Project Planning

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Project Overview

- Create an interactive application for CPRE 2880 students to better understand the concepts
    - HWs and quizzes
    - Randomized questions and autograding
    - Use emulation tools to simulate microcontrollers
    - Potentially have an emulated Cybot robot interface

- PrairieLearn framework to host the application

- Utilize Python, JavaScript, C and other programming languages

- Hope to inspire other professors to build similar interactive tools for their students

Problem Statement

- Students don't get enough practice of concepts

  - Little feedback on Canvas HW submissions

- Not always availability to practice programming on the microcontroller in the lab

- Limited time to meet with Professor and TAs

  - Lab, class, office hours

- Limited capabilities with Canvas platform
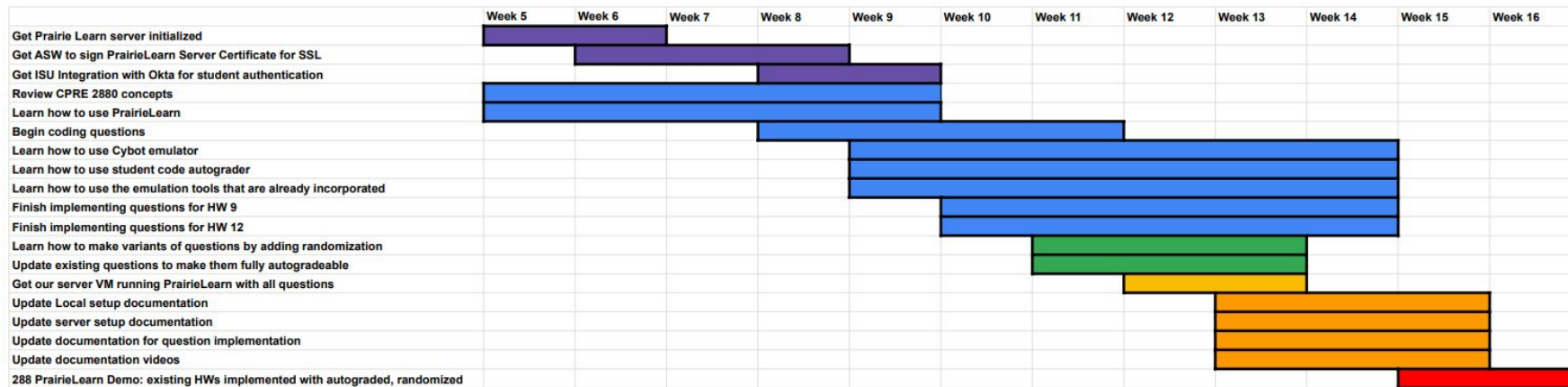
Project Management Style

- Use an Agile approach for managing our project

- Agile will allow the team to:

    - Be flexible and adaptable with tasks

    - Incorporate feedback into the project

    - Respond quickly to unexpected changes

    - Make incremental changes for a changing world
      instead of following a linear path to completion

