

Project Title: Student Code Online Review and Evaluation 2.0

Names and email addresses of team members:

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Faculty advisor from CSE: Raghuveer Mohan, rmohan@fit.edu

Client name and affiliation: Raghuveer Mohan, CSE Professor

Date(s) of Meeting(s) with the Client for developing this Plan: August 28th, 2025

Goals

- Increase the capabilities of the current S.C.O.R.E. application
 - Add detections to catch, deter, and visualize cheating
 - Integrate the application with canvas
 - Improve the shell client for users off campus
- Implement S.C.O.R.E. into classrooms
 - Allow current Florida Tech CSE classes to use S.C.O.R.E.
 - Collect feedback from professors and students
 - Make improvements based on user suggestions

Motivations

While the current S.C.O.R.E. application is in a working state, it is not readily available to the students and faculty of Florida Tech. Professors are not yet able to use the application to check for plagiarism, the use of AI, or collusion. Professors are also unable to add custom rubrics for grading. Furthermore, professors are unable to use the S.C.O.R.E. application to input grades directly into the Canvas assignment and/or gradebook. Additionally, security within the application does not meet institutional standards.

Approach

Canvas Integration

Professor

- Professors will be able to view Canvas rosters on S.C.O.R.E..
- Professors will be able to submit the S.C.O.R.E. grades and feedback directly to canvas.
- Professors will be able to automatically apply custom rubrics and late scores.

Stanford MOSS Integration

Professor

- Professors will be able to view every submission's MOSS plagiarism score.
- Professors will be able to view similarities between S.C.O.R.E. submissions.

Generative AI and Plagiarism Detection

Professor

- Professors will be able to view similarity scores for every submission compared to generative AI output.
- Professors will be able to view plagiarism scores.

VPN Access

All Users

- All users will be able to access their authenticated full S.C.O.R.E. functionality within the shell client off campus.
- All users will have authentication through Florida Tech CAS.

Novel features/functionalities

Semi-automated rubric based grading

While the current application does allow for the creation of assignments, there are no capabilities for adding rubrics or grading scales to account for point reductions, such as late penalties. Other options, Kattis for example, also do not allow this feature nor the ability to create custom assignments and test cases.

Plagiarism, AI, and collusion detection visualization

The current application and similar code problem websites do not check answers for similarities to other submissions, to AI, or to online resources. Additionally, they lack efficient visualization of these detections for an educator.

Algorithms and Tools: Potentially Useful Algorithms and Software Tools

- MERN: Full stack
 - MongoDB
 - Express
 - React
 - Node JS
- Django: Front End
- Canvas API
- MOSS API
- TRACKS API
- AWS Cloud Services
- Rust
- Python
- Docker
- SFTP
- OAuth

Technical Challenges

Our goals towards applying MOSS detection will prove challenging, as none of us have worked with the MOSS API or similar tools before. Knowing very little about the current codebase of the application furthers the difficulty of integrating this new feature.

Once our knowledge of the MOSS API is sufficient, we will have to combine those skills with clustering algorithms and create the best design for visualizing those similarity scores efficiently to the professor's side of the application. As a group, we do not yet have the skills for creating those cluster algorithms nor visualizing their results.

One of our final steps before classroom deployment is to implement professors' Canvas controls into S.C.O.R.E.. On top of hardly any familiarity with the professor's view and controls of Canvas, none of us have ever used the Canvas API tools.

Milestone 1 (Sep 29):

- Meet with previous team to discuss their work for the project
- Understand the current S.C.O.R.E. application
- Understand the current tools used in the S.C.O.R.E. application
- Research and compare new tools, focusing on the MOSS API
- Meet with Dr. White to discuss clustering and visualization techniques
- Create a requirement document
- Create a design document
- Create a test plan

Milestone 2 (Oct 27):

- Test MOSS AI detection
- Test MOSS similarity detections
- Determine and test clustering algorithms
- Draft and test matrix views for visualizing MOSS data

Milestone 3 (Nov 24):

- Implement MOSS matrix views into S.C.O.R.E.
- Add TRACKS to S.C.O.R.E. authentication
- Integrate Canvas classes and rosters into S.C.O.R.E.
- Integrate Canvas assignments and rubrics into S.C.O.R.E.
- Implement S.C.O.R.E. grades into Canvas
- Test the integrated features

Task Matrix for Milestone 1

Task	Dorothy	Patrick	Shamik	Rak
Familiarize with previous project	25%	25%	25%	25%
Research the old tools	25%	25%	25%	25%
Research new tools	5%; Clustering Research with White 20%	25%	5%; Clustering Research with White 20%	25%
Requirement Document	Finalize 45%	Finalize 45%	Draft 5%	Draft 5%
Design Document	Models 20%	Models 20%	Draft 15%	Models 45%
Test Plan	15%	15%	45%	25%

Approval from Faculty Advisor

"I have discussed with the team and approved this project plan. I will evaluate the progress and assign a grade for each of the three milestones."

Signature: _____ Date: _____