakdowns, branching logic, supported ops, etc.)
* Show us a block diagram or datapath for your processor (can be hand drawn or generated by quartus) and explain the main components. Show us in what places you had to make modifications for your architecture and elaborate on any custom hardware modules (including HW LFSR if you chose that option).
* Give us a quick overview of what your test bench does and how it tests that the 3 programs run correctly.
* Show us the results of your test bench and how successfully you were able to run the 3 programs. (the output files)

Video Recording How-To:

Videos should be recorded on zoom and include the link in your README.txt file (see below).

To record:

* One person of the team should log in to Zoom **using UCSD's SSO (this step is**​  **important for the recording to be uploaded to the cloud)**, and start a zoom meeting​
* Add all your teammates (please show all your faces for at least the beginning part)
* Share your screen and start recording. **Make sure the "Record to the Cloud" option is**​  **selected when you start recording.**
* Double check that the session is being recorded
* Do your presentation
* Stop recording/end the meeting.

You will then be prompted by Zoom that "You will get an Email notification when the cloud recording is ready”. **After 20-40 minutes**​ , an email will be sent to you with a link and a​ passcode to the video *(*​ *At the bottom of the email, where it says "Share recordings with viewers:*

*ucsd.zoom.us/xxxx Passcode: xxxx*​). You should include that ​**link** and ​ **passcode**​ in the​ README file.

What to Submit for Video Option

Submit all of your source code on gradescope including:

* All hardware (Verilog) modules
* Your test bench
* Assembly code for your 3 programs
* Machine code for your 3 programs
* Your assembler (python, or other high-level language file)
* A screenshot or printout of your testbench output
* Additional files needed to run your processor (e.g. memory initialization files)

In addition, include a text document named README.txt in which you:

* Explain which programs/features work
* Explain which programs/features don’t work and what challenges you faced when implementing your design.
* **Include the link and passcode to your zoom video (see above)**