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

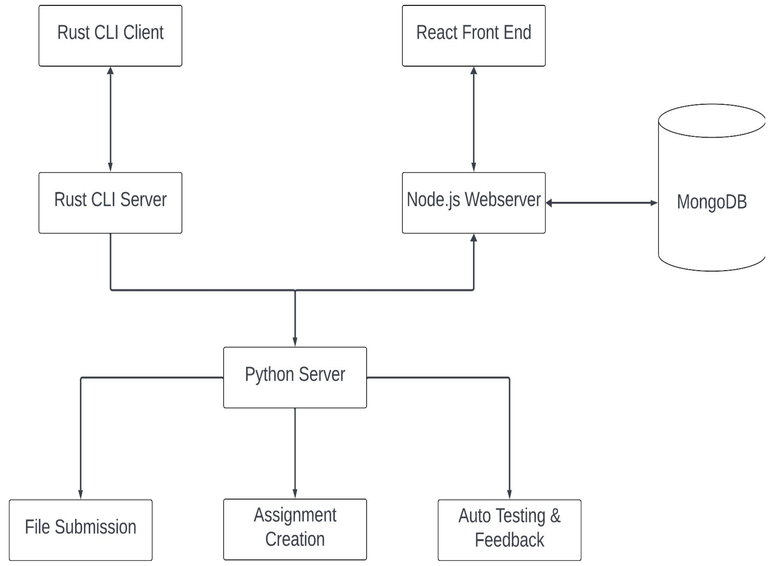
Implementation

- 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