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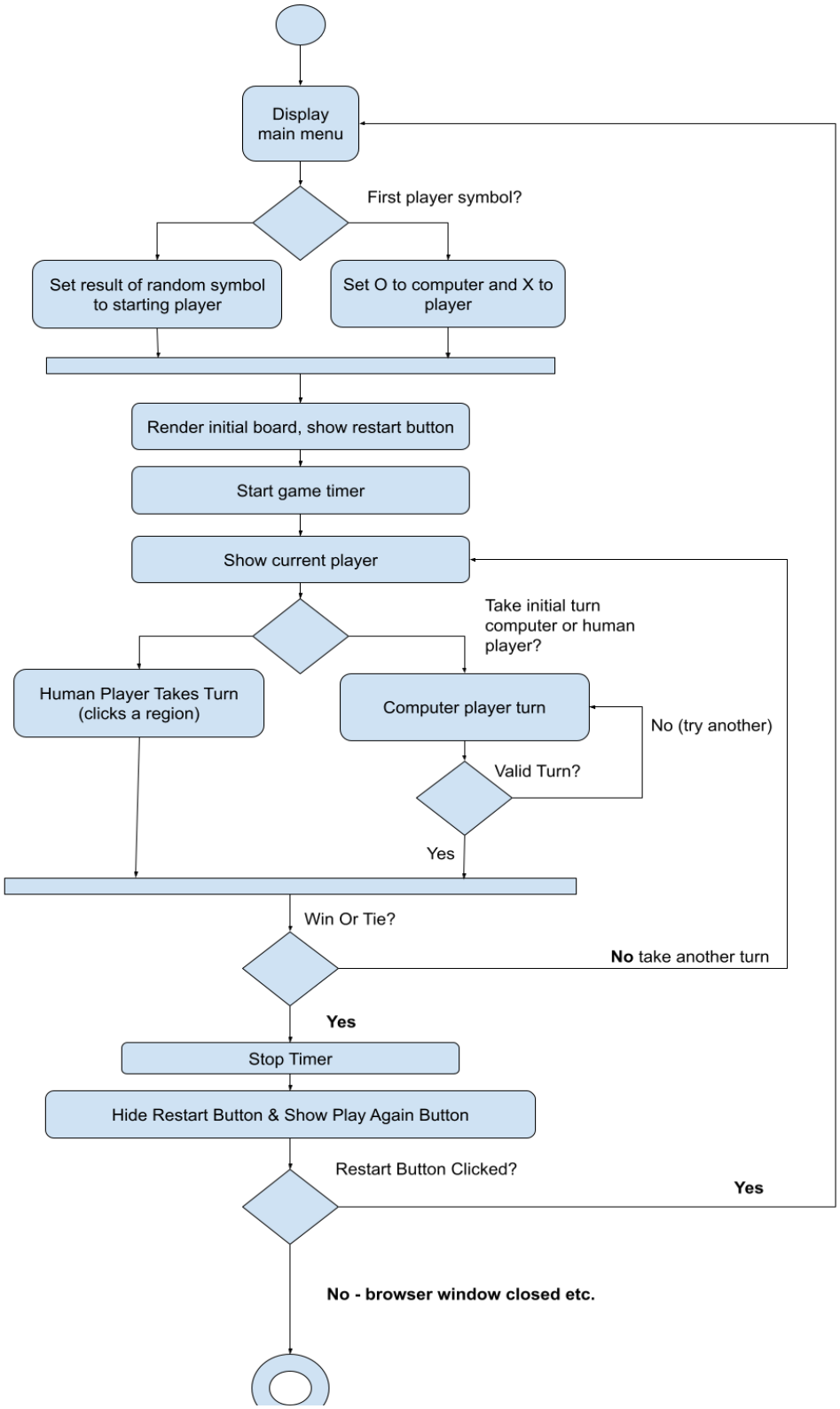
Tic-tac-toe Test Plan

DATE	TEST DESCRIPTION (FEATURE)	Result	Description
3/26/2022	Player v. player assigning random symbol	Pass	Random X and O were being assigned for player v. player. Tested 10 new games.
3/26/2022	Player v. player assigning random player	Pass	Logged which player was starting and what symbol tested approx 10 times.
3/26/2022	Player v. computer random player start	Fail	Games would often start with a human player, however, it would play the computer player turn.. Game mode and game play were reversed.
3/27/2022	Player v. computer random player start	Pass	Fixed problem with wrong mode starting.
3/27/2022	Winning combinations for player versus player	Pass	Passed all winning combinations Found need to add tie condition..
3/27/2022	Player v. player tie condition	Pass	Tie condition accounted for
3/27/2022	Play again button	Pass	Play again button reset properly after win or tie.
3/27/2022	Restart during game play	Pass	Game restarted to the main menu properly
3/27/2022	Player v. Computer winning	Pass	Ran 15 games passed all combinations.
3/27/2022	Player v. computer tie	Pass	Tie condition passed for computer and player win
3/28/2022	Player v. player timer start test	Pass	Timer started and displayed properly
3/28/2022	Player v. computer timer start test	Pass	Timer started and displayed properly
3/28/2022	Player v. player timer stop	False	Timer was not stopping after the game.
3/29/2022	Player v. player timer stop	True	Fixed error and the timer stopped.
3/29/2022	Player v. computer timer stop	True	Timer stopped and displayed properly.
3/30/2022	Gave entire game to user to test	False	Color of the winning game pieces was red. Suggestion was to make them green.
3/30/2022	User testing	False	Computer players take turns very fast.
4/1/2022	Tested delay in computer player	True	Slowed down computer player to make for smoother gameplay.
4/2/2022	User testing	True	Tested with several different users with no issues.

Activity Diagram



Problem Analysis

During the problem analysis I broke this problem up into smaller pieces. I started by thinking about the user interface of the game. Taking into consideration such things as the look and navigation of the game. I next focused on the game setup. This includes the selection of a random player and a random symbol keeping in mind what game mode the user has selected. After the game setup I thought about how game moves are taken and interpreted for winners and losers. My last design task was to examine how the timer works along with the reset and play again buttons.

Problem Design

My development process focused on the creation of the user interface. This involved creating the html along with the css styling. I created the main menu and the start game button along with the game board.

I focused my design on how to initialize a game once the game mode is selected. This includes what data (variables) would be needed. Getting and setting random symbols along with a random starting player was tackled. I used a javascript object called gameData to store important game information. Such information as the current player along with a player's assigned symbol are stored as properties in this object.

I named the next step in my design as the first turn. The first turn is needed because we have two game modes. In this step of the game we set the board up for the first player whether it is a human or computer. If the game is computer we run the steps to select a random spot and if human we wait for a click of the board. After the first turn we set up the board for the next player whether it is human or computer. This process continues for each turn checking each time for what type of player along with a game ending scenario (tie or win).

I now focused on adding the game timer along with the buttons to control the restart and play again features. One feature that bothered me at first was the fact that the computer player would take its turn so fast it really wasn't a very smooth playing experience. I added a setTimeout to mimic slowing down the computer's movement by a few seconds.