CSE 391: Programming for the Internet

Assignment 2: JavaScript Programming

Objective:

The purpose of this assignment is to enhance students' understanding of JavaScript by developing interactive web applications. Students will apply core JavaScript concepts, including DOM manipulation, event handling, and local storage, while also incorporating HTML and CSS as needed. The assignment consists of three tasks: a fortune generator, a stopwatch, and a to-do list. These tasks will help students practice working with arrays, event listeners, timing functions, and data persistence.

Question 1: Fortune Generator (25 Marks)

Objective:

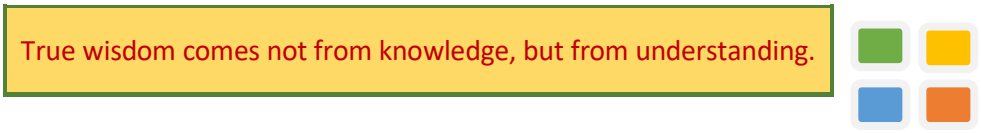
Create a fortune generator that displays a random fortune each time the page is loaded and allows users to change the appearance of the fortune box dynamically.

Requirements:

1. **Fortune Messages:** Create an array in JavaScript with at least 10 different fortune messages.
2. **Random Selection:** When the page loads, randomly select a fortune from the array and display it in a styled box.
3. **Styling & Interactivity:**
    - The fortune should be displayed in a **centered box** just above the page footer.
    - There should be **four buttons beside the fortune box**, each changing:
        - Font color of the fortune text
        - Background color of the fortune box
        - Border color of the fortune box
        - Font size and font family slightly
    - Ensure colors contrast well with the webpage background for visibility.

Expected Output:

- A web page that displays a random fortune in a customizable box.
- Clicking the color buttons changes the fortune box's appearance dynamically.



Question 2: Stopwatch (35 Marks)

Objective:

Build a stopwatch that counts time in multiples of 3 seconds and stops at 30 seconds unless reset.

Requirements:

1. **Timer Functionality:**
    - The display should count in steps of **3 seconds** (i.e., 3, 6, 9… instead of 1, 2, 3…).
    - The timer **automatically stops at 30 seconds** unless reset.
2. **User Controls:**
    - **Start Button:** Begins the timer.
    - **Stop Button:** Pauses the timer.
    - **Reset Button:** Resets the timer to 0.

Expected Output:

- A functional stopwatch with buttons to start, stop, and reset the timer.
- If the stopwatch is stopped before reaching 30 seconds, it should resume from the last recorded time when started again
- The timer should only increment in multiples of 3 seconds and automatically stop at 30 seconds.

Question 3: To-Do List (40 Marks)

Objective:

Create a to-do list application that allows users to add, track, and delete tasks, ensuring the data persists between sessions.

Requirements:

1. **Adding Tasks:**
    - Users can type a task into an input field and add it to the list.
2. **Displaying Tasks:**
    - Each task should appear in a list format after being added.
3. **Task Controls:**
    - Each task should have a **delete button** to remove it from the list.

    - Each task should have a **checkbox** to mark it as completed.
4. **Persistent Data Storage:**
    - Use `localStorage` to save tasks, ensuring tasks remain available even after refreshing or reopening the page.

Expected Output:

- A functional to-do list where users can add, delete, and mark tasks as completed.
- The tasks remain saved even after refreshing the page.

Submission Guidelines:

- Submit your assignment by sharing the hosted link and all files in a compressed `.zip` format through the submission form.
- Ensure that your JavaScript code is well-commented and structured properly.
- Include all necessary files (HTML, CSS, images, JavaScript, if any).
- Cite any external references used for guidance.
- **You should be prepared to explain your code during evaluation.**

Evaluation Criteria:

Criteria	Marks
Fortune Generator	25
Stopwatch	35
To-Do List	40

Final Note on AI Usage:

While AI tools may assist in debugging and providing explanations, directly copying AI-generated solutions is **not allowed**. Your code must be original and written by you. You should be able to explain your implementation in detail when asked.

Good luck, and happy coding!