SCORE Milestone 5 Project Evaluation

Team Members:
Charlie Collins, ccollins2021@my.fit.edu
Michael Komar, mkomar2021@my.fit.edu
Logan Klaproth, lklaproth2021@my.fit.edu
Tommy Gingerelli, tgingerelli2021@my.fit.edu

Faculty advisor/client:
- Dr. Mohan - rmohan@fit.edu

Milestone 5 Progress

Task	Completion	Charlie	Logan	Michael	Tommy	To Do
Implement web app back end	80%	60%	0%	40%	0%	Handle multi-file submissions
Implement grading portal	90%	25%	35%	20%	20%	Handle modification of individual grades
Conduct evaluation and analysis	50%	25%	25%	25%	25%	In class trial run
Create senior design poster	70%	25%	25%	25%	25%	Create final draft

Discussion of accomplished tasks:

Task 1 (Implement web app backend): In the previous milestone, we created the front end of the web app using React. This, however, was just a front end, with no backend functionality, so the first task of this milestone was to create the backend using Node.js. With Node, we created a web server that handles all of the endpoints for the web app. Some notable endpoints are retrieving all assignments for a particular class, retrieving the details of a particular assignment, creating an assignment, submitting to an assignment, and viewing submissions. Whilst creating this Node server, we decided to move all database operations to the server. This was for two reasons, Node has a robust mongo package called Mongoose, and we felt there was benefit to having a single connection to the database, rather than a connection per user. To accomplish this, we created additional endpoints that could be used by the python server through http requests. While this backend is mostly completed, we still have some features to implement such as multi file submissions and the creation of courses.

Task 2 (Implement grading portal): With the completion of the auto testing and feedback functionality in the previous milestone, we now wanted to create a single place for a professor to be able to view all submissions for a particular assignment. To accomplish this, we created the grading portal, a feature only available to professors. In the backend, there is an endpoint that gathers all of the submissions for a particular assignment. This includes the name of each student, their submission, and the grade they received from the auto tester. This is all displayed in the web app front end as a single table. Ultimately we would also like to include the ability for professors to manually change the grades through the grading portal. This would be helpful for professors who have grading criteria outside of just auto test scores. Additionally, the grading portal is where we will add both Canvas and MOSS integrations next milestone.

Task 3 (Conduct evaluation and analysis): In this milestone, we had intended to conduct our initial evaluations of the system. Whilst we were able to conduct some evaluations, we were not able to do as much testing as we had intended to. This was due to other tasks, mainly the backend implementation, taking more time than we had expected. The tests we were able to conduct, however, were centered around test accuracy, and validating requirements had been meant. Test accuracy is important to us as the scores our application generates could potentially have an impact on the grades a student receives, so we wanted to ensure that the test was as accurate as possible. From our testing, every test case passed successfully. This means that given the conditions we put the system through, it was able to accurately score the submission each time. The other form of testing we did was validation testing. This meant going through our implemented functionality and ensuring that it conformed to the specifications we outlined in our requirements.

Task 4 (Create senior design poster): Given that the showcase is coming up, the final task of this milestone was to create the senior design poster. While we have not made our final poster yet, we were able to create a draft of the poster. As we continue development and evaluation in the coming weeks, we intend to update the poster, and eventually create the final draft.

Discussion of member contribution:

Charlie: My biggest contribution to this milestone was working on the node backend. This server had many endpoints that needed to be implemented before other parts of development could continue, that is why it was important for me to work on this first. My most notable contribution to the backend was creating most of the endpoints that carried out the database operations. Once the endpoints were implemented, I helped in connecting the front end and back end. This milestone, I also worked on the grading portal. Specifically, I worked on creating the endpoint in the backend to return the grades for the front end of the grading portal. Then, I worked with the group on conducting evaluations and creating the poster draft.

Michael: I started this milestone working on the web app backend. I created the node project, and set up express. I then worked on getting the database working in the backend by first connecting to our mongodb using mongoose, then creating the schema for both the users and courses. After that, I worked on the grading portal backend, where Charlie and I implemented the endpoint to return all submissions for a particular course.

Tommy: This milestone I worked on revamping and finalizing Auto Test / Auto Feedback. These systems were separate aspects of the system. After meeting with the team and our client, it made sense to combine them as one linear chain of operations rather than concurrent threads that wait for each other. Additionally, work was done to accept, compile, and execute multi file submissions which is one of the final requirements missing from the system. Attaching this will also conclude the integration portion of our system, as it was the one missing link between backend and front end. Since Charlie incorporated Auto Test to the system, integrating Auto Feedback into it will finalize the system.