Task Decomposition
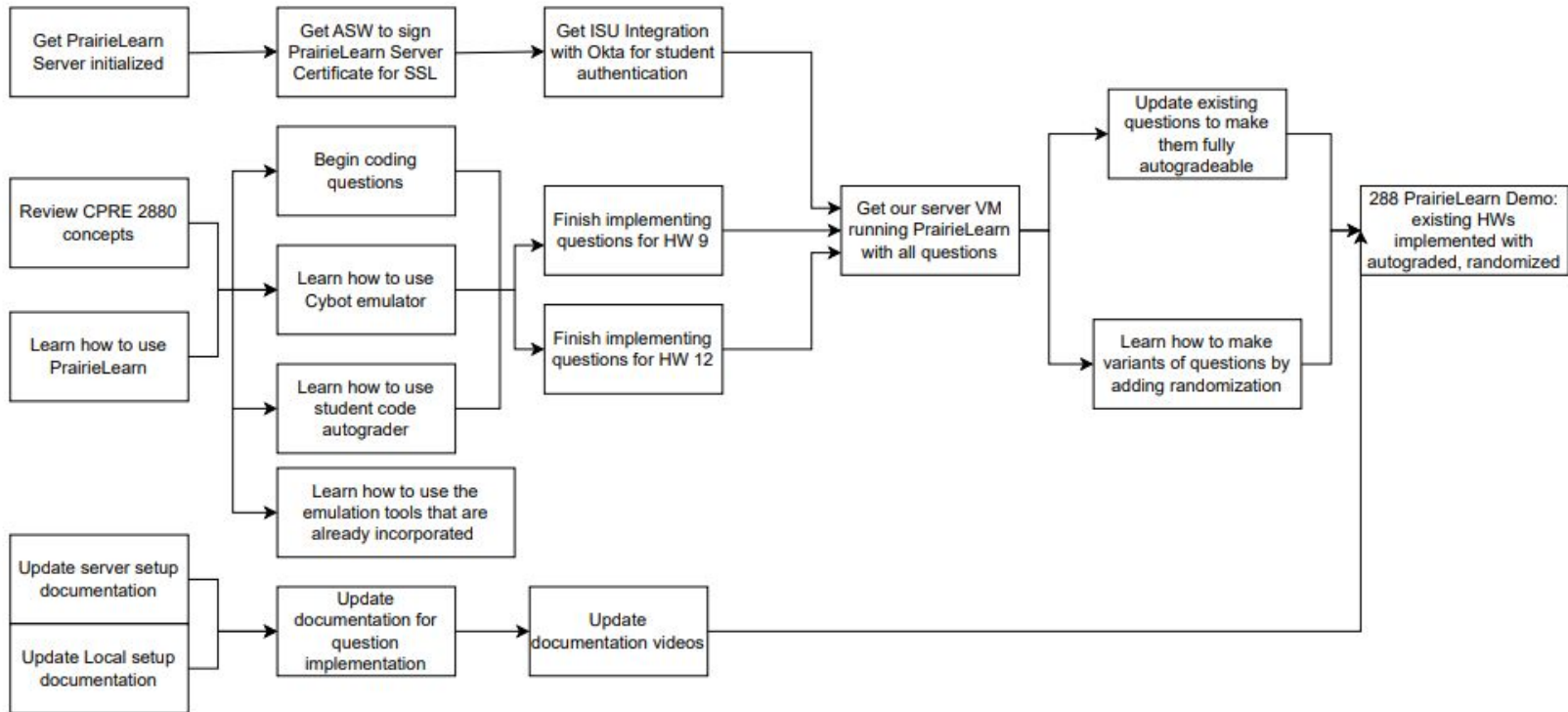
Gantt Chart

Key Milestones and Metrics

Fall Semester:

- Completed Beta version of the application
  - Will be used for CPRE 2880 course in Spring 2025 semester
- All HW questions implemented into Prairie Learn

Spring Semester:

- Updated and completed documentation
- Full Canvas integration
- User feedback collection and improvements based on that feedback
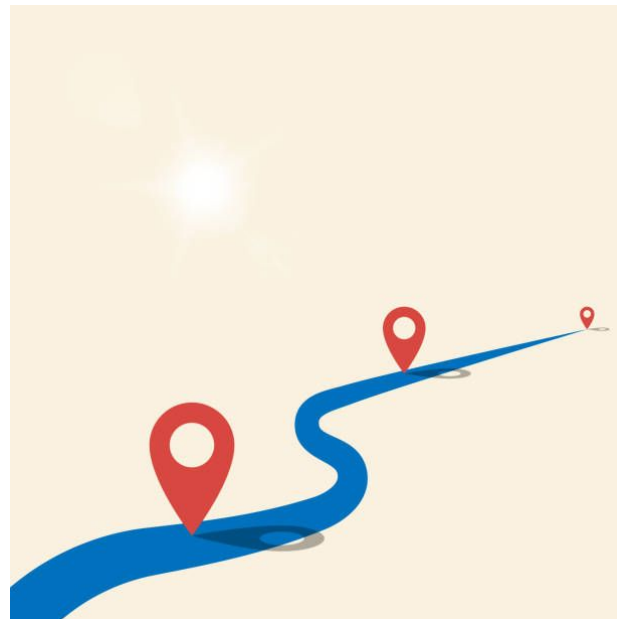
Evaluation Criteria

- Student Feedback
  - Comments
  - Suggestions
- Student Performance
  - **Does this help students' learning?**
  - Homework grades
  - Overall course grades
- Professor Feedback
  - **Is this better than Canvas?**

Key risks and risk mitigation strategies

- Team member is not completing their work or showing up to meetings
  - Communicate with team member along with advisor
  - Give reminder of team contract
- Answer Leakage
  - Make sure correct answers aren't being providing until after the student has submitted their own answer
- Product may perform worse than Canvas in beta testing
  - Optimize PrairieLearn using student feedback to ensure that the end product performs better than other solutions

Conclusion

- Agile approach to development.

- Completed demo by the end of fall semester.

- Finished improvements by the end of spring semester.

- Continuous evaluation to ensure product performs as expected.

QUESTIONS?

Any Questions or Suggestions?