

Table 1: Revision History

Date	Developer(s)	Change
09/20/2022	Anton Kanugalawattage Dipendra Subedi Youssef Rizkalla Tamas Leung Zhiming Zhao	Initial Document

Development Plan

CodeChamp

Team #12, Team 12.0
Kanugalawattage, Anton
Subedi, Dipendra
Rizkalla, Youssef
Leung, Tamas
Zhao, Zhiming

1 Team Meeting Plan

- Weekly meetings on Tuesday 6:30pm
- Adhoc calls when necessary
- Every member will add items to the meeting agenda

2 Team Communication Plan

- Discord
- Github Issues
- Github Project Board

3 Team Member Roles

- Scrum Master: Tamas Leung
 - Will focus on making sure people are doing their tasks
 - Focus on re-prioritizing features and bugs
- Front-end Lead: Anton Kanugalawattage
 - Designs architecture for front-end of the system
 - Oversees and reviews frontend pull requests
 - Works on Web Socket connections
- Back-end Lead: Youssef Rizkalla

- Designs architecture for back-end of the system
- Oversees and reviews back-end pull requests
- Design Lead: Dipendra Subedi
 - Designing backend APIs
 - Designing database schemas
 - Ensures HCI requirements are met
- Testing Lead: Zhiming Zhao
 - Create test plans during different development phases
 - Run tests on various components and features in order to identify and fix issues
 - Analyzing results and identifying the cause of problems

All team members will participate in creating features all around the tech stack. The roles are intended for each member to have a focus-area, which can later change depending on the team's needs.

4 Workflow Plan

- Git:
 - All features are developed onto separate branches
 - Each feature branch can only be merged into the master branch via a pull request
 - Each pull request must be at least approved by at least two members
 - Github Actions CI to auto test new pull requests
- Issues:
 - Tasks will be placed into issues board based on priority, type and technology
 - Issue Types:
 - * Feature
 - * Bug
 - * DevOps
 - Technology:
 - * Front End
 - * Back End
 - * Database
 - Priority:

- * P0: Needs to be addressed this week
- * P1: Needs to be addressed this month
- * P2: Will be addressed whenever there is no higher priority items available
- Issues will be prioritized on a bi-weekly basis during scrum meetings
- Use Github Project board, to rearrange issues and assign task

5 Proof of Concept Demonstration Plan

Our main risk is not knowing if our back-end server will be able to handle multiple concurrent compilations at the same time.

We will demonstrate running a multiplayer game with concurrent compilation of programs, as the multiplayer aspect is the core of the project.

6 Technology

- Languages: JavaScript/TypeScript
- Frontend Framework: Angular
- Backend Framework: Node.js / Express
- Testing:
 - Backend: Jest
 - Frontend: Jasmine
 - End-to-End: TestCafe
- Code Coverage: Included with test frameworks
- Github Actions CI
 - Auto build and test new pull requests
 - Auto Linting
 - Auto Formatting
- Performance Testing:
 - Backend: Postman Performance Testing
 - Frontend: Chrome Dev Tools Performance Tester
- Database: NoSQL Database (MongoDB)
- Deployment: Amazon Web Services (AWS)
- Libraries / Tools

- Web Sockets: for real time connections
- Auth0: for authentication & identity management
- HTTP: Endpoints for CRUD operations

7 Coding Standard

- Linter: ESLint
- Code formatter: Prettier
- The [Airbnb style guide](#) will be enforced during code review for all back-end code
- The [official style guide](#) will be enforced during code review for all front-end code

8 Project Scheduling

Major milestones will be placed onto deadlines. Each task will be assigned bi-weekly at the scrum meetings.

- CI/CD Setup: October 10st
- Backend Architecture: October 16st
- Frontend Development for PoC: October 21th
- WebSocket Connection: October 26th
- PoC Demo Completion: November 7th