Lab 1 Report Guidelines

Each lab requires a written report, and you only need to submit one lab report per group. A pdf of the lab report should be uploaded to Canvas.

Code should be included in a folder on the server and can also be included in the Code Appendix section of the report. Each piece of your code should include a header with the names and netids of each team member, lab assignment number, and date. Code should also be uploaded into a directory labDayGroupN on the ECE5725 server, where labDay=lab session (Mon,Wed or Thur), N = group number assigned to you (on your lab kit). This directory should be created in the /home/labN directory.

In General

- Report should be written to describe work to an audience who hasn't seen the results before (your future boss, for example)
- Details should be included for all steps
- Descriptions included for where there were problems and how these were eliminated
- Special attention to critical commands and procedures should be noted
- Figures, graphs, photos, screenshots should be used to expand descriptions in the text.
- More credit given to reports that are easy for the reviewer to read and understand

Sections of the Lab report

- Header: Includes Lab number, date, names and netids of teammates
- Introduction: Short description of what was done in the lab
- Design and Testing:
    - Describe design steps involved in the lab and your progress in each of the lab sections (e.g., describe how the Linux kernel was installed and modified to include the piTFT).
    - Describe any issues you experienced and how you resolved them.
    - Describe testing you performed to confirm that steps of the lab worked as planned.
    - Results should be included along with design discussions. Did everything perform as planned? Did your team meet the goals outlined in the lab description?
- Conclusions:
    - What worked and what didn't work during the lab?
    - Are there any improvements you would suggest?
- Code Appendix
- Work Distribution within the team
- There should be page numbers, drawings, screenshots and photos should be used to support the written report
- The report should be written and supported with visual elements so that a first-time reader can understand.

Lab Metrics

Lab performance:

- Attendance
- Is the team's lab behavior professional?
- Are team members ESD-safe during experiments?
- Are all team members participating?
- The team uses tenacity to solve problems and to complete the lab

Demos

- Did the team correctly demonstrate lab function?
- Does code run and is hardware correct?
- Did the team correctly explain all the demos
- Are the demos embedded?

30% Organization

- Are students following lab safety and cleanup instructions?
- Were all sections included?
- Are figures included and clearly marked?
- Is code commented and identified with headers?
- Did team come to lab on time.
- Was the team prepared in advance for the lab?
- Lab completed in the two-week window.

20% Composition

- Is the report written in clear and correct English?
- Has the report been proof-read?
- What is the percentage of AI generated content?
- Are sections clearly marked, paragraphs separated?
- Does paging make sense?

50% Content

- Is the lab report complete with all sections required?
- Did the students discuss problems, and how they corrected them?
- Does the analysis of results make sense?
- Are screenshots/photos included to illustrate solutions
- Are results summarized using charts and graphs?

Measurement points for Lab 1 reports

Lab preparation:

- Did student arrive at lab with an SD card setup with the raspberry Pi OS?
- Was the completion of HW1, Question 2 completed before lab start
- Was SD card backed up after piTFT install?
- At the start of week2, did the team successfully restore the 2nd SD card?

Raspbian kernel observations

- Did install go well?
- Any issues with SD card?
- Is the correct kernel information noted in the report?
- Observations about general process – what took time?
- Did you have to redo anything?
- Were you able to login from a remote terminal on laptop?

piTFT install

- Understanding that this is a kernel change.
- Detailed install should be followed (not quick install).
- Any problems getting the initial install to work (displaying startx on piTFT?)
- Was calibration performed?

Secondary piTFT install

- Able to setup to boot to piTFT console?
- Able to play video, with audio?
- Any audio playback issues?

Mplayer control

- Describe control of mplayer with fifo; discussion of fifo as a special filesystem object
- Fifo_test.py: Able to send commands to mplayer using python script
- Did you begin with one button, then expand to 4 buttons? Was a polling loop used?
- Video_control.py: 4 buttons setup to control video operation. Issues? Did it work on first try or were adjustments needed?
- Was it straightforward to extend control to a bash script?
- Discussion of embedded operation: Everything runs on the RPi and piTFT

Check Offs:

Did the team pass the check-out steps for week one and week 2 as described in the lab directions?

Week 1:
Once your SD card is backed up, please check with the TA:

- Demonstrate the piTFT screen by playing the video and audio
    - Launch mplayer from the console window on piTFT
    - Launch mplayer from a console window in startx
- Show the TA your backup files

Week 2:
Before completing the lab, demonstrate the following programs for the TA:

- Fifo_test.py
- One_button.py
- Four_buttons.py
- Video_control.py
- Start_video

Grading guidelines

Lab reports will be evaluated using the following elements as outlined in the above document. These evaluations will be applied to each task description in the report. The Benchmark column describes minimum report requirements. Generally, the elements in the Advanced column build on and include all elements of previous sections. The Advanced column describes well written report elements.

	Advanced			**Benchmark**
Design, Testing, Results	Design, Testing and Results described including the path to development. Description would allow someone new to this task to implement it with success. Lab insights clearly explained.	Design-to-results path clearly elaborated. Some lab insights noted. Testing results expanded	Design and results include development decisions. Limited testing described	Design and results stated
Code	Code comments expand understanding of basic code.	Code includes expanded comments, clear formatting to assist readability. Code snips included in text to illustrate design details	Code includes headers and some comments	Basic, functional code included
Graphics	Graphics included to support each complex element. Graphics clearly labeled, include all data and easy to interpret, adding understanding to a clear text description.	Graphics included for most complex elements	Graphics included for some complex elements	Limited graphics
Readability and Formatting	Well written descriptions trace the path through problem, implementation and solution	Descriptions include additional detail.	Descriptions expanded to highlight some details	Correct spelling and formatting, limited, terse descriptions. Page numbers and cover sheet. Team member names and Lab section
References	Fully formatted references following posted guidelines.	References include both links and text documents used to complete the work.	Expanded references with some expansion on link references	Limited links to sites