

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/Yagna-Patel/Sprint-1>

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.

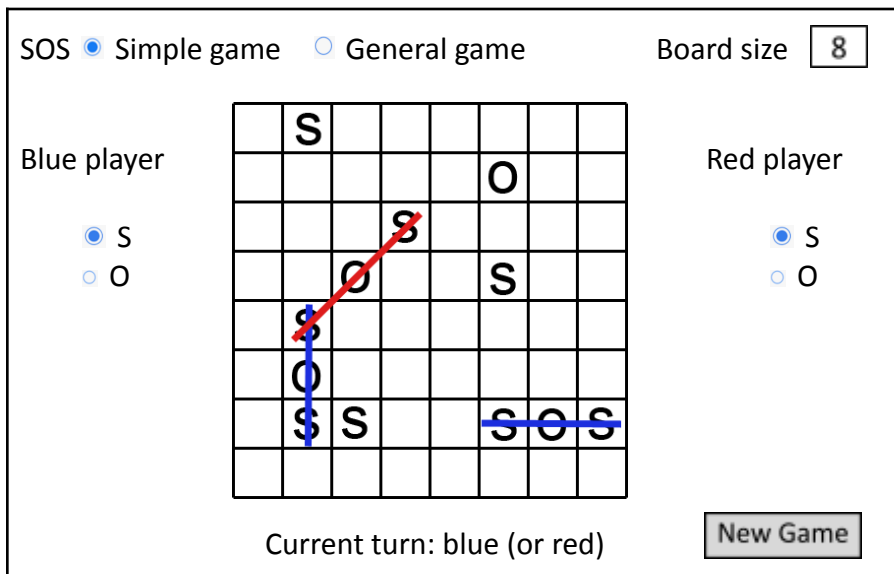


Figure 1. Sample GUI layout of the first working program by the end of Sprint 3

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>]

ID	User Story Name	User Story Description	Priority	Estimated effort (hours)
1	Choose a board size	As a player, I want to create a board that is suitable for me and my friends to play so that we can manage how long each game lasts.	High	1
2	Choose the game mode of a chosen board	As a player, I want to be able to choose if I want to play a simple or a general game so that I can adjust the level of competitiveness.	High	1
3	Start a new game of the chosen board size and game mode	As a player, I want to be able to click a button after making selections to start a game so that I know when a game is started or save the layout rules I want for later.	Medium	1

4	Make a move in a simple game	As a player, I want to be able to make a move on the board to S or O so that I can play the game and win.	High	2
5	A simple game is over	As a player x, when I get an SOS I want the game to display that player x won the game so that I can know when the game is over and know the winner of the game.	Medium	1
6	Make a move in a general game	As a player, I want to make a move during the general SOS game so that I can participate and strategize with each turn.	High	2
7	A general game is over	As a player, I want the game to declare a winner or draw when the board is full or one player has won, so that I know the outcome of the match.	High	1.5

ID: 1
User Story Name: Choose a board size
User Story Description: As a player, I want to create a board that is suitable for me and my friends to play so that we can manage how long each game lasts.
Priority: High
Estimated effort (hours): 1

6
Make a move in a general game

7
A general game is over

Utilizing my user story follow the format and write user stories for 6 and 7 in a table format.

< 2/2 >

Here is the table format for the user stories based on 6 and 7:

ID	User Story Name	User Story Description	Priority	Estimated Effort (hours)
6	Make a move in a general game	As a player, I want to make a move during the general SOS game so that I can participate and strategize with each turn.	High	2
7	A general game is over	As a player, I want the game to declare a winner or draw when the board is full or one player has won, so that I know the outcome of the match.	High	1.5

This follows the format used for your user story in ID 1.

Gray Highlighted Text is Generated by ChatGPT

Prompt Discussion:

Here I asked ChatGPT to create stories along with priority and estimated hours for the last two, 6 and 7, user stories in a table format. For the prompt I first put an example and then put the 6 and 7 user stories. After I asked for it to follow the format of my example when writing the user stories and make sure they were created in a table format. It did it almost perfectly.

