
EE/CprE/SE 492 Status Report 4

02/27/2025 - 03/12/2025

Group number: ***sdmay25-33***

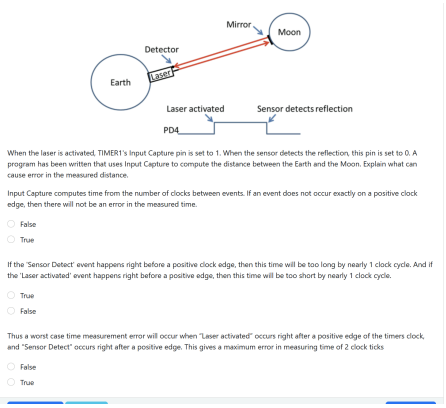
Project title: ***Interactive Embedded Systems Learning using the Prairie Learn Framework***

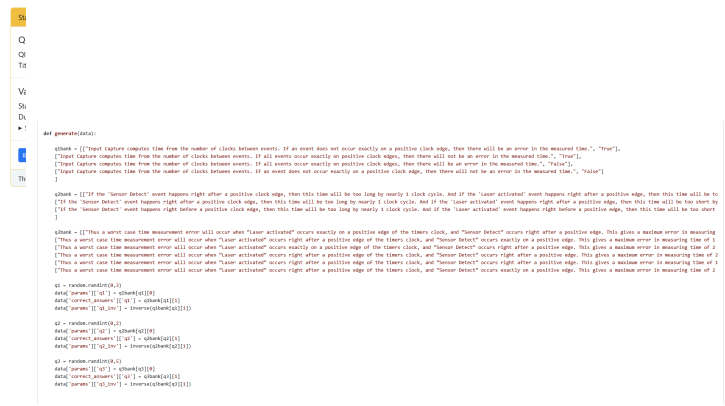
Client &/Advisor: ***Phillip Jones***

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

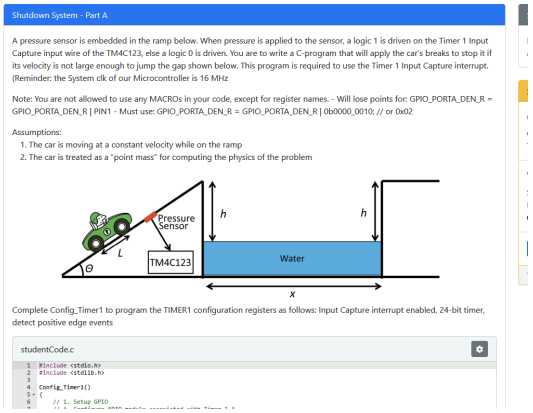
- **Past week accomplishments**
    - Joey: (Pictures included because I won't be able to share my screen).

I created a new set of pictures for HW9 Q3B so that users have a larger bank of incorrect answers to choose from. I then restructured questions 4 and 5 so that the prompts are written in ASCII rather than being screenshots. I began looking into ways to randomize the true/false parts of questions 2 and 5. The following week, I randomized question H9_Q5A, which asked true or false questions on the Input Capture error. I did this by making a bank for each question that changes the phrasing to make it correct or incorrect.





I also worked on the question H9_Q5B, which worked with the frequencies. There are now random values for those



I left off with autograding this question.

- Caden: I worked on fixing issues that I found through my testing of HW 7. I was able to fix the first six questions of HW 7, which mainly involved changing the question format to be consistent with the previous HWs and also adding prompts to make it more clear on how students should upload files that they need to submit. I was able to randomize HW7_5A and generate the correct solution that shows up whenever the students submit an answer. However, I am still working on the autograding portion of the question and need to create tests to see if the student's code works as expected. The following week, I was able to finish the rest of the questions on HW 7 and get them fully randomizable and/or autogradable. The questions that I fixed were problems HW7_5A, HW7_5B, and HW7_5C. These questions involved the student writing C code to utilize the UART to perform certain actions. Because we don't have the technology yet to simulate the UART, I ended up giving the students most of the code and whenever a UART register (or any register) was being set, I would leave the binary mask blank and have them type it in into a textbox. This way, I was able to make these questions autogradable. HW 7 is now complete, and my changes have been pushed and merged into the main branch of our repo.
- Devin: I finished randomizing H1_Q3c so that the drawing in the second part of the question is randomized and autograded as well. This took up a bulk of my time. I then moved on to work on HW8. The two problems I have left were H8_Q1BC and H8_Q2. I finished randomizing some inputs with H8_Q2 so that should now be randomized to a good level and autogradable. With H8_Q1BC I spent some time trying to understand it because of its current implementation and even with the HW set given to us by Dr. Jones, I get lost on a certain part of it. I wasn't able to do a ton of work the second week due to three exams and spending time studying for them along with some personal things that came up. I looked into H8_Q1BC more and found that I just needed to understand it better and after doing so it seemed as though it was good to go. I then moved on to looking at HW11 and testing and trying to break it.
- Rachel: I created the base for the Canvas grade upload program. It will require the user to give the Canvas course ID, the Assignment ID, and the csv downloaded from PrairieLearn. I don't really code in Python, so I need to learn to parse a csv in Python. I faced some issue with determining the layout of my program (how much should be abstracted into separate functions). I should only need the student's name and grade, but I may run into issue mapping the student name to the Canvas student

