**Project Sprint #1**

GitHub link: https://github.com/kkkfc5/cs449\_SOS\_Project

In this assignment, you aim to specify the requirements (i.e., user stories and acceptance criteria) of the target software that allows a human player to play a simple or general SOS game against a human opponent. These requirements will be fully implemented by the end of sprint 3. The minimum features include **choosing the board size,** **choosing the game mode (simple or general)**, **starting a new game**, **making a move (in a simple or general game)**, **determining if a simple or general game is over**. The following is a sample GUI layout.

|  |  |  |
| --- | --- | --- |
| SOS Icon  Description automatically generated Simple game Icon  Description automatically generated General game Board size  8 | | |
| Blue player  Icon  Description automatically generated S  Icon  Description automatically generated O | Chart, line chart  Description automatically generated | Red player  Icon  Description automatically generated S  Icon  Description automatically generated O |
|  | Current turn: blue (or red) | New Game |

Figure 1. Sample GUI layout of the first working program by the end of Sprint 3

Use the following tables to document your user stories and acceptance criteria.

You are required to use the free ChatGPT version to complete 2 user stories and their respective acceptance criteria. You also need to ensure that the generated user stories are correct and refine them if not. At the end of the submission, provide screenshots of your ChatGPT prompts and answers, along with errors the ChatGPT made and that you had to correct. You may also use LLMs hosted locally. Points will be deducted if no screenshots are provided.

1. **User Stories (3 points)**

* **User Story Template**: As a <role>, I want <goal> [so that <benefit>]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **User Story Name** | **User Story Description** | **Priority** | **Estimated effort (hours)** |
| 1 | Choose a board size | ChatGPT Generated: As a player, I want to be able to select the size of the square grid board before starting the game, so that I can customize the level of difficulty and the duration of gameplay. | 1 | 3 |
| 2 | Choose the game mode of a chosen board | As a player, I want to be able to choose between game modes so that I could change the type of experience the game will be. | 2 | 0.5 |
| 3 | Start a new game of the chosen board size and game mode | ChatGPT Generated: As a player, I want to start a new game with my selected board size and game mode, so that I can play the game according to my preferences. | 3 | 1 |
| 4 | Make a move in a simple game | As a player, I want to be able to place an S or an O wherever I click on the grid and have that show on the grid so that I can play the game. | 4 | 1 |
| 5 | A simple game is over | As a player, I want the simple game to end whenever somebody makes a S-O-S sequence. | 7 | 4 |
| 6 | Make a move in a general game | As a player, I want to be able to place an S or an O wherever I click on the grid and have that show on the grid so that I can play the game, and when I create an SOS Sequence, I want to score a point, some indication I scored the point, and to go again. | 5 | 1 |
| 7 | A general game is over | As a player, I want the game to end whenever the board is completely filled, and for the game to tally who has the most S-O-S sequences and declare a winner based of that. | 6 | 4 |

