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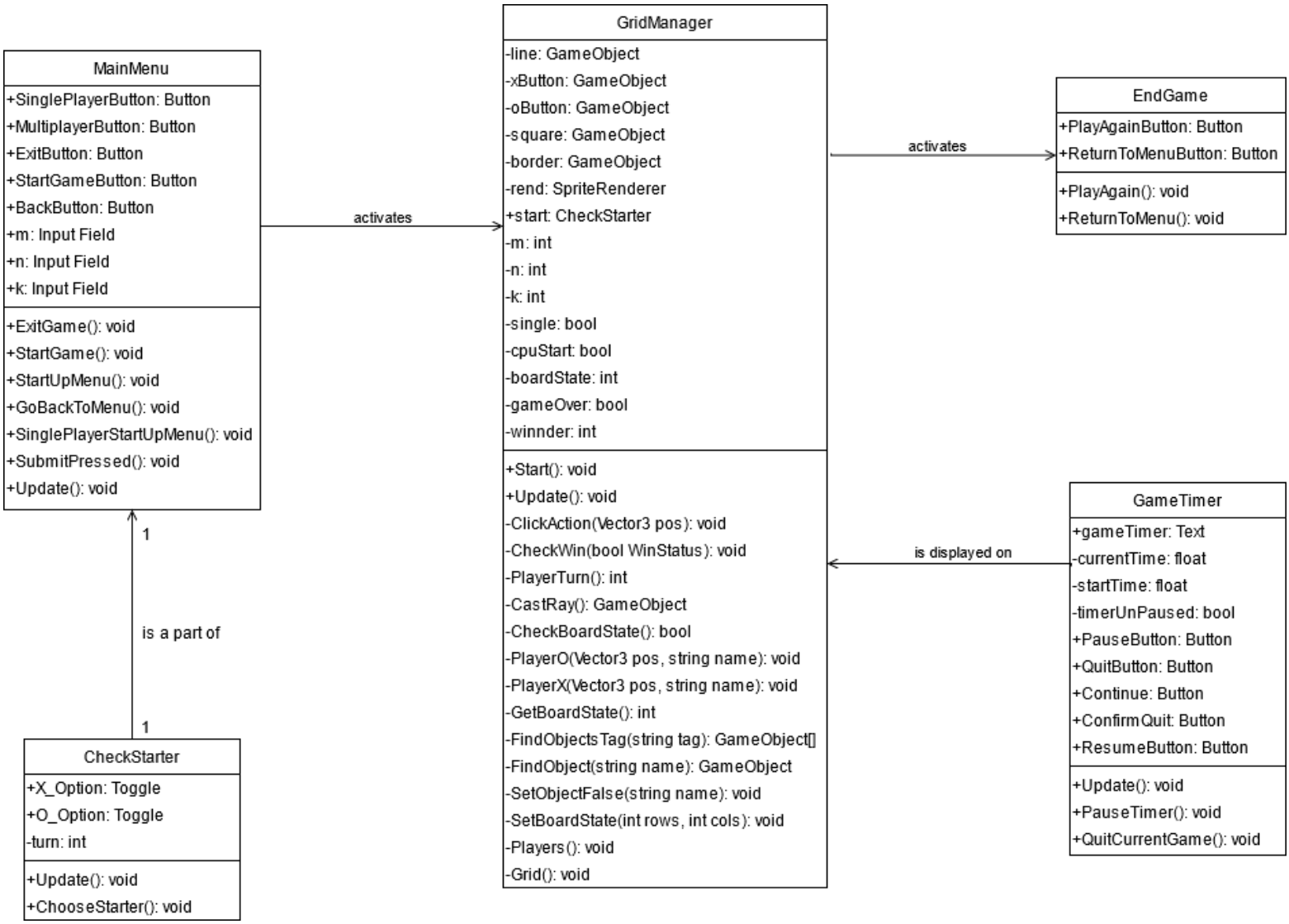
Professor Kanewala
CEN 4010 – PA2
22 March 2021

TIC TAC TOE (v1.2)

