EE/CprE/SE 491 WEEKLY REPORT 8

11/1/2024 - 11/7/2024

Group number: **sdmay25-33**

Project title: **Interactive Embedded Systems Learning using the Prairie Learn Framework**

Client &/Advisor: **Phillip Jones**

Team Members/Role:
Rachel Druce-Hoffman — Notetaker
Justin Cano — Technical Lead
Joey Krejchi — Quality Assurance
Caden Otis — Project Manager
Devin Alamsya — Consultant

o **Weekly Summary**

The objective for this week was to continue improving on the PrairieLearn application. Some team members focused on fixing a bug that occurred when autograding a certain homework, while others fixed or added documentation and looked at what problems could be enhanced. Since we are continuing where a previous team left off, we are still trying to figure out what all can be improved so that we can get our application ready as a working beta version for CPRE 2880 next semester.

o **Past week accomplishments**

- Caden: I worked with Joey to try and fix a bug that he found with the ARM autograder on problem 2a of HW 12, which involves writing assembly code to perform the action: a = b + some constant integer, where a and b are unsigned integers. The bug occurs sometimes when you submit correct code for 2a, where the value of 'b' will be different for some tests but the value of 'a' will still be summed by the correct amount. However, because the value of 'b' in the output differs from the value of 'b' in the test, the student's answer will be considered incorrect. Joey and I spent time understanding how the tests get constructed, where the values of 'b' get generated and assigned, and we believe we know where the bug generally lies in the code. However, we don't know what exactly is causing this bug to occur, so we aren't sure how to fix the bug quite yet. I also found out that this bug occurs

for every other problem in HW 12. I'm assuming this is because the ARM autograder is set up very similarly for all problems in HW 12.

- Devin: This week I finished up some documentation for the answer option randomization. I also combed through the homework questions and found 14 other questions that are short answer. 3 of them will stay that way most likely due to the nature of the question being one where the student responds to an online article or finds an article to comment on. The other 11 should be able to have some way where the format can be changed from short answer to make it so it is autogradeable and there's a potential for answer randomization like I did with H1_Q5. Planned out the approach on how I'm thinking of reformatting most of the questions. I also reviewed some more 288 material. Look to get input on the 4 that I'm not sure of the best way to approach by team and Dr. Jones in our advisor meeting.
- Joey: I worked with Caden on the above issue. This issue doesn't look like it will be easy to fix, and I've spent a lot of time trying to figure out how the autograder functions. The issue likely lies somewhere with the emulated board reading in the input values through scan_uart0, but we need to figure out a way to test that. I looked through the previous group's documentation but I didn't come up with much.
- Justin: Updated the server setup documentation from last year's team. Started looking at the video for server setup and planning what things to fix from it.
- Rachel: Looked further into Excalidraw, read its documentation, downloaded it, learning about integration. Looked into putting PDF snippets into questions to finish HW 9 Q 1 and 2. Continued recovery from being sick.

  o **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Caden Otis	Worked with Joey to fix a bug that he found for problem 2a of HW 12. We figured out where the bug is primarily located, but we aren't sure what exactly is causing the bug to occur. We need to spend more time looking into the bug itself.	5.5	32.5
Rachel D-H	Excalidraw, PDFs.	4	35.5
Justin Cano	Updated the server setup documentation from last year's team. Started looking at the video for server setup and planning what things to fix from it.	4	28
Joey Krejchi	Worked with Caden to fix the arm autograder bug. I also did some research into how the ARM autograder works.	5	29.5
Devin Alamsya	Updated documentation, looked through short answers to plan out approaches, reviewed material.	4	26.5

- **Plans for the upcoming week**
    - Caden: My plan for next week is to continue working with Joey to fix the bug that occurs for all problems in HW 12. If we can fix the bug in a reasonable amount of time, then I will probably start looking into problems 1a and 1b of HW 12. These problems still need to be randomized, and then fed into the ARM autograder so that each problem can be auto-graded with any randomized values generated in the problems.
    - Devin: My plan for the week is to work on converting short answer question to autogradeable questions. Hoping to have all 11 done in this upcoming week.
    - Joey: We will need to plan a way to solve this bug. I also will work on fixing Question 12-1a which has incomplete information.
    - Justin: Keep working on updating documentation from previous years. Keep planning on how I'll update the videos.
    - Rachel: Try to get Excalidraw functional. Put datasheet PDF sections into questions and push to main.

- **Summary of weekly advisor meeting**

  For this week's advisor meeting, we first talked to our advisor with our findings and confusion for a bug that we found in HW 12, problem 2a. Our advisor recommended that we reach out to the original developer of that problem to get a better understanding of the problem. We also talked about turning some short answer questions into autogradable questions to reduce how much manual grading needs to be done by the professor or TAs. We then discussed potential solutions for creating and linking Git tokens since they will always expire after a year.