‘Basketball Simulation’

CONCEPT DOCUMENT

Thursday February 20th, 2020

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Ms. Coderre

ICS4U (Period 1)

IDEA:

Our vision is to create a program that will allow basketball coaches to plan and show an offensive or defensive play against the opponent on an easy to understand and easy to use GUI. The coach will be able to move the players around the court and place them where they need to be for the specified play. Coaches will also be able to run their own custom plays or use tactics/plays prebuilt into the program, as well as keep track of player stats, which includes: points, fouls, steals, etc. and keep track of player history such as: classes missed, practices missed, and lates to class. This application will focus on suiting the needs of our client, so the plays will most likely be from the client's playbook. Also, this application is not very complex in terms of user interaction making it easy to use and time efficient.

CLIENT/USER:

PRIMARY: Mr. Snow is a highschool math teacher, and the basketball coach for Sir Wilfrid Laurer S.S. He will be the first alpha and beta tester for our program, and the program will be made to fit his needs (even if changes are requested after). We will be installing the final version of the application onto Mr.Snow's iOS mobile for future use.

SECONDARY: Other real world users include other sport coaches who require a simple device to use to plan their plays, keep track of player stats, and help teach a gym class more easily to people who don't understand the sport or a play. Team members will also use the application to better understand their team plays.

TERTIARY: The basketball senior team, coached under Mr. Snow will be affected by the success or failure of the program. If successful, players will have an application that will help them to understand basketball plays more easier when instructed by the coach.

FACILITATING: Hammad, Bhavesh and Arien are involved in the coding, development and deployment of the application under the professional supervision of Ms. Coderre.

TARGET AUDIENCE:

The target audience is basketball coaches that are willing to move away from the traditional way of coaching. The application will allow coaches to virtually simulate plays for the team during practices or games, so time can be saved and players are quicker to understand.

APPLICATION:

The needs being performed by the application are to make it easier for players to understand plays or maneuvers in basketball. It allows the players to see the whole court and understand where they and their teammates should be located in order to execute successful plays. The application will have two set modes, one where the coach can move players around to explain the play and one where the application will simulate the play from the plays built into the application.

TEAM STRUCTURE:

Each team member will contribute as much as they can for an all around and successful effort. Below is more specific information on the tasks designated for each team member.

Hammad: Primary focus on GUI, occasionally helping with backend coding. Project management, will scheduling meetings with the client, set team goals, and bring primary needs to the group.

Bhavesh: Coding of the main project, as well as helping with design, incorporating extra ideas into planning and occasionally helping with the GUI.

Adrien: Coding of the main project and functions, team planner, as well as helping with design, incorporating extra ideas into planning and occasionally helping with the GUI.

DEVELOPMENT PLAN:

The *waterfall* SDLC model will be followed to give us the highest chance of turning this idea into a successful application. Moreover, constant communication will be kept with the teacher to ensure all deadlines are met and for professional advice. We will make a schedule to follow to ensure that the project is dealt with in smaller sections to make up the whole project. The plan is to add small features to the code and individually test and debug the features before moving onto the next parts. In the end, we will make the product available and help our client install the application.

RESOURCES:

The resources required for this project include a computer for programming and membership with an IDE to program in C# (most likely using *JetBrains - Rider*). Also, *Visual Studio Code* is the most popular code editor while using C# development as it has a tutorial to

follow from start to finish. Moreover we will need *Adobe Illustrator* - to create images for use in program, *GitHub* to save, track and, plan our code, and an *agenda* - to save important dates.

SOFTWARE FEATURES:

- Coding language: C#
- Single platform: Designed for iOS devices, specifically mobile and tablet
- Graphic User Interface (GUI)
- Player Customization (coach can edit player statistics)
    - Points scored
    - Fouls
    - Steals
    - Rebounds
    - Assists
    - 3-pointers
    - and more
- Team Customization (coach can edit team factors)
    - Team colour
    - Player name and number
    - Opponent colour
    - Opponent name and number
- Automatic saving system: Once the coach reopens the app, the players and statistics were the same as they were when the coach closed the app.

- Plays built into application for quick simulations (*from client's playbook, i.e. Ohio*)
- Usable anywhere: does not require internet to connect to servers and edit application
- Coach can also open 'free mode', where the control is given to user with number of players on court and movement of players
- Pause when the play simulations are running