Use Case, UML, Sequence Diagrams

UML Diagram



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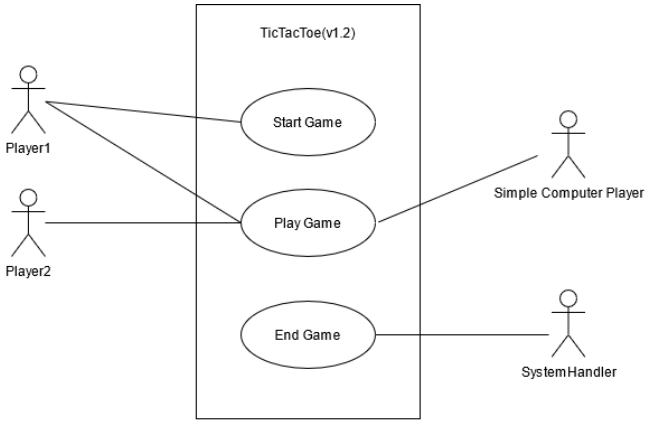
Use Case Diagram



Start Game

Actor Action	System Response
1. Player1 opens game	
	2. System displays menu with options "single player", "multiplayer" or "quit game"
3. Player1 selects "multiplayer"	
	4. System prompts Player1 to enter grid size and win condition
5. Player1 enters grid size and win condition	
	6. System displays "X" or "O" option
7. Player1 selects "X" or "O"	
	8. System generates grid size and starts game

Start Game (Alternative) - Single Player

Actor Action	System Response
1. Player1 opens game	
	2. System displays menu with options "single player", "multiplayer" or "quit game"
2a. Player1 selects "single player"	
	2b. System prompts Player1 to select difficulty
2c. Player1 selects difficulty	
	3. System prompts Player1 to enter grid size and win condition
4. Player1 enters grid size and win condition	
	5. System displays "X" or "O" option
6. Player1 selects "X" or "O"	
	8. System generates grid size and starts game

Start Game (Alternative) - Quit

Actor Action	System Response
1. Player1 opens game	
	2. System displays menu with options "multiplayer" or "quit game"
2a. Player1 selects "quit"	
	2b. System closes the game

Play Game

Actor Action	System Response
	1. System starts timer and starts with Player1's turn
2. Player1 selects grid square	
	3. System fills grid square and switches to Player2's turn
4. Player2 selects grid square	
	5. System repeats 2-4 until win condition is recognized

Play Game (Alternative) - Single Player

Actor Action	System Response
	1. System starts timer and starts with Player1's turn
2. Player1 selects grid square	
	3. System fills grid square and switches to Simple Computer Player's turn
3a. Simple Computer Player selects grid square	
	5. System repeats 2-3a until win condition is recognized

Play Game (Alternative) - Quit mid-game

Actor Action	System Response
5a. A player selects "quit" in the middle of the game	
	5b. System pauses timer and displays warning message
5c. Player confirms quit	
	5d. System stops game, returns to main menu

Play Game (Alternative) - Quit-Continue mid-game

Actor Action	System Response
5a. A player selects "quit" in the middle of the game	
	5b. System pauses timer and displays warning message
5c.1. Player chooses to continue	
	5d. System resumes game

Play Game (Alternative) - Pause Game

Actor Action	System Response
4a. A player selects "Pause Game"	
	4b. System pauses timer and displays a pause message with continue option
4c. A player selects "Resume"	
	4d. System resumes the game

Play Game (Alternative) - Timer runs out

Actor Action	System Response
	1. System starts timer, with Player1's turn
2. Player1 selects grid square	
	2a. System fills grid square and switches to Player2's turn
2b. Player2 fails to select a grid square within time	
	2c. System declares game end and prompts to player to "play again" or "return to menu"

*assume that this may happen to both players

End Game

Actor Action	System Response
1.SystemHandler recognizes a player achieved 3 in a row	
	2. System displays victory message with options to "play again" or "return to menu"

End Game (Alternative) - Tie

Actor Action	System Response
1a.SystemHandler does not recognizes a player achieved 3 in a row	
	2. System displays game tie message with options to "play again" or "return to menu"

