S.C.O.R.E

Milestone 5

FLORIDA TECH

FLORIDA'S STEM UNIVERSITY

Team

- Charlie Collins
- Tommy Gingerelli
- Logan Klaproth
- Michael Komar

Faculty Advisor/Client

- Dr. Mohan

Milestone 5

- Implement, test, and demo web app backend
- Implement, test, and demo grading portal
- Conduct evaluation and analyze results
- Create poster for senior design showcase

Milestone 5 Completion Matrix

Task	Completion	Charlie	Logan	Michael	Tommy	To Do
Implement web app back end	80%	60%	0%	40%	0%	View 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

Web App Back End

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Web App Back End

Completed:

- NodeJS
- Handle all database interaction using Mongoose
  - One unified interface between the application and the database
  - Assignment details, creating assignments, viewing submissions, and handling submissions, file uploads
- Front-end endpoints for authentication

TO-DO:

- Multi-file submissions
- Course creation

Demo

https://youtu.be/Sj3Fvzzg02s

Grading Portal

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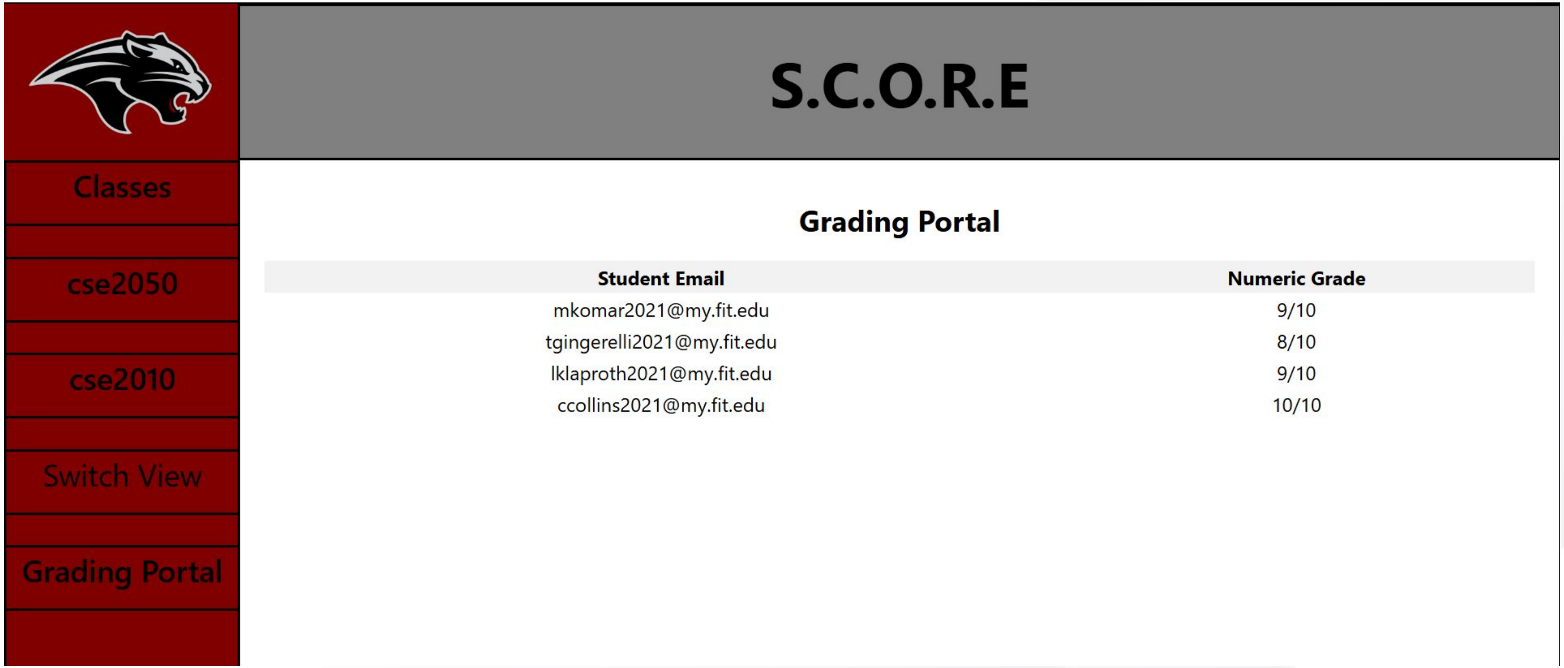
Grading Portal

- Professor-only feature displaying all submissions for an assignment

- Completed:
    - Front end table displays names and email addresses
    - Backend pulls data from database

- TO-DO:
    - Manually adjust grades

Example



Grading Portal

Student Email	Numeric Grade
mkomar2021@my.fit.edu	9/10
tgingerelli2021@my.fit.edu	8/10
lklaproth2021@my.fit.edu	9/10
ccollins2021@my.fit.edu	10/10