My Personal Edits:

For the 6th user story ChatGPT got it down pretty well. I would only add that I would want to make moves to also win the game
I would add more effort hours on the 7th user story as I believe it will take longer to code the checking system if a user wins. Additionally, I wanted to add a display of the players total SOS's from the entire game.

Github Link:

<https://github.com/Yagna-Patel/Sprint-1/blob/main/User%20Story%206%267.png>

My own user stories for 6 and 7:

6	Make a move in a general game	As a player, I want to make a move during the general SOS game and earn points to win so that I can participate and strategize with each turn.	High	2
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7	A general game is over	As a player, I want the game to display the winner or draw and display the number of SOS earned by each player while highlighting the winner so that I can know the outcome of the game and understand the final outcome.	High	3
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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, In Progress)
1. Choose a board size	1.1	AC 1.1 < As a player I want to be able choose a board size to manage game length > Given: Minimum Board Size is 3x3 and Maximum is 10x10 When: I want to play only a quick game of SOS. Then: I can type 3 in the board size box. And: The system will generate a 3x3 grid for me to play SOS.	In Progress
	1.2	AC 1.2 < As a player I want to choose a board size to manage game difficulty > Given: Minimum Board Size is 3x3, the easier, and Maximum is 10x10, the hardest. When: I want to play a challenging game of SOS Then: I will enter 7 in the board size box. And: The system will generate a challenging 7x7 grid for me to play SOS	In Progress
	1.3	AC 1.3 < As a player I want to ensure that I only enter correct board sizes > Given: Minimum is 3x3 and Maximum is 10x10 When: I enter 2 or 11 in the board size box. Then: The system will show an error showing that allowed range is (3 to 10) And: The system will prompt me to re enter the valid board size.	In Progress
2. Choose the game mode of a chosen board	2.1	AC 2.1 < As a player I want to play a quick game before school > Given: Selection for Simple and General game modes. The board is 3x3 When: I want to play a fast game. Then: I will select simple. And: The system will create a SOS game with the "Simple" game mode rules.	toDo
	2.2	AC 2.2 < As a player I want to select a long game with a friend> Given: Simple and General game modes. General being longer. The board is 8x8 When: I want to play a long game with friends. Then: I will select the General game. And: The system will create a SOS game with the "General" game mode rules.	toDo
	2.3	AC 2.3 < As a player I want to mix up the SOS game and have fun> Given: Two selections of Simple and General Game Modes. The board is 8x8 When: I want to mix up the game. Then: I will select the simple game on a 8x8 board And: The system will display an 8x8 board with "Simple" game mode rules	toDo
3. Start a new game of the chosen board size and game mode I USED CHATGPT ON THIS ONE	3.1	AC 3.1 <As a player, I want to start a new game with the simple game mode on a small board> Given: I have chosen "Simple" mode and selected a 3x3 board size. When: I confirm my selections. Then: The system will generate a 3x3 board for me to play the simple game. And: The game will start with "Simple" mode rules, where points are awarded for forming SOS patterns.	toDo
	3.2	AC 3.2 <As a player, I want to start a new game with the general game mode on a large board> Given: I have chosen "General" mode and selected a 10x10 board size. When: I confirm my selections. Then: The system will generate a 10x10 board for me to play the general game. And: The game will start with "General" mode rules, where multiple SOS patterns can be formed in all directions for scoring.	toDo
	3.3	AC 3.3 <As a player, I want to change the game mode and board size before starting a new game>	toDo