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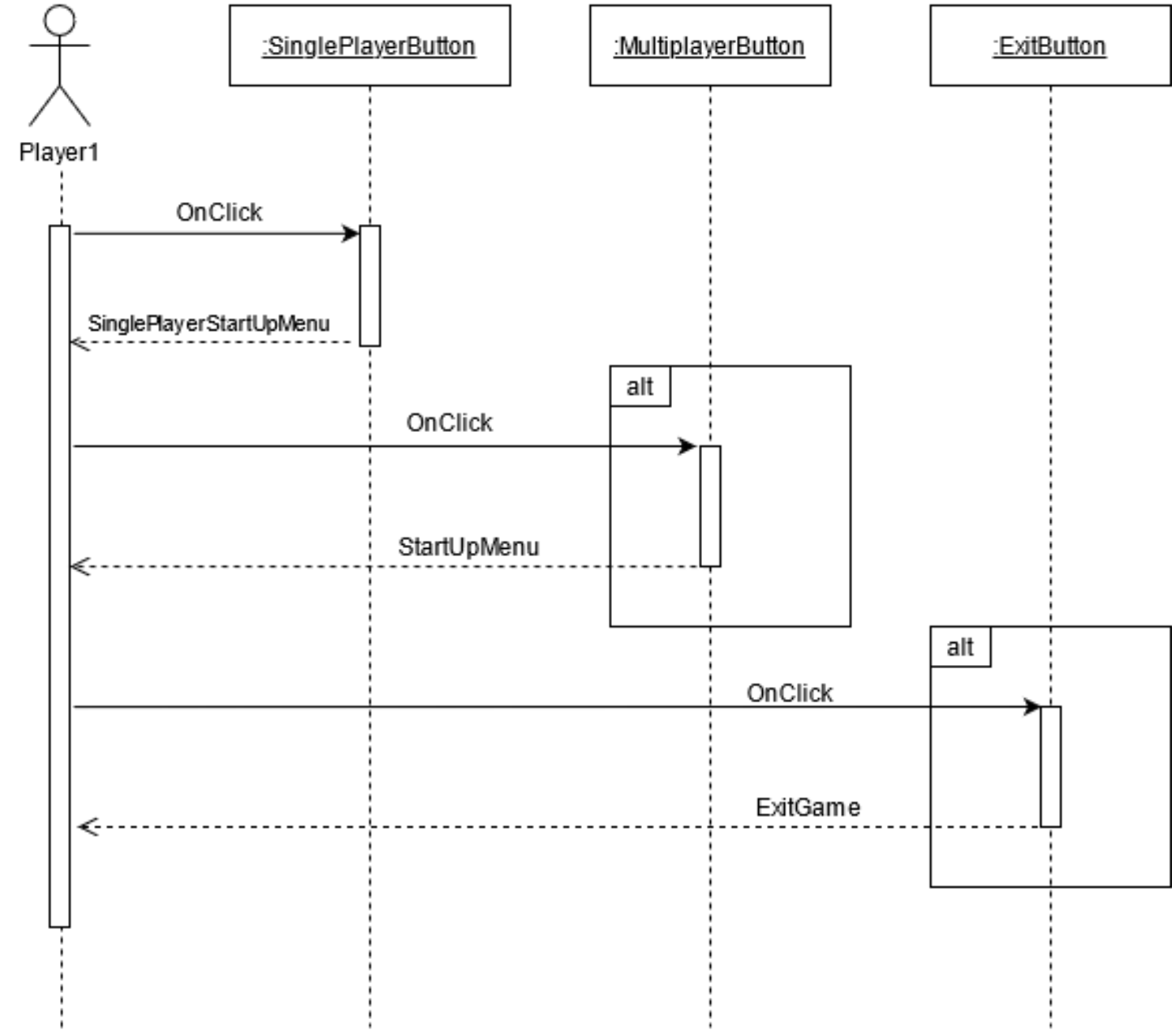
Sequence Diagrams

