Thomas Orth

VM: csc415-server34.hpc.tcnj.edu

Github repo name: Open-Learning-Platform

Full Path to project/Github URL: https://github.com/TomOrth/Open-Learning-Platform

Individual Project Proposal

Social Issue
Education Inequality

Project Name
Open Learning Platform (OLP)

Option 1 or 2 with rationale:

Option 2. I chose option 2 because I wanted to solve a social issue not yet addressed by the three projects related to option 1. I want to make the most impact with my individual project and I felt that the best way to do that was to address a social issue that I am passionate about.

Framework(s), Language(s) and Platform:

Platform: Web

Languages: Ruby

Framework: Ruby on Rails with a Postgres database

Descriptive sentence to summarize the project

An open platform for verified educators to post their lesson plans to allow educators in under-privileged areas to enrich the education of their students.

Discussion of how the project is innovative and interesting, and addresses the social issue

This project is innovative and interesting because it allows for the collaboration of educators and a streamline platform to disseminate information to other educators. It is

interesting because there is no platform that allows educators of different affiliations to post lesson plans to help the greater good.

Similar platforms include Khan Academy and MIT OpenCourseware. Khan Academy serves as supplementary information to students and it lacks materials like assessments that teachers could use to assess their students. MIT OpenCourseware has course material and assessments but the material is of the level of an MIT student, which would make it hard for most educators to teach the material to students. Alongside this, the material is related to subjects not covered in primary school.

This platform would solve the social issue by allowing educators in low income areas to have access to quality content. Due to the economic conditions of certain school districts, teachers cannot access good material and lack the experience to present material in a meaningful manner. This creates many issues for students later in life, such as being able to establish a good quality of life and being able to get employed. By allowing educators to view lesson plans and use them in their classes, their students can rise above those mentioned challenges.

Algorithms to implement

User and Admin Authentication

- This is make sure there is a way to associate content with an educator and someone to manage the site

Uploading of content via file upload or rich-text editing

- This is to allow educators to have different outlets to upload their content with

Searching for different lesson plans off of Title and Subject

- This is to allow users to find content they need for their classes easily and effectively

Verify educators who want to upload content to the site

- In order to make sure only educators are posting to the site, a verification system is needed
- NOTE: this interface for the system will be prototyped since in order to fully verify educators, background checks would be needed which is outside of the scope of the project, currently

Allow for the submission of copyright complaints to admins to issue DMCA takedown

- Even with terms of service, disclaimers and precautions to ensure that copyrighted material is not uploaded without the consent of all governing parties, there is still a chance that this could happen. Therefore, people who feel their material is copyrighted can request a DMCA takedown. If the admin approves it, the content is removed and the party who uploaded said content will be notified of this.

Data structure(s)
All of these features/algorithms can be managed with lists. The objects related to the different models and data types can be accessed in a linear manner, meaning that a list is most effective for my algorithms. The only other data structure I would be using is the tables that are created in the postgres database.

