Educational BrainTeaser Game – JavaScript Project by Sonny Normansell

Link to Walkthrough video - https://youtu.be/41l0lw8fx8w?feature=shared

What is the Game and how to play-

My Game contains several miniature games split into two sections word games and geography games. The words games take inspiration from the popular mobile/web game Wordle which was made popular by the New York Times. I used to play wordle a lot a few years ago and I thoroughly enjoyed it. I strongly believe that wordle is a great way to challenge the brain. Although traditional wordle has no progression , you simply try and guess a single 5 letter word. In order to make the simple game of wordle more complex and challenging for the user I have created my own versions of wordle where the user has the possibility to guess several different 5 letter words simultaneously with each word inputted applying to every selected word for the user to guess. The user has the possibility to answer a single wordle (guess a single word) , a double wordle(guess two words simultaneously) , a quadruple wordle and finally an octuple wordle. I believe that having different levels of wordles allows the user to progress , if answering a single wordle gets to easy for the user they can continue to challenge themselves by answering a double wordle or any other variation to ensure that they are satisfied with their level of challenge.

The second section of my javascript based game is the Geography Game section. This section includes several miniature games allowing the user to test their knowledge of several different concepts of world geography such as flags, countries and capitals. The user has the ability to select which continent he wants to be questioned on and appropriate questions will be selected based on the selected continent. The flag guessing mingame allows the user to select a number of flags that they wish to guess after specifying the continent in which they wish to be questioned on , they will then be shown the specified number of flags drawn at random (one after another) , guess the flag and their score will be returned upon answering all the flag questions. The country guessing minigame allows the user to firstly specify from which continent they wish to guess countries from , upon selecting the continent the user will input the name of every country they know in the specified continent in an appropriate input box , the input box will turn green if the country the user inputted is valid and exists in the specified content , if the user guesses all countries correctly a message will be displayed congratulating the user, there also exists two buttons one to show all the countries that the user hasn't been able to guess this button is the give up button and a refresh button used to clear all input boxes. The final minigame in the Geography Game section is the capital guessing game , the capital guessing game is similar to the country

guessing game although instead of guessing the countries that exist in a specified continent the user is to guess the capitals that exist in a specified continent for each corresponding country in the continent. This minigame also includes a give up button which upon being pressed displays all the answers that the user was unable to guess and a refresh button which is used to clear text from all input boxes.

What I believe was successful -

Firstly I believe that I was successful in ensuring elegant code practise in many ways such as modularity. I ensured that my code was modular by splitting my code into separate files when possible , this would ensure that there were less lines of code in each file and that the code was more readable. For example I stored arrays for the names of each country in each continent in a separate js file to the js file that would be using this array , exporting it from the file containing the arrays an importing it into the file utilizing the array. I also ensured that all my files were organised into folders to ensure that I would be able to navigate through each file in a simpler and more efficient manner when writing my code, this also helped when I was linking files from another file as I would know which folder it was in.

I also believed that I made use of many javascript features , importantly the localstorage feature. I utilized this feature in order to store temporary data that could be accessed from separate javascript files. For example if a user pressed a button which intended to allow the user to select to answer flag questions about Europe , the line of code localStorage.setItem("Continent","Eu"); meant I would be able to identify which button the user pressed without having to create a separate html and javascript file for each flag-continent quiz. By retrieving the stored value with localStorage.getItem("Continent"), I can use a switch statement to select the appropriate array of flag names and file paths based on the user's continent choice.

I believed that I succeeded in dynamically creating elements and dynamically changing the number of elements created based on the users input for a specified game. For example if the user selects a single wordle then only one div is created , if the user selects 8 wordles then 8 divs are created. By dynamically creating a specific number of divs based on the users selection I eliminate the need to create separate files for each version of the wordle game. This means less code to write , less storage etc. I also successfully dynamically created a different number of input boxes for country and capital guessing based on the continent of the users choice.

I also believe that I was successful in ensuring sufficient error handling. In my wordlebase.js file I ensured that invalid inputs were handled appropriately and ensured that they worked as intended by testing thoroughly. For example if the user does not fill in the input box and presses submit an error message will be displayed and if the users input is greater than 5 letters an error message will be displayed. I also ensured to use

built in string methods on the users input to ensure that cases where the user entered a word in all capital letters or a word including whitespace were handled. This ensured that the users input would be in the same format as the selected word and therefore can be validated easier and more fairly. I used the same string methods on users input in the capitalbase.js , countrybase.js and flagGuess.js files.

I believe that I was successful for the most part in creating an attractive gui. I ensure that I was consistent with regards to color choices , background color choices and font choices. Although I do believe that the games themselves look a lot less appealing in comparison to the menu's.

Finally I believe that I have created an entertaining game which hopefully is able to challenge people and encourage people to challenge their brain and improve their knowledge. I believe that the blend of geography and English ensures that the user will be challenged on different topics and therefore improve their knowledge on different topics. I believe that the different variations of wordles ensures that the user will always be challenged and will be able to choose a harder challenge upon progressing. Giving the user the option to select the amount of flag questions to answer ensures that the user can challenge themselves by answering a larger amount of flag questions upon improving their knowledge , pushing them further.

What I could Improve/wished to add but was unable –

Firstly I believe that my game could be improved by creating an account system where the user could create an account and login. The account would store information such as the number of wordles /geography games they have won , their win/loss ratio on wordles, the average % of correct answers in flag games etc.

Upon implementing an account system I believe that a leaderboard system would be a great features that could have the possibility to motivate players to play the game for a longer period of time and therefore improve their knowledge on world geography and continue to challenge their brain. I believe that the leaderboard system could be implemented in such a way that for every game won you earn a certain amount of points , if you win a harder wordle you win a greater amount of points , you win points based on the % of correct answers in geography games. Each users information is stored in a table for example using an sql database ,in the table exists a score field which will be updated upon an increase in the users score. The leaderboard page of the game will display the podium of players with the highest score.

I also believe that the gui for the games themselves could be improved. I believe that the least attractive minigame is the capital guessing minigame as the input boxes don't appear to be aligned with one -another.