**Capstone Project Readme & Grant Long**

**Spring 2024 Documentation Feb 6th, 2024**

**Description**

This program allows simulates the famous Connect 4 game. Two players, red and yellow, can play to win by connecting four chips vertically, horizontally, and diagonally.

**Technologies**

HTML/CSS/JavaScript within Visual Studio Code (VSC). Replit was used for online/in-class demonstration: [Connect 4 Game Replit Code](https://replit.com/@GrantLong/Connect4). If Replit is used, sign in with a Google account to fork/run the program in web view and look at code. To view and play the game without Replit, GitHub hosts the Connect 4 project: [Connect 4 Game Demo](https://grant1677.github.io/Connect4/).

**Installation**

No installation is required! To view the code you have 2 options:

1. Download the source files/folder
   1. There are three files and one folder contained in this repository: three files are the HTML/CSS/JavaScript and the one folder contains the Connect 4 Logo.
   2. Download these files/folder into a folder called 'Connect 4'. Once you have your 'Connect 4' file built, you should have the three files and 1 folder within it.
   3. Run it within an environment, as mentioned above, I used visual studio to run the index.html file. You could easily run these files/folders on ADA as well!
2. (BEST WAY) Use the Replit link which contains the same code as the source files: [Connect 4 Game Replit Code](https://replit.com/@GrantLong/Connect4).
   1. Once link is clicked, fork and run the code in a separate tab! ☺
   2. After you have forked the repl (space containing all the files) to your own Replit account, you can mess around with the code and view the game through a web-hosted tab.

**Playing Game**

To view and play the game GitHub hosts the Connect 4 project: [Connect 4 Game Demo](https://grant1677.github.io/Connect4/).

**Design**

The design uses a very basic system. Starting in HTML the board is created through a div. As the JavaScript file is ran, the board is populated with tiles using a create element feature within JavaScript. After the tiles fill up the 6 x 7 board, the red/yellow players can begin placing chips on the board. A setPiece() function is called to set the chips by using a coordinate system. Within the function, a current count of the columns row height is being placed into a variable to ensure that the rows in each column never exceed outside the 6 x 7 board. After red/yellow chips have been placed, the checkWinner() function is the algorithm to check if red/yellow won 4 chips horizontally, vertically, or diagonally in a row. Once a winner has been chosen, the setWinner() function displays a popup on screen showing if the winner was yellow or red. At this point the player can choose to close the popup and see how the winner was chosen, or they can click the reset button on the popup. If the winner chooses to close the popup, they can reset/end the game by hitting reset button below the board.

**Flowchart**

A diagram of a game

Description automatically generated