ID. I researched this but I don't have an answer yet. I continued work on the grade upload Python script. My access token that I use with my VM expired, so with Justin's help I troubleshot that and fixed my VM setup. This was so I could download a csv from Prairielearn to use as a guide for my program to take as input. I spent the rest of my time debugging my code and fixing problems, including errors with initializing a Canvas instance, syntax, reading csv input, as well as changes to give more info about what went wrong when things don't work. Right now, there is still a bug with the csv- python reads each csv row as a list of strings, and if a column is empty, there is no string in the row. This means that each column may not occur at the same index in the row.

- Justin: Worked more on getting microsoft oauth working on our server. I copied last years source code and tried to get it running on our server but was running into a lot of issues. After fixing them I realized I should just rebuild our docker container and did so, but I then I ran into new errors with R not being installed into our container. Finally after getting R installed, I was able to launch Prairielearn in dev mode, but it won't let me launch it into production mode. I spent all of the second week trying to fix the errors I was getting from copying the source code from last year's team. After looking through the PostgreSQL logs, I found that it was caused because our docker containers was running PostgreSQL 16.5 while the existing database was initialized with PostgreSQL 15. I tried a few things but eventually I just removed the PostgreSQL data volume and initialized a new database. I then started getting issues about initialization scripts being missing, which I had to download from the official Prairielearn GitHub repository. Finally, I was able to see the sign in with okta button, but I'm now getting issues with SSO itself.

- **Pending issues**
  - SSO error. "Application with identifier 'REDACTED' was not found in the directory 'Iowa State University'. This can happen if the application has not been installed by the administrator of the tenant or consented to by any user in the tenant. You may have sent your authentication request to the wrong tenant."
  - Waiting for response from Dr. Rover on how/when to go about testing
  - Figure out how to print a message in the submission comments if the students' code doesn't compile due to forbidden functions (H2_Q5)

- **Individual contributions**

NAME	Individual Contributions	Hours past 2 weeks	HOURS cumulative
Caden Otis	Fixed and finished the first six questions of HW 7, which mainly consisted of adding clarification prompts and making the question format consistent with the previous HWs. I also was able to get HW7_5A randomizable and able to generate the correct solution to show to the	12	41

	student. I also started on finishing the autograding portion of the question. Was able to get questions HW7_5A, HW7_5B, and HW7_5C fully randomizable and autogradable, therefore finishing up HW 7.		
Rachel D-H	Coded Canvas Upload program. Began debugging. Research into Canvas API and Python. Fixed VM setup. Debugging/troubleshooting code, adding to it, changing it, researching python, canvasapi, etc	12	37
Justin Cano	Worked on trying to get microsoft Oauth working with the previous years code. Then spent the rest of my time troubleshooting the issues that popped up from me doing this. Fixed issues with previous years source code not working. Got the ability to sign in with SSO working, but something is wrong with SSO.	13	37.5
Joey Krejchi	Created new pictures for a question, restructured the format for another, and began randomization of another few. Randomized two question from H9 and starting on a third	10	37
Devin Alamsya	Fixed and Finished HW1 (H1_Q3c), Fixed H8_Q2, and worked on H8_Q1BC but have a gap in my understanding so need to ask Dr. Jones about it. Confirmed H8_Q1BC and looked into HW11	9	35

- **Plans for the upcoming week**
    - Joey: I will finish randomizing that question from H9 and try to finish off that set.
    - Caden: I will help where needed with the other HWs. Otherwise, I will start to look into the documentation side of things (written and videos) and see what we all need to do for documentation.
    - Devin: Finish up looking at HW11 but starting to prioritize documentation moving forward. Want to get a plan in place for that.
    - Rachel: Get a working demo for the python canvas code and then make it more streamlined for the professor. Document my code and help with other documentation as needed.
    - Justin: Fix the error I'm getting when I attempt to sign in with SSO.

- **Summary of weekly advisor meetings**

  For our weekly advisor meetings, we have mainly been talking to our advisor about fixing homeworks 7-9, where their question formatting has been improved and they are now autogradable and randomizable. We have also discussed the continuing issues with getting Microsoft OAuth to work as the main login method for students and professors onto our project. Our advisor will continue to work with ISU to get that working for us. We've also planned on focusing more on documentation after spring break and getting ready to hand our project off to the team that continues on our project next year.