Logan: My main contribution to this milestone was to the grading portal. I started by deciding what the json that the backend would send would look like. This included what information to include, as well as what the keys would be. Then I created the front end of the grading portal in react that would display the data from that json. After I was done working on the grading portal, I helped improve the front end by completing some of the components we were missing, including the sign in component.

Task Matrix for Milestone 6:

Task	Charlie	Logan	Michael	Tommy
Implement Canvas integration	0%	0%	50%	50%
Implement MOSS integration	50%	50%	0%	0%
Finish remaining tasks	25%	25%	25%	25%
Conduct test run evaluation	25%	25%	25%	25%
Create user manual	25%	25%	25%	25%
Create demo video	25%	25%	25%	25%

Discussion of Milestone 6 Tasks

Task 1 (Implement canvas integration): With the grading portal being wrapped up in the previous milestone, we are now looking to implement the Canvas integration to allow the grades to be automatically uploaded to Canvas with a single button. We plan to do this using the Canvas api, which we researched last semester. The biggest challenge we see regarding this feature is getting the api key from the professor who is uploading grades. To overcome this, we might use a local implementation of Canvas to avoid issues with admin level operations during development.

Task 2 (Implement MOSS integration): The other integration we intend to implement in this milestone is MOSS. We plan on using Stanford's MOSS server to determine similarities between student submissions and potentially professor provided solutions from the internet or AI. The challenge we will need to overcome with this milestone is the api limitations of uploads to the server. One potential solution will be to only upload to the MOSS server once the assignment is no longer accepting submissions. This would allow us to avoid wasting api calls on students that make multiple submissions for the same assignment.

Task 3 (Finish remaining tasks): Since this is the final milestone of the project, we wanted to leave some room to finish any remaining tasks that still need to be completed. Some tasks we know we will need to finish up is accepting multi file submissions, implementing custom verifiers, and creating the final draft of the poster

Task 4 (Conduct test run evaluation): Since the original intention of this project was to be used in Dr. Mohan's courses, our most important evaluation is to do a test run of the system in one of his

classes. This would involve starting with having Dr. Moahn creating a course, adding the students to the course, then creating an assignment. We would then get some or all of the students in the course to try the system by logging in, viewing the assignment, submitting code to the assignment, and viewing the feedback. This test run would point out any glaring bugs in the system and allow us to collect feedback about the interface so that we can fix any pain points.

Task 5 (Create user manual): At this point, our development of the system will be wrapped up so we want to create a user manual to teach users how to use the system. This will include a "man" page on the cli to help define the commands. We also want a separate user manual to explain the basics of the web app interface. On top of the user manual, since Dr. Mohan plans to have students continue development of the application in the future, we also want to create a manual for future developers. This would include a breakdown of the system, how to deploy it, and where certain functionalities are located.

Task 6 (Create demo video): Once development has finished, we plan to create a demo video that will showcase the full use of our system on both the command line and the web app. This will allow us to showcase what we were able to get accomplished and also act as a helpful guide to anyone attempting to use our application.

Dates of meetings with the client/advisor:
3/19/2025 at 4 pm
3/24/2025 at 1pm

Client/Advisor feedback
Task 1 (Implement Backend):
- No comments given

Task 2 (Implement grading portal):
- It would be nice to have two separate grade columns in the grading portal
  - One would be the automated test score
  - The other would be the professor's grade that they want uploaded
    - This would default to the auto test score

Task 3 (Conduct evaluation):
- Definitely want to do a trial run in his course
  - We could have one of his assignments be uploaded to the application and allow students to use the system for a few days
- Let's shoot for mid April, before the showcase

Task 4 (Create poster):
- No comments given

Faculty Advisor Signature: _____

Date: _____

Evaluation by Faculty Advisor

- **Faculty Advisor: detach and return this page to Dr. Chan (HC 209) or email the scores to pkc@cs.fit.edu**
- **Score (0-10) for each member: circle a score (or circle two adjacent scores for .25 or write down a real number between 0 and 10)**

Charlie Collins	0	1	2	3	4	5	5.5	6	6.6	7	7.5	8	8.5	9	9.5	10
Tommy Gingerelli	0	1	2	3	4	5	5.5	6	6.6	7	7.5	8	8.5	9	9.5	10
Michael Komar	0	1	2	3	4	5	5.5	6	6.6	7	7.5	8	8.5	9	9.5	10
Logan Klaproth	0	1	2	3	4	5	5.5	6	6.6	7	7.5	8	8.5	9	9.5	10