

Project Sprint #1

The SOS game is described in CS449HomeworkOverview.docx. You should read the description very carefully.

Your submission must include the GitHub link to your project and you must ensure that the instructor has the proper access to your project. You will receive no points otherwise.

GitHub link: <https://github.com/Tarycx/CS449SOSProject>

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.

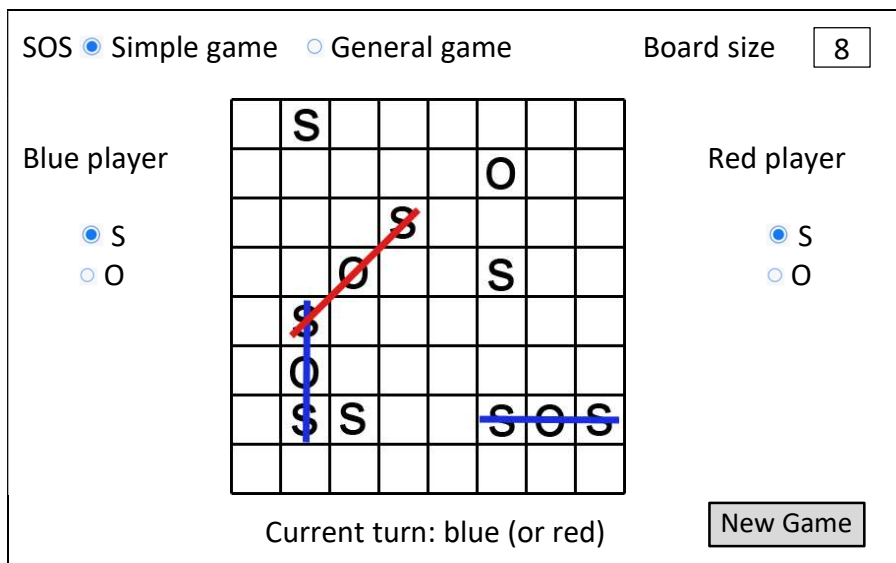


Figure 1. Sample GUI layout of the first working program by the end of Sprint 3

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.

I. User Stories (3 points)

- **User Story Template:** As a <role>, I want <goal> [so that <benefit>]
- **Priority** High-medium-Low / essential, desirable

ID	User Story Name	User Story Description	Priority	Estimated effort (hours)
1	Choose a board size	As a Player, I want to choose the board size before the SOS game begins, So that I can customize the difficulty and duration of the game	High essential	8
2	Choose the game mode of a chosen board	As a Player, I want to choose between the “Simple Game” and “General Game” modes after selecting a board size, So that I can decide the rules I want to play under for the SOS game	High essential	10
3	Start a new game of the chosen board size and game mode	As a Player, I want to start a new game with the chosen board size and game mode, So that I can begin play a new game with selected settings	Low essential	6
4	Make a move in a simple game	As a Player in simple game, I want to make a move placing “O” or “S” on a vacant spot on the board. So that I can try to form a sequence “SOS” and win the game	Medium essential	12
5	A simple game is over	As a Player in simple game, I want validation if the simple game is over after each move. So that I can see the game results and decide to play another game.	Low essential	6
6	Make a move in a general game	As a Player in a general game, I want to make a move placing “O” or “S” on a vacant spot on the board, So that I can create the most “SOS” sequences and win the game	Medium essential	12
7	A general game is over	As a Player in a general game, I want validation if the general game is over after each move, So that that I can see game results and decide to play another game.	Low essential	6

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

User Story ID and Name	AC ID	Description of Acceptance Criterion	Status (completed, toDo, inProgress)
1. Choose a board size	1.1	AC 1.1 <scenario description> Inputting a custom board size Given the player is on the game setup display, When the player inputs a custom board size (n>2) Then the game should validate the size and display it to the user	inProgress
	1.2	AC 1.2 <scenario description> No Board size selected (default size) Given the player is on the game setup display, When the player does not select any board size, Then the game should be at a default 3x3 board size and display to user	inProgress
	1.3	AC 1.3 <scenario description> Invalid custom board size Given the is on the game setup display When the player inputs a custom board size that is out of the allowed range (n<=2) Then the game should display an error message indicating that the size is invalid and prompt the player to select a valid size.	inProgress

2. Choose the game mode of a chosen board	2.1	AC 2.1 <scenario description>Choosing the Simple Game Mode Given the player is on the game setup display, When the player chooses the “Simple Game” mode from the game mode options, Then the game should apply the “Simple Game” logic and rules to user’s game	inProgress
	2.2	AC 2.1 <scenario description> Choosing the General Game Mode Given the player is on the game setup display, When the player chooses the “General Game” rules from the game mode options Then the game should apply the “General Game” logic and rules to user’s game	inProgress
3. Start a new game of the chosen board size and game mode	3.1	AC 3.1 <scenario description> Starting new game with selected board size and game mode Given the player has selected a board size and game mode, When the player clicks start game button, Then the new game using the chosen size and game type will initialize, displaying the game board and allowing player to make a move.	toDo
	3.2	AC 3.2 <scenario description> Starting new game with default settings Given the player has not selected board size and game mode When the player clicks start game button Then the game with initialize with default setting of board size: 3x3 and game type: Simple	toDo
4. Make a move in a simple game	4.1	AC 4.1 <scenario description> Check SOS completion after move Given the player has placed an “S” or “O” When move forms “SOS” horizontally, vertically, or diagonally Then the player should be declared the winner and the game should end.	toDo
	4.2	AC 4.2 <scenario description> player makes a move Given it is the player’s turn on a simple game When the place selects an empty board slot for “S” or “O” Then the player’s selected letter should appear on the select board slot and turn is passed to opponent .	toDo
	4.3	AC 4.3 <scenario description> making last move on filled board Given the board is filled and no “SOS” has been created When final board slot has been taken Then the game will be declared as a draw	toDo
	4.4	AC 4.4 <scenario description> Attempting to make a move in a filled cell Given it is the player’s turn When player selects a filled board slot that is already filled, Then the filled board slot and user turn should remain unchanged and user will be allowed to continue to find an empty space.	toDo
5. A simple game is over	5.1	AC 5.1 <scenario description> Game over with winner Given player has formed the sequence “SOS” in simple game When game detects “SOS” Sequence formed horizontally, vertically or diagonally Then the game will declare player as winner, output game over, and will provide option to start new game or exit	toDo
	5.2	AC 5.2 <scenario description> Game over with draw Given all board slots are filled and no “SOS” is formed	toDo