		<p>Given: I have selected "Simple" mode with a 7x7 board but decided to switch to "General" mode with a 5x5 board.</p> <p>When: I change my selections in the settings before confirming the game.</p> <p>Then: The system will update to a 5x5 board with the "General" game mode.</p> <p>And: The game will begin with the new settings, allowing me to play under "General" mode rules on a 5x5 board.</p>	
4. Make a move in a simple game	4.1	<p>AC 4.1 <As a player, I want to place SOS on the board during my turn></p> <p>Given: It is my turn, and I have a move available on the board.</p> <p>When: I select a row and column to place S or O</p> <p>Then: The system will check to see moves to ensure it is within the board and in an empty space.</p> <p>And: The system will update the board with my SOS and switch to the next player's turn.</p>	toDo
	4.2	<p>AC 4.2 <As a player, I want to be notified if my move is invalid></p> <p>Given: It is my turn, and I attempt to place my S in an occupied space on the board.</p> <p>When: I click a row and column that is already filled.</p> <p>Then: The system will reject my move and show an error message saying that the space is not available.</p> <p>And: I will be able to select a different row and column.</p>	toDo
	4.3	<p>AC 4.3 <As a player, I want to see the updated game stats after my move></p> <p>Given: I have just placed my SOS on the board, and it is now the next player's turn.</p> <p>When: The system will show my move on the board.</p> <p>Then: I will see the current state of the board, including my S or O and the opponent's letters. I will be in blue and opponents will be red.</p> <p>And: The system will indicate whose turn it is next, along with the current scores.</p>	toDo

5. A simple game is over	5.1	<p>5.1 <As player 1 I can't let the player 2 win by getting the vertical strike on column 2 (C2).></p> <p>Given: An active game with player 1 turn</p> <table><tr><td></td><td>1</td><td>2</td><td>3</td></tr><tr><td>A</td><td>O</td><td>S</td><td>S</td></tr><tr><td>B</td><td></td><td>O</td><td>S</td></tr><tr><td>C</td><td></td><td></td><td>O</td></tr></table> <p>When: player 2 only needs one more S placement in the last horizontal and middle vertical (C2) section to win</p> <p>Then: Player 1 can deny the win and win the game by getting a vertical SOS strike in the last horizontal and middle vertical section</p> <p>And: Game is won by Player 1</p>		1	2	3	A	O	S	S	B		O	S	C			O	toDo
		1	2	3															
	A	O	S	S															
B		O	S																
C			O																
5.2	<p>AC 5.2 <As a player 1 has only 1 more move left and there are no game winning moves></p> <p>Given: Player 1 turn in game below</p> <table><tr><td></td><td>1</td><td>2</td><td>3</td></tr><tr><td>A</td><td>S</td><td>O</td><td>O</td></tr><tr><td>B</td><td>O</td><td>S</td><td>S</td></tr><tr><td>C</td><td>O</td><td>S</td><td></td></tr></table> <p>When: Player 1 has one more move left at the last column and row (C3). There is no way to win</p> <p>Then: Player 1 can player either O or S at last column and row (C3)</p> <p>And: Game is Tied (No more moves left on the board / board is filled)</p>		1	2	3	A	S	O	O	B	O	S	S	C	O	S		toDo	
	1	2	3																
A	S	O	O																
B	O	S	S																
C	O	S																	
5.3	<p>AC 5.3 <As player 1, Player 2 can win the game with one more placement></p> <p>Given: Player 2 turn in game below</p>	toDo																	

