Scenario/Situation

For this project I was required to make an interactive game using JavaScript, HTML & CSS. I decided to create a Pokémon themed memory game as I felt it was something achievable within my skillset. The Pokémon theme was used for a number of reasons, I felt the large number of recognisable characters lent themselves to a game with many images as well as appealing to the younger audience which aligns with the games target audience.

Task

1. The website must contain an interactive game that is fun and engaging to the user.

2. On entering the website a short explanation of how to play the game should appear.

3. On winning the game a message should appear to inform the user.

4. The cards should rotate once clicked to reveal the Pokémon hidden behind. Once two cards have been selected the game should display if the match is correct or incorrect. If correct, a green light will flash and the cards will stay flipped. If incorrect, a red light will appear and the card will go back to its hidden state.

5. Only two cards should be able to rotate at once.

6. The game should keep track of the matches until they are all found and display a win message when this happens.

7. Audio feedback should accompany the incorrect/correct choices along with other background music.

8. A reset/new game button should be implemented to allow the user to reset the game in case of any issues or to start again if the game is won.

9. The design of the page should be consistent with the Pokémon theme and be recognisable to anyone familiar with the IP.

10. The design should be visually appealing and easy to navigate for all users.

11. The footer should contain relevant social media links that connect to external sites.

12. The page should be fully responsive and accessible for all device sizes.

Action

1. *The website must contain an interactive game that is fun and engaging to the user.*

   I decided to create a Pokémon memory game. The game grid consists of 12 individual elements. This allows the game to be sufficiently challenging but also accessible to younger audiences.

2. *On entering the website a short explanation of how to play the game should appear.*

   Inside the main body is a element that displays the game info when the page loads. This is placed on top of the main game. The function "hideWelcome" is used to set the display to none once the start button has been pressed. This hides the welcome message from the user and allows the game to start.

3. *On winning the game a message should appear to inform the user.*

   The game stores the amount of times a match is found counting down from 6, once the counter hits 0 the win message is displayed using JavaScript to show a hidden element in the HTML. The message has a play again button that triggers the "reset" function. Emptying the board, reshuffling and starting the game again. This is also available underneath the game section on another button to allow a reset all times.

4. *The cards should rotate once clicked to reveal the Pokémon hidden behind. Once two cards have been selected the game should display if the match is correct or incorrect. If correct, a green light will flash and the cards will stay flipped. If incorrect, a red light will appear and the card will go back to its hidden state.*

   All cards have click event listeners that trigger the "cardFlip" function when selected. This triggers a CSS rotation effect and also displays the hidden Pokémon by manipulation the DOM. A Pokémon is selected from the cardArray and displayed. Using If statements, the game calculates if both cards are the same and executes two different functions depending on if it's a match or not. This loops around until the game is complete.

5. *Only two cards should be able to rotate at once.*

   This took a fair amount of time for me to solve. I decided to use a combination of "setTimeout" and a "gamePause" variable. The "setTimeout" function slowed down the execution of various functions to ensure the game doesn't crash and the "gamePause" variable allows me to stop the execution of certain functions until the game logic has completed.

6. *The game should keep track of the matches until they are all found and display a win message when this happens.*

   I set the amount of pairs to 6 at the beginning and each time the "match" function is triggered it deducts one from the pairs variable. On hitting 0 the win message is triggered.

7. *Audio feedback should accompany the incorrect/correct choices along with other background music.*

   I sourced some original Pokemon game audio (referenced in README) that triggers alongside the “match”/ “flipBack” functions.

8. *A reset/new game button should be implemented to allow the user to reset the game in case of any issues or to start again if the game is won.*

   This is present at the bottom of the page and on the win/start messages. On clicking the button JavaScript deletes all the game content area and re adds it. I did try to keep all the elements and reset them to their original state however this created other errors and ultimately, I found deleting and readding more straightforward.

9. *The design of the page should be consistent with the Pokémon theme and be recognisable to anyone familiar with the IP.*

   Most of my elements were assets already created for Pokémon which made creating a cohesive website design easier. I tried to choose elements that would come together in a way that is visually appealing and easy to read.

10. *The design should be visually appealing and easy to navigate for all users.*

    Similarly to the previous task my main priority was compiling already created assets and laying them out in a cohesive and appealing way. It was important to make sure everything had space on the page and the contrast between background and foreground was sufficient to make everything easily visible. On mobile I decided to move from four cards in a row to three, this was due to the small screen making objects too small for easy user interaction. As mobile screens are taller this made sense and kept the image ratios similar.

11. *The footer should contain relevant social media links that connect to external sites.*

    The footer has icons representing major social media sites, on clicking them a new tab will open to take the user to the relevant platform. As multiple Pokémon pages exist I decided to keep them as the websites homepage for simplicity, however this can be easily changed. Opening in a new tab instead of the current one allows the game to stay in the browser which will therefore keep the user engaged with the content.

12. *The page should be fully responsive and accessible for all device sizes.*

    I used multiple media quires and responsive elements in CSS to ensure the game displays properly on all device sizes.

Test/Result

Test No.	Test Feature	Expected Result	Actual Result (Pass/Fail)	Comments
1	Open/Launch website	Website opens and display the Homepage	Pass	
2	Logo/Company name	Logo/company name available in stipulated colour	Pass	
3	Font colour/sizes/Styles	Font colour/sizes/styles as planned, expected	Pass	
4	Finished website layout	Finished website layout matches planned layout	Pass	
5	Intra-link within a webpage (using text/image as the link medium)	Hyperlinks user to a different section of the same webpage	N/A	
6	Inter-link across webpage in the same website (using text/image as the link medium)	Hyperlinks user to a different webpage within the same website	N/A	
7	External-link across webpage onto a different website (using text/image as the link medium)	Hyperlinks user to a webpage in a different website	Pass	
8	Welcome, Game Info	Game loads properly with welcome message at beginning	Pass	
9	Game Win	Win message appears on completion	Pass	
10	CardFlip Function	Cards rotate on click, displaying the Pokémon	Pass	
11	Match/Incorrect check	Game checks for match and displays Green for match and red for incorrect.	Pass	
12	Match Function	Cards stay flipped if match and reset if incorrect.	Pass	
13	Audio Elements	Audio plays on gamestart, game win, incorrect/correct match. Audio elements reset to start after each play.	Pass	
14	Game Logic	No more than two cards can be active at once to prevent game crashing.	Pass	
15	Reset/New Game	Reset/New Game buttons wipe the gameboard and reload a new one.	Pass	
16	Responsive Design	Game correctly scales and functions on all device sizes	Pass	
17	Testing	No game breaking bugs	Pass	
18	SPaG / Proof-reading	Correct Spelling, Punctuations and Grammar are correct	Pass	

Reflections/evaluation

As shown by the test results, I have met all of the requirements.

I have tested the website on multiple devices and allowed multiple users to test to ensure it works as intended.

I believe the game functions well and matches my original wireframes and design ideology.

In future, I believe extra value could be added by implementing increased difficulty after each win. This could be done by increasing the card count. Also, a high score system would allow users to compete against each other and track how well they performed. This would require backend technologies which are currently beyond this project.