		When final move is made by player or opponent Then the game will declare a draw, output game over, and will provide option to start new game or exit	
	5.3	AC 5.3 <scenario description> game over display Given the simple game is over (draw or winner) When game over output is displayed Then player will be routed to display for choose new options game or exit	toDo
6. Make a move in a general game	6.1	AC 6.1 <scenario description> player makes a move on empty space Given it's the player's turn in a general game When the player selects an empty board slot on the board and chooses to place either an "S" or "O" Then selected letter should appear on selected board slot	toDo
	6.2	AC 6.2 <scenario description> "SOS" sequence is created Given the player has placed an "S" or "O" on an empty board slot When the move forms one or more "SOS" sequence horizontally, vertically, or diagonally, Then the player score should reflect the sequences formed by the move and turn should change.	toDo
	6.3	AC 6.3 <scenario description> Making a move on filled board slot Given it is player's turn in general game When the player selects a filled board slot Then the filled board slot and user turn should remain unchanged, and user will be allowed to continue to find an empty space.	toDo
	6.4	AC 6.4 <scenario description> general game ends Given the board slots are filled and no more moves can be made When board slot has been taken Then the game will declare player with most "SOS" sequences as match winner, if player score is tied game will be a draw	toDo
7. A general game is over	7.1	AC 7.1 <scenario description> Game over with winner Given no moves can be made and board slots are completely filled When player "SOS" sequence count is higher than opponent Then the game will declare player with higher count as winner and output game over and final scores	toDo
	7.2	AC 7.2 <scenario description> Game over with draw Given no moves can be made and board slots are completely filled When both player "SOS" sequence counts are equal Then the game will declare a draw, output of final scores and game over	toDo
	7.3	AC 7.3 <scenario description> final score game over display Given the game is over (draw or win) When the game over message and final score is displayed Then player's ID and scores are displayed side by side with winner or draw messages	toDo

ChatGPT Screenshots:

User Story 1: Chose Board Size

Notes: ChatGPT provided a detailed response. The response was good but due to my lack of defining the necessary parameters in the prompt the LLM assumed that the board size would have preset options and not customized options (n>2).

Give me the User Story and Acceptance Criteria (Given-When-Then) for Choosing Board size in a SOS game.



User Story:

- As a player,
- I want to choose the board size before the SOS game begins,
- so that I can customize the difficulty and duration of the game.

Acceptance Criteria (Given-When-Then):

1. Scenario 1: Choosing a board size from preset options
 - Given the player is on the game setup screen,
 - When the player selects a board size from a list of preset options (e.g., 3x3, 5x5, 7x7),
 - Then the game should display the selected board size and use it for the game.
2. Scenario 2: No board size selected (default size)
 - Given the player is on the game setup screen,
 - When the player does not select any board size,
 - Then the game should default to a 3x3 board size and display this before the game starts.
3. Scenario 3: Inputting a custom board size
 - Given the player is on the game setup screen,
 - When the player inputs a custom board size within the allowed range (e.g., between 3x3 and 10x10),
 - Then the game should validate the size and display it for the game if valid.
4. Scenario 4: Invalid custom board size
 - Given the player is on the game setup screen,
 - When the player inputs a custom board size that is out of the allowed range,
 - Then the game should display an error message indicating that the size is invalid and prompt the player to select a valid size.

These scenarios ensure that the player can choose a board size (preset or custom), and the game handles both valid and invalid inputs.

User Story 2: Choose the game mode of a chosen board

Notes: The response given was less detailed than the first. The LLM response seems straightforward on providing a proper User Story and Acceptance Criteria. Special instructions have to be prompted to provide Given-When-Then formatting on acceptance criteria

Given that there are two game types for the SOS game application (simple game and general game) give me the User Story and Acceptance Criteria (Given-When-Then) for choose the game mode of a chosen board



User Story:

- As a player,
- I want to choose between the "Simple Game" and "General Game" modes after selecting a board size,
- so that I can decide the rules I want to play under for the SOS game.

Acceptance Criteria (Given-When-Then):

1. **Scenario 1: Choosing the Simple Game mode**
 - Given the player has selected a board size,
 - When the player chooses the "Simple Game" mode from the game mode options,
 - Then the game should apply the "Simple Game" rules and start the game on the selected board size.
2. **Scenario 2: Choosing the General Game mode**
 - Given the player has selected a board size,
 - When the player chooses the "General Game" mode from the game mode options,
 - Then the game should apply the "General Game" rules and start the game on the selected board size.
3. **Scenario 3: No game mode selected (default mode)**
 - Given the player has selected a board size,
 - When the player does not choose any game mode,
 - Then the game should default to the "Simple Game" mode and start the game with those rules on the selected board size.

III. 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 diagram 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.

