Department of Computer Science & Engineering, University of Nevada, Reno

BETA Universe Systems Initiative Table Application

Team 7: Taking Initiative

Andy Alarcon, Jacob Gayban, Mark Graham, Jacob Tucker, Griffin Wagenknecht

Dr. Sergiu Dascalu, Vinh Le, Dr. Devrin Lee

John Molt

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Abstract

The BETA Universe Systems Initiative Table is a mobile-optimized web application that aims to digitize and streamline gameplay components from the tabletop role-playing game "BETA Universe Systems." This type of web application is vital in helping to limit or eliminate narrative disruption that occurs from the extraneous combat calculations and tedious rules, giving players more time to enjoy the narrative and streamlining the roleplaying component of the tabletop roleplaying game. The significant accomplishments made to the web application are the structure of how the application is laid out, implementing a secure authentication system, creating, editing, and deleting a character, managing game sessions, and creating the backbone of our real-time session technology.

Introduction

The Initiative Table application for "BETA Universe Systems" provides a host of quality-of-life features that handle many of the administrative and organizational aspects of the "BETA Universe Systems" table-top RPG game. The primary purpose of this project is to streamline the turn-taking process during gameplay. With this application, players can enjoy the role-playing narrative aspect of the game without being disrupted by whose turn it is and without the extraneous calculations that come along with it. An additional significant goal of our application is that it is optimized for both desktop and mobile to allow for portability and comfort when interacting within a game session. The lengthy calculations that occur during gameplay will be drastically reduced timewise by the application's built-in rule correlating and equation calculating matrix to efficiently distribute appropriate numbers and information to players.

Since project 3, we have completed the authentication system, including logging into a player account and registering. We have finished up the character profile system, which includes managing character profile stats and bonuses. We have also finished our session management system and established prototype session connections through SignalR. Lastly, we also completed our chat log for our real-time sessions and implemented a prototype GO feature for demonstration purposes. Since our project's requirements and design, no significant changes have been made aside from minor initial database schema changes. They were required to establish one-to-many table relationships properly.

Prototype Objectives & Functionality

The main objectives surrounding the development of our prototype include building out the leading UI components of our application, implementing the majority of our non-combat functionality, establishing real-time connections between players when they join a session, and optimizing the UI for mobile. These objectives were required to be met for our prototype development to ensure the rest of the implementation next semester can be dedicated to the combat functionality and polishing the existing systems.

Many of the functions that have been implemented in the prototype were dictated by the necessity of the development process. Authentication was included because of the need for users to be able to log in and for the team to be able to develop account features, such as multiple users connecting to a session with saved character data. Authentication is necessary for the development of many other functionalities, which is why it was chosen as the first functionality for the prototype.

Once a player has logged in to the app, they should be presented with all the available sessions that have been created. Being able to view and join available sessions and create and delete those sessions if one is a GM are all necessary functionalities that need to be completed before one can even begin playing a game. For the prototype, all the above functionality has been implemented for session management and their corresponding UI elements, which have been designed for desktop and mobile use.

When a player wishes to join a session, they must first select a character that they wish to play as during that session. Therefore, we needed to implement a basic character creation and management system that allows users to design and edit their own custom characters. The prototype implements a basic character model (no skills or items), and allows users to create, update, and delete their own characters. The prototype also requires users to select a character before joining a session. Like with the session management system, the character management system UI has been developed for desktop and mobile.

Within the main sessions, the chat log functionality has also been included in the prototype. The chat log sends messages from the system to users about session information, such as players joining or leaving, and supports real-time communication between players. When the combat systems are developed, the chat log will also send messages from the system about game state information. The chat log is a core component of the application's objective and, therefore, necessary to include in the prototype.

Using our components from above, the central part of our prototype that was implemented was establishing real-time sessions when players join. It is the main pillar that will hold our future combat system up. We believed that implementing its necessary functions and setting up in the backend was essential at this early stage of development since this component will dedicate the flow and pace of our combat. For the prototype specifically, when players join with their character, they are added to a SignalR group that allows us to communicate with players in real-time. When the GO button is selected for our prototype, players are cycled and signaled based on their initiative value when they join the session. We needed all our previous functionality to make this component work correctly.