Sequence Diagram - Main Menu Interaction



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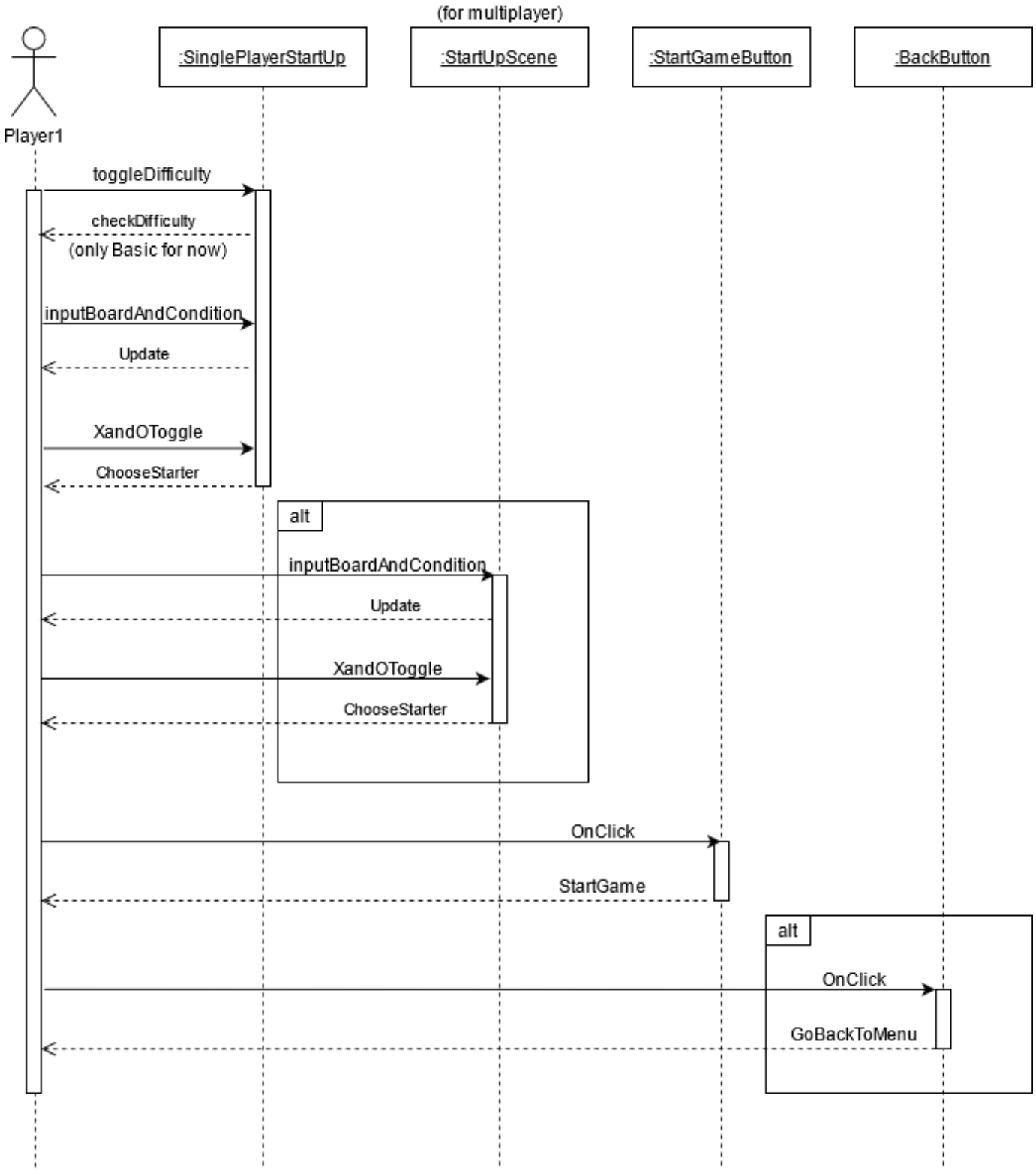
Sequence Diagram - Start Up Menu Interaction