Analysis and Evaluation

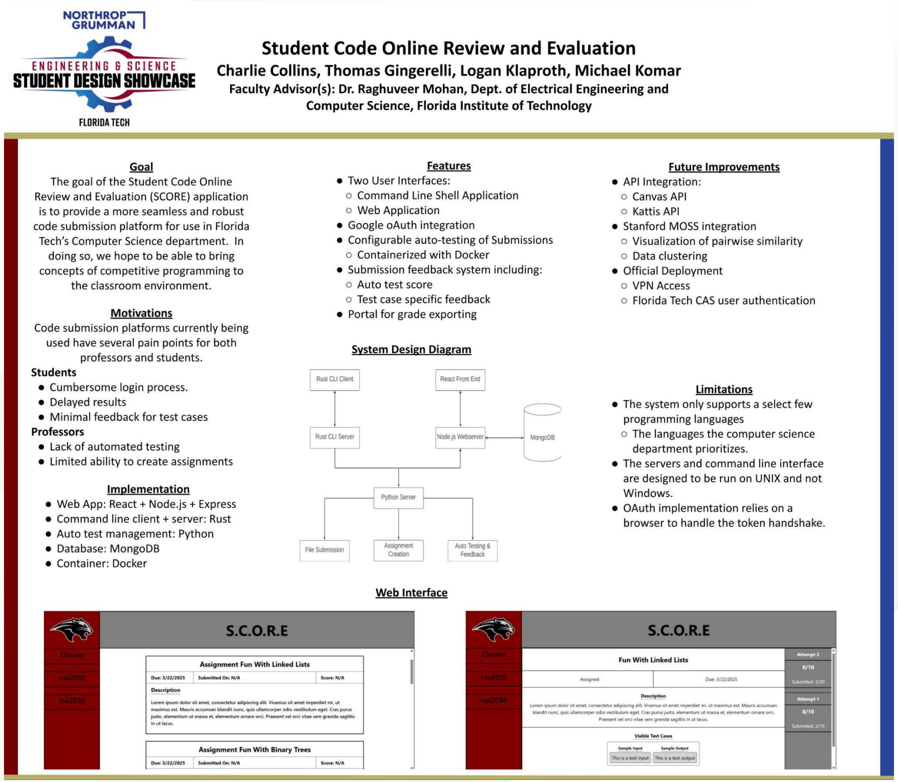
Analysis and Evaluation

- Validation of requirements
  - Implemented functionality was compared against requirements specification to validate the intended functionality of the system
- Auto-Testing accuracy
  - Must guarantee that every interaction with the testing platform generates expected results
  - If submitted code output differs from the expected, the system should consider it a failed test case
  - The system successfully handled all of the tests we performed

Design Poster

Design Poster

- Created rough draft of the poster
- Plan to make design improvements and potentially add an evaluation section



NORTHROP GRUMMAN ENGINEERING & SCIENCE STUDENT DESIGN SHOWCASE FLORIDA TECH

Student Code Online Review and Evaluation

Charlie Collins, Thomas Gingerelli, Logan Klaproth, Michael Komar

Faculty Advisor(s): Dr. Raghuveer Mohan, Dept. of Electrical Engineering and Computer Science, Florida Institute of Technology

Goal

The goal of the Student Code Online Review and Evaluation (SCORE) application is to provide a more seamless and robust code submission platform for use in Florida Tech's Computer Science department. In doing so, we hope to be able to bring concepts of competitive programming to the classroom environment.

Motivations

Code submission platforms currently being used have several pain points for both professors and students.

Students

- Cumbersome login process.
- Delayed results
- Minimal feedback for test cases

Professors

- Lack of automated testing
- Limited ability to create assignments

Implementation

- Web App: React + Node.js + Express
- Command line client + server: Rust
- Auto test management: Python
- Database: MongoDB
- Container: Docker

Features

- Two User Interfaces:
  - Command Line Shell Application
  - Web Application
- Google oAuth integration
- Configurable auto-testing of Submissions
  - Containerized with Docker
- Submission feedback system including:
  - Auto test score
  - Test case specific feedback
- Portal for grade exporting

System Design Diagram

Future Improvements

- API Integration:
  - Canvas API
  - Kattis API
- Stanford MOSS integration
  - Visualization of pairwise similarity
  - Data clustering
- Official Deployment
  - VPN Access
  - Florida Tech CAS user authentication

Limitations

- The system only supports a select few programming languages
  - The languages the computer science department prioritizes.
- The servers and command line interface are designed to be run on UNIX and not Windows.
- OAuth implementation relies on a browser to handle the token handshake.

Web Interface

S.C.O.R.E

Assignment Fun With Linked Lists

Due: 3/22/2025 | Submitted On: N/A | Score: N/A

Description

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vivamus sit amet imperdiet mi, ut maximus est. Mauris accumsan blandit nunc, quis ullamcorper odio vestibulum eget. Cras purus justo, elementum ut massa et, elementum ornare orci. Praesent vel orci vitae sem gravida sagittis in ut lacus.

Assignment Fun With Binary Trees

Due: 3/22/2025 | Submitted On: N/A | Score: N/A

S.C.O.R.E

Fun With Linked Lists

Assigned: | Due: 3/22/2025

Description

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vivamus sit amet imperdiet mi, ut maximus est. Mauris accumsan blandit nunc, quis ullamcorper odio vestibulum eget. Cras purus justo, elementum ut massa et, elementum ornare orci. Praesent vel orci vitae sem gravida sagittis in ut lacus.

Visible Test Cases

Sample Input	Sample Output
This is a test input	This is a test output

Attempt 2
8/10
Submitted: 2/20

Attempt 1
8/10
Submitted: 2/15

Milestone 6

- ~~Implement, test, and demo Canvas integration~~
- ~~Implement, test, and demo MOSS integration~~
- After meeting with Dr. Mohan, the above two features were removed from the plan and deployment was added
    - Prefers we focus on finishing existing features and deploying the system rather than adding new integrations
- Finish remaining tasks: polishing and system bundling
- Deploy system to a server
- Conduct live test demo of the system
- Create user/developer manual
- Create demo video

Milestone 6 Task Matrix

Task	Charlie	Logan	Michael	Tommy
Finish remaining tasks: polishing, documentation, and system bundling	20%	30%	20%	30%
System deployment	30%	20%	30%	20%
Conduct test run evaluation	25%	25%	25%	25%
Create user manual	25%	25%	25%	25%
Create demo video	25%	25%	25%	25%

Questions?