Task 3: Implementing Event Listeners to Change Background Color

Objective:

Create a simple HTML page with a button and a div. When the button is clicked, the background color of the div should change. Implement this functionality using JavaScript event listeners.

Pre-requisites:

- Basic HTML and CSS
- Basic JavaScript (variables, functions)
- Understanding of DOM manipulation
- Event listeners

Concepts Covered:

- DOM manipulation
- JavaScript event listeners
- Event handling in JavaScript

Setup:

Install Node.js:

- Ensure Node.js is installed on your machine. You can download it from nodejs.org.

Tasks:

1. **Create HTML Structure:**
    - **Task:**
        - Create an HTML file named `index.html` with the following structure:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Event Listeners Task</title>
    <style>
        #colorBox {
            width: 200px;
            height: 200px;
            background-color: lightgrey;
        }
    </style>
</head>
<body>
    <button id="changeColorButton">Change Color</button>
    <div id="colorBox"></div>
    <script src="script.js"></script>
</body>
```

```
</html>
```

- **Outcome:**
  - Ensure the HTML structure is correct and includes a button and a div with the appropriate styles.

2. **Implement JavaScript Functionality:**
   - **Task:**
     - Create a JavaScript file named `script.js`.
     - In `script.js`, select the button and the div elements using `getElementById`.
     - Add a click event listener to the button that changes the background color of the div.
   - **Outcome:**
     - Ensure the JavaScript file correctly selects the elements and updates the background color of the div based on button clicks.

Example:

JavaScript File (`script.js`):

```
// Select the button and the div elements
const changeColorButton = document.getElementById('changeColorButton');
const colorBox = document.getElementById('colorBox');

// Add a click event listener to the button
changeColorButton.addEventListener('click', function() {
    colorBox.style.backgroundColor = 'blue';
});
```

Instructions:

- **Perform the following tasks:**
  - Write the required code in `index.html` and `script.js`.
  - Open `index.html` in a web browser to ensure the code executes without errors and demonstrates the use of basic JavaScript concepts for DOM manipulation and event handling.

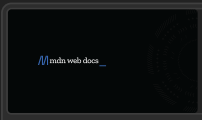
Example Input:

1. User clicks the "Change Color" button.

Expected Output:

1. The background color of the div changes to a new color.

Resources:

- 
  EventTarget: addEventListener() method - Web APIs | MDN
  The addEventListener() method of the EventTarget interface sets up a function that will b...
  https://developer.mozilla.org/en-US/docs/Web/API/EventTarget/addEventListener
- 
  Document Object Model (DOM) - Web APIs | MDN
  The Document Object Model (DOM) connects web pages to scripts or programming langu...
  https://developer.mozilla.org/en-US/docs/Web/API/Document_Object_Model

Videos:

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GitHub Instructions:

1. **Open in Visual Studio Code:**
   - After clicking on the "Open in Visual Studio Code" button from the GitHub Classroom confirmation page, Visual Studio Code (VSCode) will open the repository directly.
   - If prompted, select "Open" or "Allow" to open the repository in VSCode.
2. **Open the Terminal in VSCode:**
   - In VSCode, open a terminal by selecting Terminal > New Terminal from the top menu.
3. **Complete the Task:**
   - In VSCode, write your solution in the `index.html` and `script.js` files.
4. **Run and Test Your Code:**
   - Open `index.html` in a web browser to ensure it works correctly.

5. **Commit Your Changes:**
    - In the VSCode terminal, add your changes to git:

      ```
      git add index.html script.js
      ```

    - Commit your changes with a meaningful message:

      ```
      git commit -m "Completed task 3"
      ```

6. **Push Your Changes to Your Repository:**
    - Push your changes to your forked repository:

      ```
      git push origin main
      ```

7. **Create a Pull Request:**
    - Go to your repository on GitHub.
    - Click on the "Pull Requests" tab.
    - Click the "New Pull Request" button.
    - Ensure the base repository is the original template repository and the base branch is `main`.
    - Ensure the head repository is your forked repository and the compare branch is `main`.
    - Click "Create Pull Request".
    - Add a title and description for your pull request and submit it.

Summary of Commands:

```
# Open in Visual Studio Code

# Open terminal in VSCode

# Complete the task by editing index.html and script.js

# Add, commit, and push your changes
git add index.html script.js
git commit -m "Completed task 3"
git push origin main

# Create a pull request on GitHub
```