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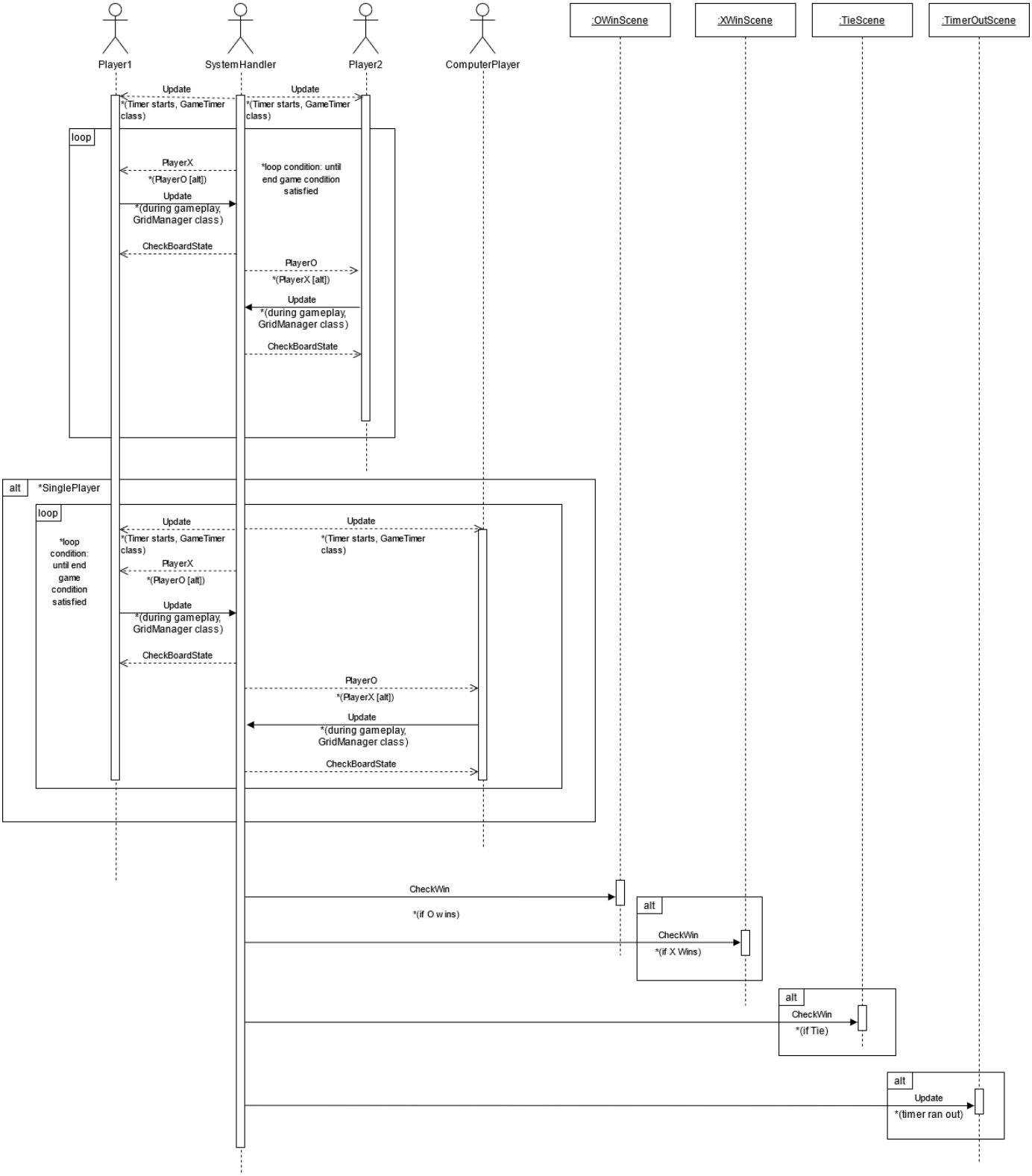
Sequence Diagram - During Game Interaction