		<table><tr><td></td><td>1</td><td>2</td><td>3</td></tr><tr><td>A</td><td>S</td><td>S</td><td>O</td></tr><tr><td>B</td><td>S</td><td></td><td>S</td></tr><tr><td>C</td><td>O</td><td>S</td><td></td></tr></table> <p>When: The board is about to be filled and there is only one combo to win the game by placing the O in the middle (the 2nd vertical and horizontal) or at B2 Then: Player 2 will place the O in the middle and strike out. And: Game is won by Player 2 and as Player 1 I lose the game.</p>		1	2	3	A	S	S	O	B	S		S	C	O	S		
	1	2	3																
A	S	S	O																
B	S		S																
C	O	S																	
6. Make a move in a general game	6.1	AC 6.1 <player 1 has one point already (earned horizontally in first row) and is about to another 1 point by placing S in the middle of the board to get horizontal point.> Given: Turn of Player 2 in below board <table><tr><td></td><td>1</td><td>2</td><td>3</td></tr><tr><td>A</td><td>S</td><td>O</td><td>S</td></tr><tr><td>B</td><td>S</td><td></td><td>S</td></tr><tr><td>C</td><td>S</td><td></td><td></td></tr></table> <p>When: Player 2 will get a point if the placement is at middle vertical column and horizontal middle row (B2) Then: Player 2 needs to place O in middle vertical column and horizontal middle row (B2) in order to deny the point and earn a point And: Player 1 turn (continued in AC 6.2)</p>		1	2	3	A	S	O	S	B	S		S	C	S			toDo
		1	2	3															
	A	S	O	S															
B	S		S																
C	S																		
6.2	AC 6.2 <Player 1 turn. Needs to earn a point in the game (Game winning move). > Given: On going game from above and player 1 turn <table><tr><td></td><td>1</td><td>2</td><td>3</td></tr><tr><td>A</td><td>S</td><td>O</td><td>S</td></tr><tr><td>B</td><td>S</td><td>O</td><td>S</td></tr><tr><td>C</td><td>S</td><td></td><td></td></tr></table> <p>When: Player 1 needs to win the game by earning 1 more point. only one place to place S or O to win game Then: Player 1 needs to place S at the last column and row (C3) this will earn a point diagonally. And: Player 1 will have 1 strike horizontally at the first row and 1 strike diagonally totaling 2 points. Player 2 turn</p>		1	2	3	A	S	O	S	B	S	O	S	C	S			toDo	
	1	2	3																
A	S	O	S																
B	S	O	S																
C	S																		
6.3	AC 6.3 <As a player, I want the system to check for multiple SOS strikes for move in a general game> Given: I am playing a game in "General" mode, and it's my turn to place a letter on the board. When: I make a move that creates multiple SOS sequences. Then: The system will check in all directions and strike each SOS I just made. And: system will update the score for me and display the new SOS strikes.	toDo																	
7. A general game is over I USED CHATGPT ON THIS ONE.	7.1	AC 7.1 <As a player, I want the game to detect a winner when multiple SOS sequences are formed in the final move> Given: It is the final round of a "General" game, and the board has only one available space. When: I place a letter that completes multiple SOS sequences in different directions. Then: The system will detect the multiple SOS formations, award points for each, and update the scores. And: The game will declare me the winner if I have the highest score after these points are added.	toDo																

	7.2	AC 7.2 <As a player, I want the game to declare a draw if no further moves are possible and both players have the same score> Given: It is the final turn of a "General" game, and both players have the same score. When: The last move is made, filling the board without forming any SOS sequences. Then: The system will check that the board is full and no player has scored in the last move. And: The game will declare a draw since both players have equal scores.	toDo
	7.3	AC 7.3 <As a player, I want the game to end and display the winner if all moves are completed and one player has a higher score> Given: The final move in a "General" game has been made, and the board is completely filled. When: The game checks the scores after the last move. Then: The system will compare the scores of both players. And: The game will declare the player with the highest score as the winner.	toDo

4th Acceptance Criteria ChatGPT prompt and answer

Github Link:

<https://github.com/Yagna-Patel/Sprint-1/blob/main/Acceptance%20Criteria%204.pdf>

AC 2.3 < As a player I want to mix up the SOS game and have fun>
Given: Two selections of Simple and General Game Modes. The board is 8x8
When: I want to mix up the game.
Then: I will select the simple game on a 8x8 board
And: The system will display an 8x8 board with "Simple" game mode rules

Like the Acceptance Criteria example above create Acceptance Criteria for 3.

3. Start a new game of the chosen board size and game mode
3.1

AC 3.1 <scenario description>

Given

When

Then

And

3.2

AC 3.2 <scenario description>

Given

When

Then

And

3.3

AC 3.2 <scenario description>

Given

When

Then

And

Here's how you can complete the acceptance criteria for 3. Start a new game of the chosen board size and game mode:

3. Start a new game of the chosen board size and game mode

3.1

AC 3.1 <As a player, I want to start a new game with the simple game mode on a small board>

Given: I have chosen "Simple" mode and selected a 3x3 board size.

