**Week 2: JavaScript Fundamentals**

**Objective:**

Gain a strong foundation in JavaScript by understanding its basic syntax, data types, functions, control flow, DOM manipulation, and event handling.

**Day 1: Basic Syntax and Data Types**

* **Topics:**
  + Variables and constants (var, let, const)
  + Data types (string, number, boolean, array, object, null, undefined)
  + Type conversion and coercion
  + Basic operators (+, -, \*, /, ++, --, +=, etc.)
* **Activities:**
  + Write a script that declares variables of different data types.
  + Practice type conversion between strings, numbers, and booleans.

**Day 2: Functions and Control Flow**

* **Topics:**
  + Function declaration vs. expression
  + Parameters, arguments, and return values
  + Scope (global vs. local)
  + Control flow (if, else, else if, switch, for, while, do...while)
* **Activities:**
  + Create a few functions that perform basic operations (e.g., calculate the sum of two numbers).
  + Implement control flow using if-else statements and loops to solve simple problems.

**Day 3: DOM Manipulation**

* **Topics:**
  + Introduction to the Document Object Model (DOM)
  + Selecting elements (getElementById, querySelector, etc.)
  + Modifying elements (text content, HTML content, attributes, styles)
  + Creating and appending elements
* **Activities:**
  + Select elements from an HTML document and change their content or style.
  + Create new elements dynamically and append them to the DOM.
  + Need practice on traversing dom(siblings and first and last childs)

**Day 4: Event Handling**

* **Topics:**
  + Adding event listeners (addEventListener)
  + Common events (click, mouseover, keydown, etc.)
  + Event object (event.target, event.type)
  + Preventing default actions and event propagation
* **Activities:**
  + Add event listeners to buttons that trigger functions when clicked.
  + Handle form submission events and prevent the default behavior.

**Day 5: Practice and Review**

* **Activities:**
  + Build a small interactive webpage that uses all the concepts learned during the week.
  + Implement a form with basic validation, handling user input and displaying feedback.

**Day 6: Project Implementation**

* **Activity:**
  + Start working on a simple JavaScript project, such as a to-do list or a basic calculator, incorporating all the concepts from the week.

**Day 7: Review and Reflect**

* **Activities:**
  + Review key concepts and revisit any challenging topics.
  + Reflect on the project work and identify areas for improvement or further study.