New software engineering concepts or concepts that will be reinforced

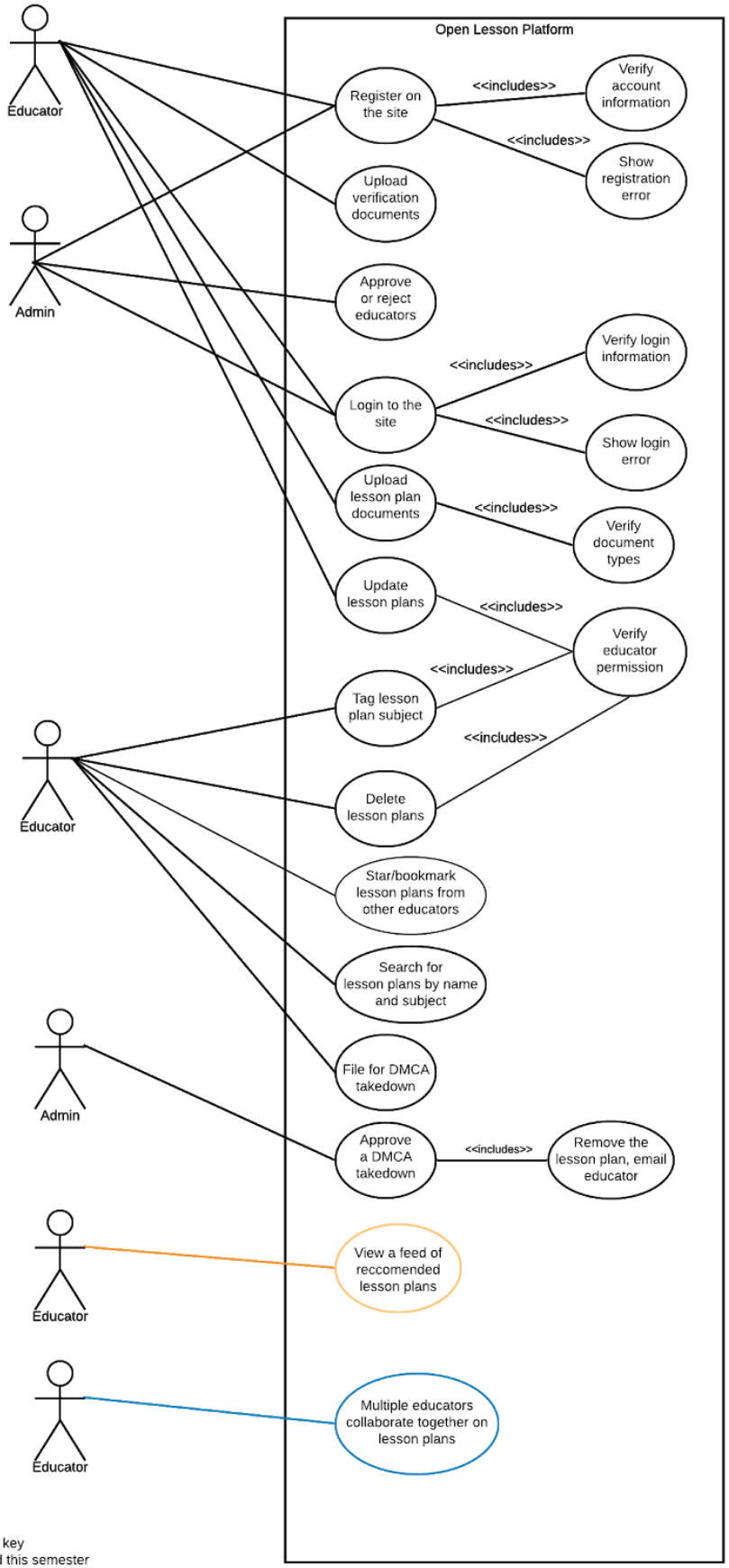
I expect to learn more about software modeling through the different diagrams I need to create for the assignment. I also expect to learn about creating more in-depth documentation for a project through the maintenance of the project wiki page and documents. I will reinforce the concept of creating clean code (modular, low coupling, high cohesion). I also will expect to reinforce the process of test driven development as I have been exposed to the practice but I need more experience with the concept and I hope to do so through working on this project.

Use case diagram shown on next page

Legend for use case diagram:

Black - Implemented this semester
Orange - Implemented if there's time (Second to last use case)
Blue - Implemented possibly at another time (Last use case)

Use case diagram



Proposed timeline:

By 2/24/2020

- Initial prototype for Assignment 2

2/24/2020 - 3/1/2020

- Learn more about ruby and rails
- Resources:
    - https://gorails.com/
    - Book: Agile Web Development with Rails 6
- Begin creating login and registration system

3/1/2020 - 3/26/20

- Allow admins to approve educators
- Allow educators to upload/create lesson plans
- Allow educators to delete lesson plans
- Allow for lesson plans to be searched
- Create necessary models for Assignment 3:
    - Use case descriptions
    - Detailed Use Case Diagram
    - Detailed Sequence Diagram
    - State chart
- Devise test plans and test cases in order to properly test the system

3/26/2020 - 4/26/2020

- Create and update tests as needed
- Allow for lesson plans to be searched
- Allow for lesson plans to be tagged by subject
- Allow for educators to request DMCA takedowns
- Allow for admins to approve DMCA takedowns
- Provide necessary documentation, documents, and models required of Assignment 5 as needed

4/27/2020

- Perform in-class code review and demonstration
- Take note of feedback from demonstration from Dr. Pulimood and classmates
    - Implement feedback as necessary, depending on later specifications of assignments