Developed Prototype

The main functionalities implemented in the Initiative Table prototype are the user authentication system, real-time session management, the foundation of character profile creation and management, connecting users to a session through SignalR, and chat log functionality during a session. Many of these features are the framework of the application and are necessary to continue development on more combat and gameplay-focused features.

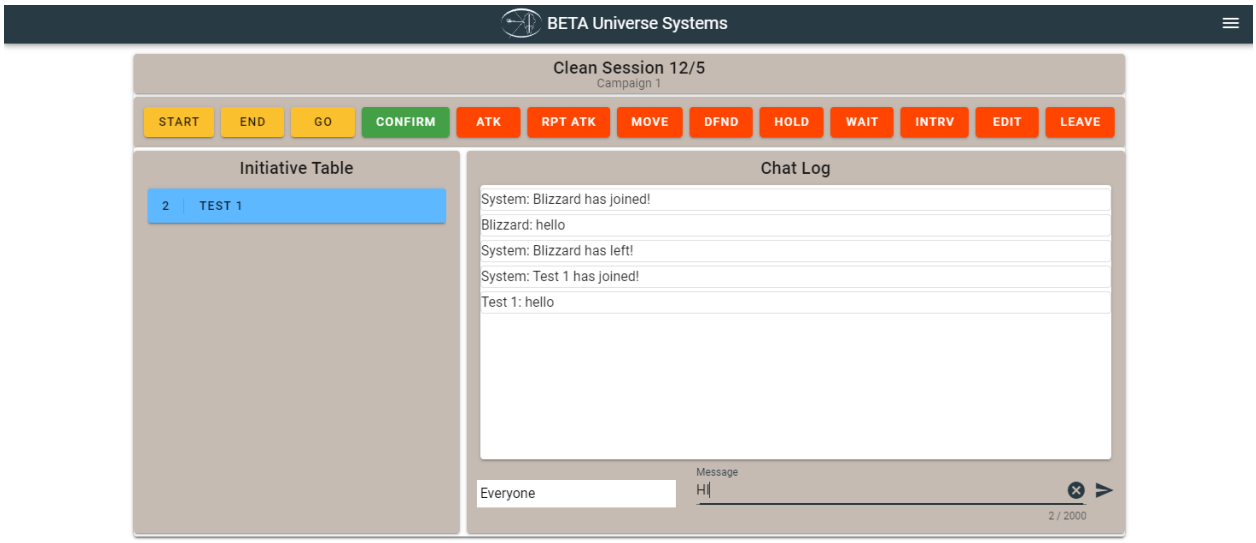

Fig. 1: UI screenshot of session page for desktop. This page contains the internal session that multiple users can connect to. Within the session, there is an initiative table section (blue button) that shows who is currently connected and what their initiative value is, which determines the order of player turns. The chat log functionality shows messages from the system and allows for direct, real-time communication between players. The button palette will be used for gameplay and combat functionality.