When: I confirm my selections.

Then: The system will generate a 3x3 board for me to play the simple game.

And: The game will start with "Simple" mode rules, where points are awarded for forming SOS patterns.

3.2

AC 3.2 <As a player, I want to start a new game with the general game mode on a large board>

Given: I have chosen "General" mode and selected a 10x10 board size.

When: I confirm my selections.

Then: The system will generate a 10x10 board for me to play the general game.

And: The game will start with "General" mode rules, where multiple SOS patterns can be formed in all directions for scoring.

3.3

AC 3.3 <As a player, I want to change the game mode and board size before starting a new game>

Given: I have selected "Simple" mode with a 7x7 board but decide to switch to "General" mode with a 5x5 board.

When: I change my selections in the settings before confirming the game.

Then: The system will update to a 5x5 board with the "General" game mode.

And: The game will begin with the new settings, allowing me to play under "General" mode rules on a 5x5 board.

Let me know if you'd like any further adjustments!

I think ChatGPT did a really good job on doing the task at hand. I gave it one example of mine that showed how to write it and the format to follow. From what I can tell it did the task perfectly. I didn't have to change anything, I just had to copy and paste.

7th Acceptance Criteria ChatGPT prompt and answer

Github Link:

<https://github.com/Yagna-Patel/Sprint-1/blob/main/Acceptance%20Criteria%207.pdf>

5. A simple game is over

5.3
AC 5.3 <As player 1, Player 2 can win the game with one more placement>
Given: Player 2 turn in game below
When: The board is about to be filled and there is only one combo to win the game by placing the O in the middle (the 2nd vertical and horizontal) or at B2
Then: Player 2 will place the O in the middle and strike out.
And: Game is won by Player 2 and as Player 1 I lose the game.

Using the acceptance criteria example I gave you complete the 7th Acceptance Criteria.

7. A general game is over

7.1
AC 7.1 <scenario description>
Given
When
Then
And

7.2
AC 7.2 <scenario description>
Given
When
Then
And

7.3
AC 7.3 <scenario description>
Given
When
Then
And

Memory updated
Here's how you can complete the acceptance criteria for the general game over scenarios:

7. A general game is over

7.1
AC 7.1 <As a player, I want the game to detect a winner when multiple SOS sequences are formed in the final move>

Given: It is the final round of a "General" game, and the board has only one available space.

When: I place a letter that completes multiple SOS sequences in different directions.

Then: The system will detect the multiple SOS formations, award points for each, and update the scores.

And: The game will declare me the winner if I have the highest score after these points are added.

7.2
AC 7.2 <As a player, I want the game to declare a draw if no further moves are possible and both players have the same score>

Given: It is the final turn of a "General" game, and both players have the same score.

When: The last move is made, filling the board without forming any SOS sequences.

Then: The system will check that the board is full and no player has scored in the last move.

And: The game will declare a draw since both players have equal scores.

7.3
AC 7.3 <As a player, I want the game to end and display the winner if all moves are completed and one player has a higher score>

Given: The final move in a "General" game has been made, and the board is completely filled.

When: The game checks the scores after the last move.

Then: The system will compare the scores of both players.

And: The game will declare the player with the highest score as the winner.

Let me know if you need any more adjustments or additions!

- I think chatGPT did an incredible job with this one as well. I basically didn't have to not tweak anything. In the prompt I gave it one example so it could follow the format and logic. After it created three user stories that were really well suited for the task.

III. Data flow diagram (DFD) (4 points):

Github Link:

screenshot:

<https://github.com/Yagna-Patel/Sprint-1/blob/main/SOS%20Game%20Diagram.png>

File:

<https://github.com/Yagna-Patel/Sprint-1/blob/main/SOS%20Game%20Diagram.drawio>

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.