1. **Acceptance Criteria (AC) (8 points): Add/delete rows as needed.**

|  |  |  |  |
| --- | --- | --- | --- |
| **User Story ID and Name** | **AC**  **ID** | **Description of Acceptance Criterion** | **Status (completed, toDo, inPprogress)** |
| 1. Choose a board size | 1.1 | ChatGPT Generated:  AC 1.1 The player can choose a size.  **Given** the player is on the game setup screen, **When** the player inputs an integer value to specify the size of the square grid board, **Then** the game system will create a board where both the width and height are equal to the entered integer value, **And** the system will validate that the input is within an acceptable range (e.g., 3 to 100). | toDo |
| 1.2 | ChatGPT Generated:  AC 1.2 No board size is selected.  **Given** the player has not selected or input a custom board size, **When** the player starts the game without making a board size selection, **Then** the game system will automatically use the default board size (e.g., 5x5), **And** the player will be notified that the default size has been applied. | toDo |
| … |  |  |
| 2. Choose the game mode of a chosen board | 2.1 | AC 2.1 Select a general game mode  Given that the game hasn’t started yet and the general game option hasn’t been selected,  When the player clicks on the general button  Then the game system will switch the game mode to general. | toDo |
| 2.2 | AC 2.2 Select a simple game mode  Given that the game hasn’t started yet and the simple game option hasn’t been selected,  When the player clicks on the simple button  Then the game system will switch the game mode to simple. | toDo |
| … |  |  |
| 3. Start a new game of the chosen board size and game mode | 3.1 | ChatGPT Generated:  AC 3.1 Prevent size changes during a game.  **Given** the game has already started, **When** the player attempts to change the board size, **Then** the game system will prevent the change and display a message indicating that board size adjustments can only be made before starting a new game. | toDo |
| 3.2 | ChatGPT Generated:  AC 3.2 Prevent mode change during a game.  **Given** the game has already started, **When** the player attempts to change the game mode, **Then** the game system will prevent the change and display a message indicating that game mode adjustments can only be made before starting a new game. | toDo |
| 3.3 | ChatGPT Generated:  AC 3.3 Initialization of game.  **Given** the player has selected a board size and game mode, **When** the player starts a new game, **Then** the game system will initialize the game with the chosen board size and game mode, **And** the game will begin immediately with those settings applied. | toDo |
| 3.4 | ChatGPT Generated:  AC 3.4 Initialize game with defaults.  **Given** the player has not selected a board size or game mode, **When** the player attempts to start a new game, **Then** the game system will apply default settings (e.g., a 5x5 board and a standard game mode) and notify the player that defaults have been used. | toDo |
| 3.5 | ChatGPT Generated:  AC 3.5 Visually confirm the changes to game mode and board size.  Given the player is on the game setup screen,  When the player selects a board size and game mode,  Then the system will confirm their choices visually before starting the game. | toDo |
| 3.6 | ChatGPT Generated:  AC 3.6 Remove previous game’s data.  **Given** the player starts a new game, **When** the game is initialized, **Then** the system will reset the game state and board, clearing any previous game data. | toDo |
| 4. Make a move in a simple game | 4.1 | AC 4.1 Selecting S  Given O is selected  When the player selects S  Then the game system switches the user’s next play to be S | toDo |
| 4.2 | AC 4.2 Selecting O  Given S is selected  When the player selects O  Then the game system switches the user’s next play to be O | toDo |
| 4.3 | AC 4.3 Placing S  Given S is selected  When the user clicks on an empty tile  Then display an S in that tile | toDo |
| 4.4 | AC 4.4 Placing O  Given O is selected  When the user clicks on an empty tile  Then display an O in that tile | toDo |
| 4.5 | AC 4.5 Player tries to place on an occupied cell  Given a cell is occupied  When the player clicks to place a letter  Then give an error saying that the cell is occupied | toDo |
|  |  |  |
|  |  |  |
| 5. A simple game is over | 5.1 | AC 5.1 A valid SOS sequence for Blue Player with S missing  Given there is an S-O-[Blank] or [Blank]-O-S sequence,  When the blue player places an S in the blank (creating an S-O-S sequence)  Then, draw a line over the sequence in the blue player's color to denote a win, and end the game. | toDo |
| 5.2 | AC 5.2 A valid SOS sequence for Red Player with S missing  Given there is an S-O-[Blank] or [Blank]-O-S sequence,  When the red player places an S in the blank (creating an S-O-S sequence)  Then, draw a line over the sequence in the red player's color to denote a win, and end the game. | toDo |
| 5.3 | AC 5.3 A valid SOS sequence for Blue Player with O missing  Given there is an S-[Blank]-S sequence,  When the blue player places an o in the blank (creating an S-O-S sequence)  Then, draw a line over the sequence in the blue player's color to denote a win, and end the game. | toDo |
| 5.4 | AC 5.4 A valid SOS sequence for Red Player with O missing  Given there is an S-[Blank]-S sequence,  When the red player places an o in the blank (creating an S-O-S sequence)  Then, draw a line over the sequence in the Red player's color to denote a win, and end the game. | toDo |
| 5.5 | AC 5.5 Nobody wins [Tie Game]  Given no one has made an SOS sequence,  When a player places a S or O on the final open tile and it does not create an SOS sequence,  Then end the game, and visibly denote that neither player won. | toDo |
|  |  |  |
|  |  |  |
|  |  |  |
| 6. Make a move in a general game | 6.1 | AC 6.1 Selecting S  Given O is selected  When the player selects S  Then the game system switches the user’s next play to be S | toDo |
| 6.2 | AC 6.2 Selecting O  Given S is selected  When the player selects O  Then the game system switches the user’s next play to be O | toDo |
| 6.3 | AC 6.3 Blue player placing S  Given S is selected  When the blue player clicks on an empty tile  Then display an S in that tile. If this creates a valid SOS sequence [see AC 5], then let the blue player have another turn and give them a point. | toDo |
| 6.4 | AC 6.4 Blue player placing O  Given O is selected  When the blue player clicks on an empty tile  Then display an O in that tile. If this creates a valid SOS sequence [see AC 5], then let the blue player have another turn and give them a point. | toDo |
| 6.5 | AC 6.5 Red player placing S  Given S is selected  When the red player clicks on an empty tile  Then display an S in that tile. If this creates a valid SOS sequence [see AC 5], then let the red player have another turn and give them a point. | toDo |
| 6.6 | AC 6.6 Red player placing O  Given O is selected  When the red player clicks on an empty tile  Then display an O in that tile. If this creates a valid SOS sequence [see AC 5], then let the red player have another turn and give them a point. | toDo |
| 6.7 | AC 6.7 Player tries to place on an occupied cell  Given a cell is occupied  When the player clicks to place a letter  Then give an error saying that the cell is occupied | toDo |
|  |  |  |
|  |  |  |
| 7. A general game is over | 7.1 | AC 7.1 Final cell is placed by Blue player  Given there is one unoccupied cell left and it is blue player’s turn  When the blue player places into the final cell  Then end the game, check if a valid SOS sequence was made [see AC 5], tally how many SOS sequences have been won by each player, and declare the winner as the one with the most sequences made. | toDo |
| 7.2 | AC 7.2 Final cell is placed by Red player  Given there is one unoccupied cell left and it’s red player’s turn  When the red places into the final cell  Then end the game, check if a valid SOS sequence was made [see AC 5], tally how many SOS sequences have been won by each player, and declare the winner as the one with the most sequences made. | toDo |
| 7.3 | AC 7.3 Nobody wins [Tie Game]  Given Both players have the same number of created sequences,  When the game ends and no new sequences are created  Then neither player wins, so denote this visibly. | toDo |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

1. **Data flow diagram (DFD) (4 points):**

Consider a web-based SOS game that allows players from all over the world to play SOS games against each other (similar to chess.com for chess). Using data flow digram examples presented in class, draw the data flow diagram for your global SOS game. You may use the tool of your choice, but it is a good idea to get familiar with draw.io (https://app.diagrams.net/) or other similar tools.

A diagram of a computer system

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer screen

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer screen

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a black and white message

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a video game

Description automatically generated

A screenshot of a computer screen

Description automatically generated