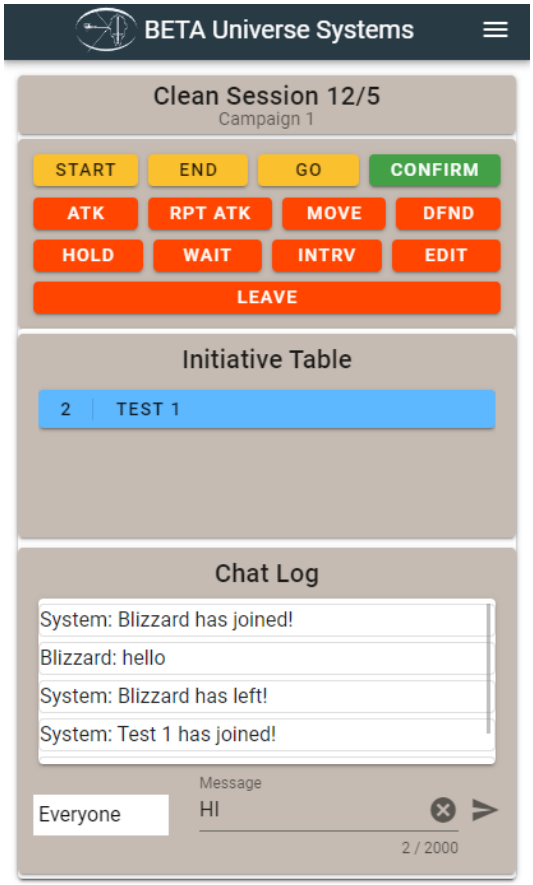

Fig. 2: UI screenshot of session page for mobile. This page has all of the same functionality as the desktop version. The main difference is the UI layout, which has been condensed and optimized for mobile devices.

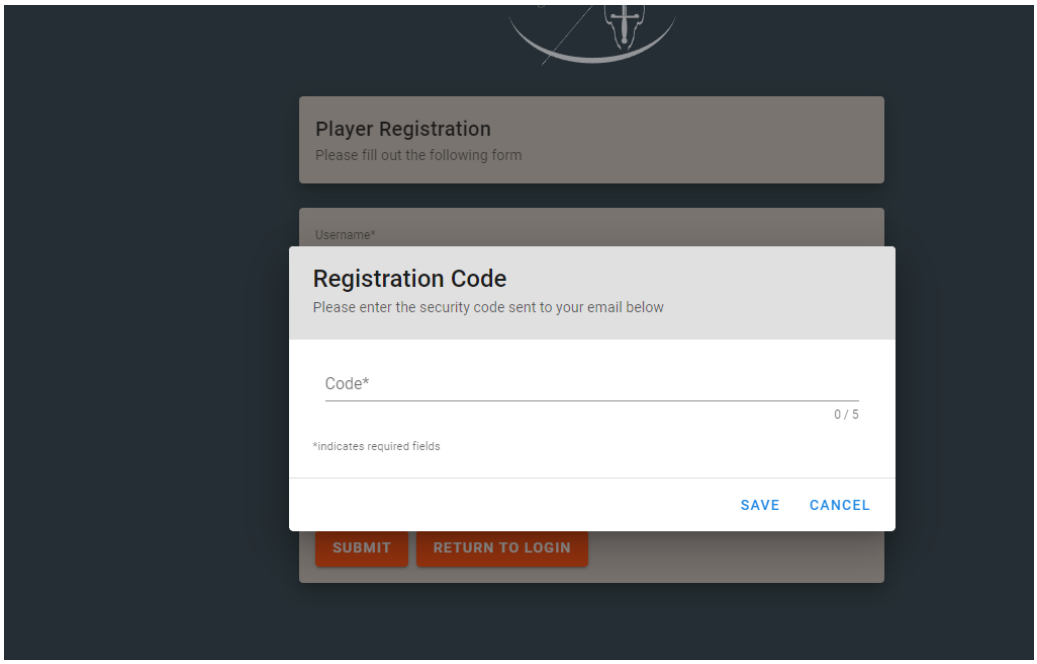

Fig. 3: Screenshot of the registration code step. This is the final step to having your account registered. You will receive an email with a random five-digit code to enter which will finish the process.