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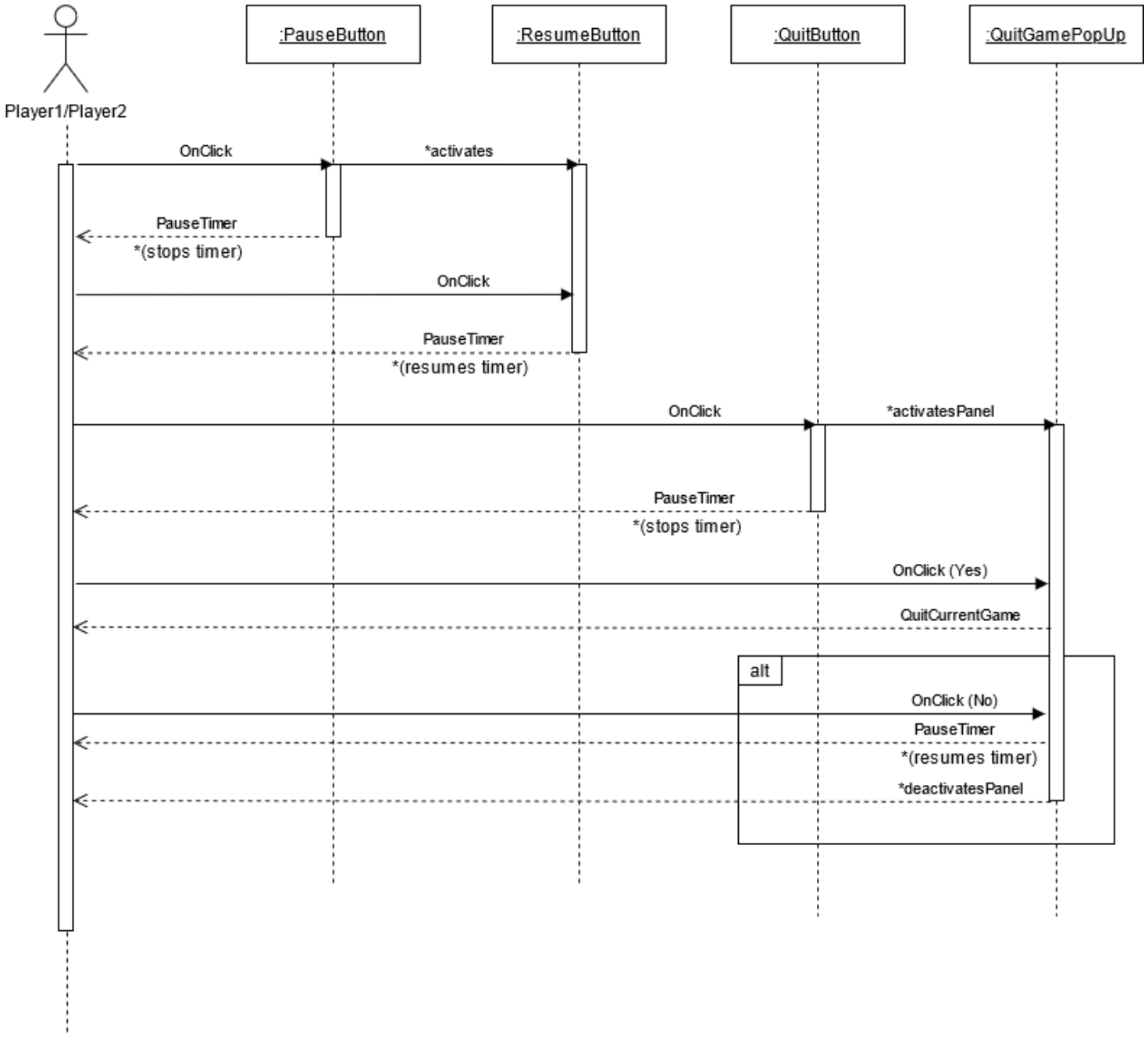
Sequence Diagram - In Game Button Interaction



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Contributions and Time Spent

Jeremiah – (20 hours) Refactored the scene object spawns to make them uniform and iterative. Added random/naïve CPU player. Bug fixes for game status detection. Adjusted colors and menu fonts and added animations and sounds. Added error checks for user input.

Rural – (18 hours) Redesigned the code that checks to see if the player wins based off of the number to win and allows to be functional within an odd-shaped space. Also updated the Test cases to properly work when new stuff was added over time. Lastly, I updated and refactored some code for readability and ease of use.

Kymberlee – (7 hours) Updated the UI Menu so that the player may play “single player” and choose “basic” difficulty against a basic bot as well as added input fields so that the player may input m, n, k to customize their board and win conditions. Additionally, updated UML and use case diagrams and created sequence diagrams.

