

## Week 1.4

### Lab Activity: Interactive Image Gallery with Lightbox, Captions, and Navigation

#### Learning Objectives:

- Master DOM manipulation to dynamically create, modify, and interact with image gallery elements.
- Practice event handling to trigger actions like opening the lightbox, navigating between images, and closing the lightbox.
- Utilize JavaScript data structures (e.g., arrays, objects) to store and manage image data.
- Gain experience with CSS styling to create visually appealing layouts and effects.

#### Scenario:

Build an interactive image gallery that displays a thumbnail grid of images. When a thumbnail is clicked, it should open a lightbox that displays the full-sized image along with its caption. The lightbox should have "Next" and "Previous" buttons for navigation between images.

#### Tasks:

##### 1. HTML Structure:

- Create the basic HTML structure:
  - A container for the image gallery.
  - Thumbnail elements with attributes pointing to the thumbnail images.
  - Alt text for accessibility and captions.
  - The lightbox container is initially hidden.
  - Elements within the lightbox:
    1. Full-sized image container.
    2. Caption container.
    3. "Next" and "Previous" buttons.
    4. Close button.

##### 2. CSS Styling:

- Style the gallery to your liking:
  - Thumbnail grid layout (e.g., using Flexbox or CSS Grid).

- Lightbox overlay effect (e.g., darkening the background).
- Lightbox content positioning (e.g., centered).
- Button styles and hover effects.

### 3. JavaScript Functionality:

- Image Data:
  - Create an array or object to store image information:
    1. Image URL (full-size)
    2. Thumbnail URL
    3. Caption
- DOM Manipulation:
  - Write functions to:
    1. Dynamically create thumbnail elements and add them to the gallery container.
    2. Open the lightbox when a thumbnail is clicked:
      - a. Display the full-sized image in the lightbox container.
      - b. Update the caption in the lightbox.
    3. Handle navigation (next/previous buttons):
      - a. Load the correct image and caption based on the current index.
      - b. Disable buttons at the beginning and end of the gallery.
    4. Close the lightbox.
- Event Handling:
  - Add event listeners to:
    1. Thumbnails (click to open lightbox).
    2. Next and Previous buttons (click to navigate).
    3. Close button (click to close the lightbox).
- Date/Time Handling:
  - Use JavaScript's Date object or a library like Moment.js to work with due dates/times.
  - Ensure proper formatting and validation of date/time input.

### Evaluation:

- Functionality:
  - The Gallery displays thumbnails correctly.

- Lightbox opens with the correct full-sized image and caption.
  - Navigation buttons work as expected, looping or stopping at gallery ends.
  - Lightbox closes smoothly.
- Code Quality:
  - Code is well-organized, readable, and modular.
  - Effective DOM manipulation and event handling techniques.
  - Clean and efficient JavaScript logic.
  - Appropriate use of data structures (arrays, objects).
- User Experience:
  - The gallery is visually appealing and intuitive to use.
  - Lightbox transitions are smooth.
  - Captions are displayed clearly.