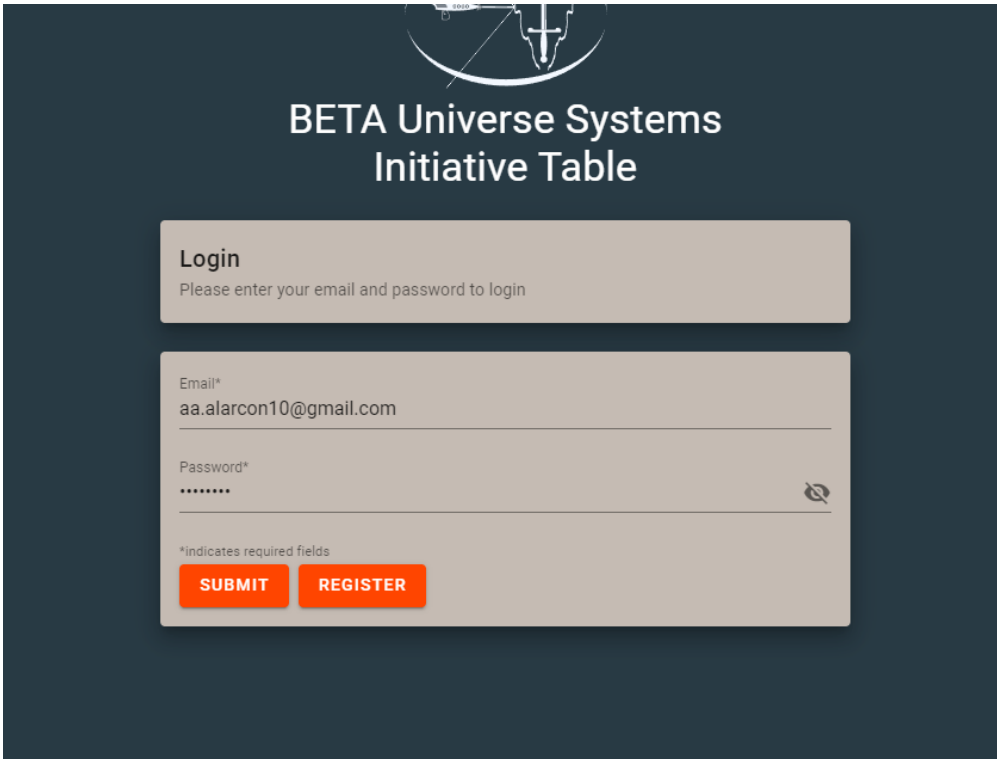

Fig 4: Screenshot of the Login page.