Commit Log

ab8194c	RuralYoung	ruralyoungiii@gmail.com	With the inclusion of the particles and sound, it broke the test units so I found a way to workaround it and have the unit tests still run how they should be; updated testRun and testisX
ba97384	Jeremiah Baclig	55364674+jeremiahbaclig@users.noreply.github.com	added time
6ca97d8	Jeremiah Baclig	JeremiahBaclig@gmail.com	added sounds and sound manager
7e45d1e	Jeremiah Baclig	JeremiahBaclig@gmail.com	fixed visual bug on shape spawn for large grids
9637cf5	Jeremiah Baclig	JeremiahBaclig@gmail.com	adjusted graphics and colors
00662ae	Jeremiah Baclig	JeremiahBaclig@gmail.com	added particles and animations
342311f	RuralYoung	ruralyoungiii@gmail.com	Fixed the is 'it an X or an O' tests
760d235	RuralYoung	ruralyoungiii@gmail.com	Fixed the Counter Diagonal Test
e187d0c	RuralYoung	ruralyoungiii@gmail.com	Fixed the Diagonal Test
b38caf8	RuralYoung	ruralyoungiii@gmail.com	Fixed the Horizontal test
f27f37b	RuralYoung	ruralyoungiii@gmail.com	Fixed the Vertical test
7477ff4	RuralYoung	ruralyoungiii@gmail.com	Fixed an error in which the border was not instantiating properly
b8ced63	Jeremiah Baclig	JeremiahBaclig@gmail.com	bug fixes and shape scaling
95d4ee5	RuralYoung	ruralyoungiii@gmail.com	Changed how the program actually checks wins, now allows for uneven grids differing win ‘lengths’ and various debugging fixes.

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3b77df6	KymberleeS	sableskymberlee@yahoo.com	corrected file placements (accidentally place PA3 documents in PA2 folder)
af32c4b	KymberleeS	sableskymberlee@yahoo.com	updated UML diagram and prepared documentation outline for PA3
5a6d5ab	Jeremiah Baclig	JeremiahBaclig@gmail.com	refactored code
8146d4f	Jeremiah Baclig	JeremiahBaclig@gmail.com	fixed another bug that came up with clicking active
7eacffa	Jeremiah Baclig	JeremiahBaclig@gmail.com	Merge branch 'main' of https://github.com/UNF-CEN4010/T2
87bd896	Jeremiah Baclig	JeremiahBaclig@gmail.com	fixed cpu bug
85b22f1	KymberleeS	sableskymberlee@yahoo.com	finished all sequence diagrams
8e64b6b	Jeremiah Baclig	JeremiahBaclig@gmail.com	fixed cpu start
e97d6b8	Jeremiah Baclig	JeremiahBaclig@gmail.com	small syntax optimization
3826a15	Jeremiah Baclig	JeremiahBaclig@gmail.com	added random CPU on single player (still buggy)"
21cca34	Jeremiah Baclig	JeremiahBaclig@gmail.com	cleaned up camera and mxn bug
c9228d3	Jeremiah Baclig	JeremiahBaclig@gmail.com	finalized equal mxn grid gen
497b240	KymberleeS	sableskymberlee@yahoo.com	continued working on sequence diagrams
bd50f47	KymberleeS	sableskymberlee@yahoo.com	updated use case diagram and started working on sequence diagrams
adb6ede	Jeremiah Baclig	JeremiahBaclig@gmail.com	made changes to box spawns
1a3d9a3	Jeremiah Baclig	JeremiahBaclig@gmail.com	input checking
0f5405b	Jeremiah Baclig	JeremiahBaclig@gmail.com	added input field grab
0324d05	Kymberlee Sables	62261771+KymberleeS@users.noreply.github.com	Merge pull request #7 from UNF-CEN4010/Kym/UpdateMenuUIElements
03ae6bc	Jeremiah Baclig	JeremiahBaclig@gmail.com	added camera functions
263580b	KymberleeS	sableskymberlee@yahoo.com	updated menu start ups so that users can input the board size as well as how many in a row to win (not yet connected to the game
8e17045	KymberleeS	sableskymberlee@yahoo.com	added functionality to single player button
86308e7	KymberleeS	sableskymberlee@yahoo.com	created specific start up screen for single player (playing with computer)
d5c1b80	KymberleeS	sableskymberlee@yahoo.com	added single player button for computer player
702ddd3	KymberleeS	sableskymberlee@yahoo.com	changed version name to 1.2
094f303	Jeremiah Baclig	JeremiahBaclig@gmail.com	adjusted grid spawn sizes
41bc06a	Jeremiah Baclig	JeremiahBaclig@gmail.com	rename PA3
6a36a27	Jeremiah Baclig	JeremiahBaclig@gmail.com	init PA3