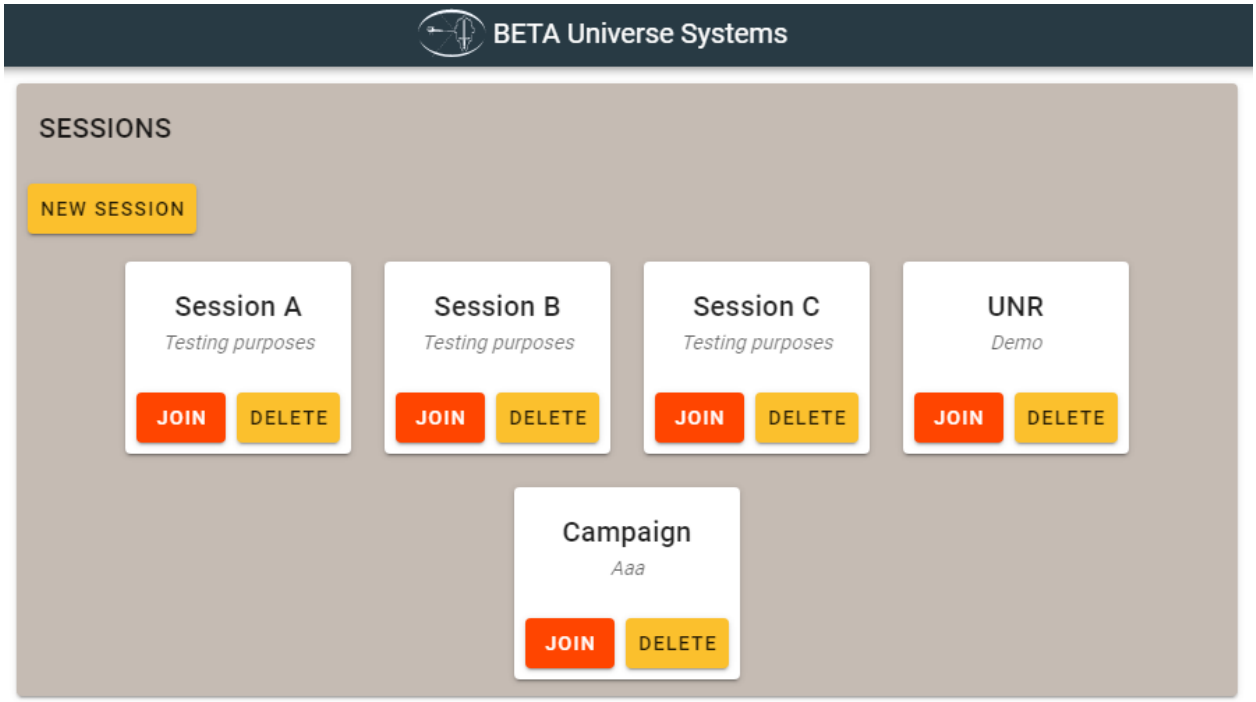

Fig. 5: Screenshot of the session dashboard, from the perspective of a GM.

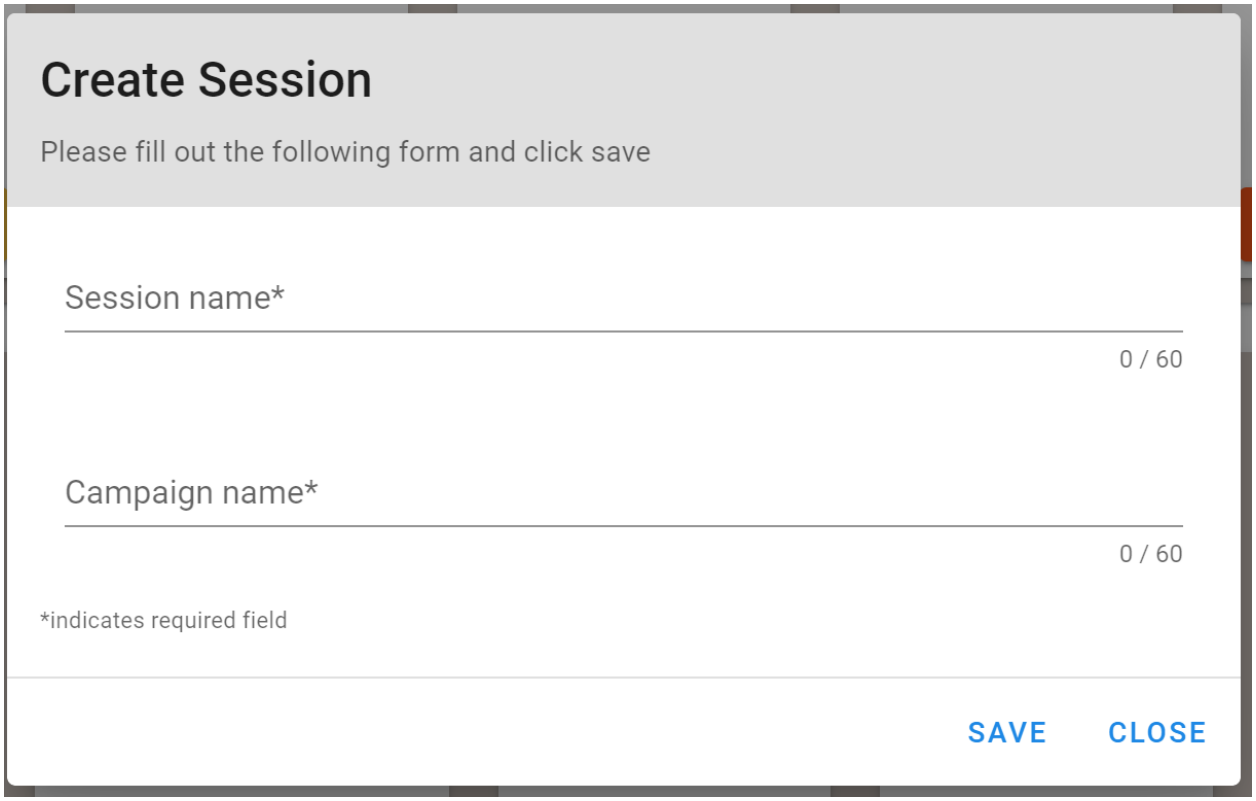

Fig. 6: Screenshot of the creating a session, Game Master feature.

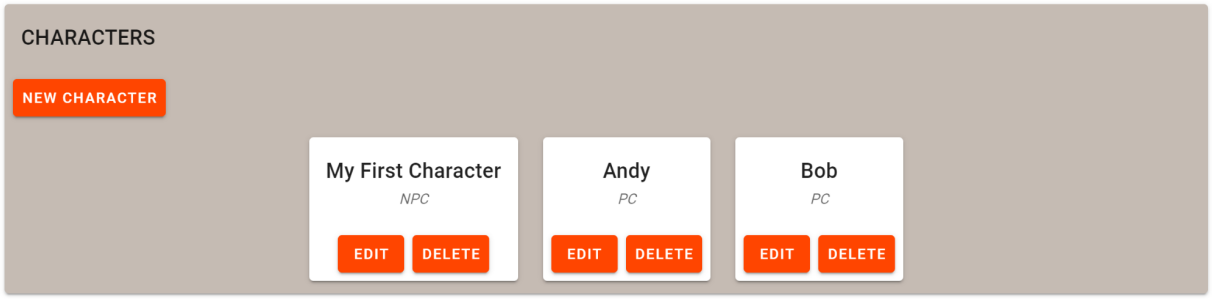

Fig. 7: Screenshot of the character management system.

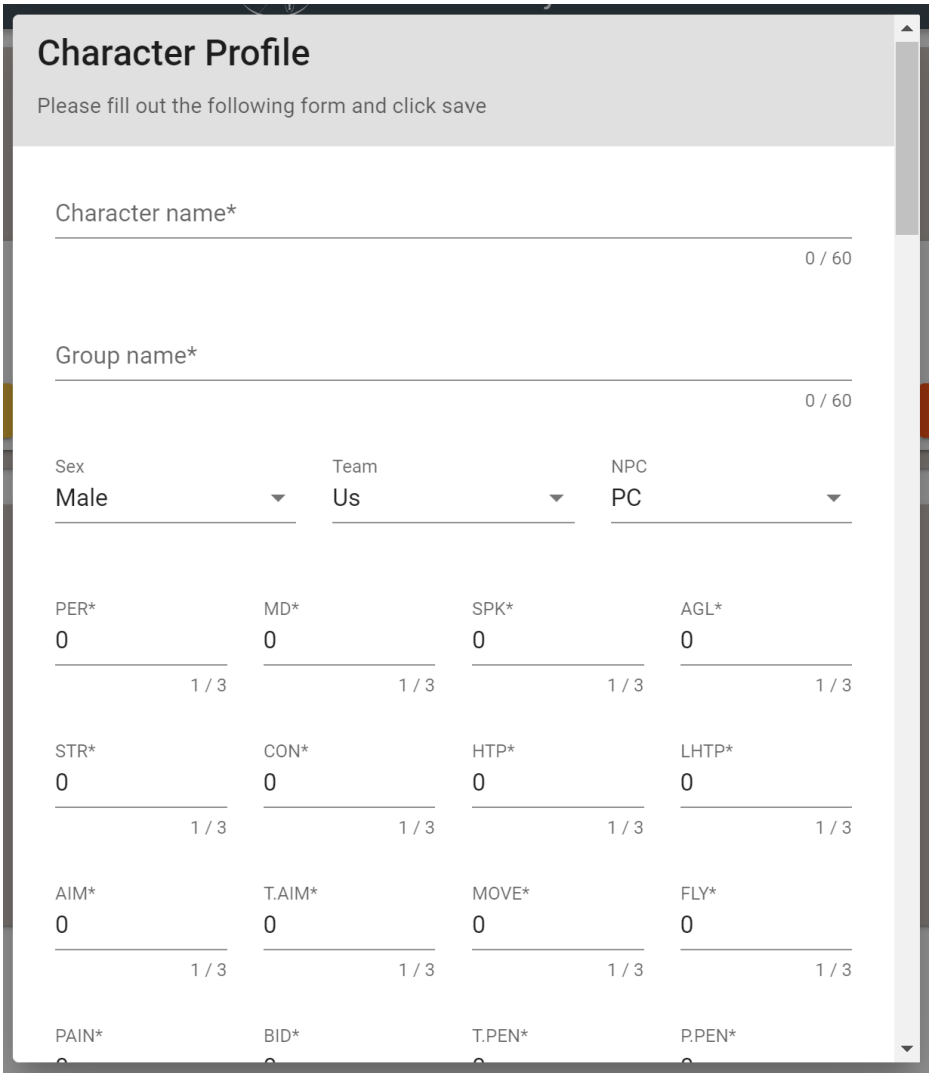

Fig. 8: Screenshot of the character statistics and features. This is the modal for both creating a new character and editing an existing character.

Prototype Demo

Team 7's prototype demonstration was on December 7th, 2021, at 10:30 a.m. The teaching team present for this demonstration was Dr. Devrin Lee, Vinh Le, Mitchell Martinez, and Yifan Zhang. The teaching team was impressed with how much functionality we were able to accomplish within the span of one semester, four months. The demonstration presented by team 7 included the following functionality, the real-time connection for players and messaging system, character management, session management, viewport differences between player and GM, and the optimization between the computer display and mobile display. It was mentioned that the features demonstrated were advanced for this stage of development. The teaching team recommended we discuss the color scheme and look into providing more settings and options. These recommendations came from the perspective that some of the colorings did not have a cohesive theme and clashed with each other. Additionally, this color formatting would need to have an ability to comply with the American Disability Act (ADA) as some of the colors would be tampered with due to color blindness. Overall, the teaching team present was impressed with the progress made and had positive feedback to give about the development.

Work Contribution

Team member name	Activities worked on	Total Time Estimate
Andy Alarcon	**Coded:** ● Database models (chatmessage.cs, init.cs, player.cs) ● SignalR Javascript for internal session ● C# helper code (common.cs, commonHub.cs, sendmail.cs) ● C# Web API controllers (LoginController.cs, RegisterController.cs) ● C# SignalR Hub (SessionHub.cs) **Document:** ● Code README file ● Prototype main objectives	Code: 14.0 hours Document: 1.0 hours **Total:** 15.0 hours
Jacob Gayban	**Coded:** ● Database models (player.cs, session.cs) ● Web API Controllers (SessionsController.cs, CharacterController.cs, GetPlayerCharactersController.cs) ● Session Management (session-manage.vue) ○ Session dashboard/UI ○ Create new session ○ Delete session **Document:** ● Prototype Objectives ● Developed Prototype	Code: 12.0 hours Document: 1.0 hour **Total:** 13.0 hours

Mark Graham	**Coded:** ● Character Profiles ○ Create New Character ○ Edit Character ○ Delete Character ○ Create & Edit Modal **Document:** ● Abstract ● Table of Contents ● Document Layout & Formatting	Code: 11.0 hours Document: 2.0 hours **Total:** 13.0 hours
Jacob Tucker	**Coded:** ● Internal session UI ○ Button palette ○ Initiative table ○ Chat log ○ Mobile layout **Document:** ● Prototype objectives & functions ● Developed Prototype ● Prototype Demo	Code: 11.0 hours Document: 2.0 hours **Total:** 13.0 hours
Griffin Wagenknecht	**Coded:** ● Authentication ○ Login Page ○ Register page ● Weapons, Shields, and Armor UI for the character **Document:** ● Introduction ● Developed Prototype	Code: 12.0 hours Document: 1.0 hours **Total:** 13.0 hours

Table 11: The table above shows the amount of time spent by each team member on each activity.