CMPS 350 · Web Development Fundamentals

Lab 07 · Client-side JavaScript

Objective

1. DOM access, traversal, and update.
2. Event handler/listener definition and usage.
3. Fetch API usage.

Resources

1. [Introduction to the DOM](#)
2. [Introduction to events](#)
3. [Using the Fetch API](#)

1. Country Facts Explorer

This goal of this exercise is to develop a web application that explores facts about countries. The application allows the end-user to select a given country and displays the corresponding facts accordingly.

1. Use the Rest Countries API to fetch all countries and their facts data from `https://restcountries.com/v3.1/all`.
    1.1. Extract the regions and use them to populate the corresponding `select` element.
    1.2. Use an object to keep track of the hierarchy of regions, subregions, and countries.
    1.3. Note that some countries do not have a subregion defined.
2. Add event listeners to handle end-user selection updates.
    2.1. When changing the region, the list of subregions should be updated.
    2.2. When changing the subregion, the list of countries should be updated.
    2.3. When changing the country, the table of facts should be updated.
3. Check the provided screenshots for a sample design.

2. Task Tracker

The goal of this exercise is to develop a web application that manages a list of tasks. The application should allow the end-user to add, complete, and delete tasks, while keeping track of the list of tasks they have created.

1. Use an array to keep track of the list of tasks and render them whenever it is updated.
    1.1. The rendered list of tasks should always reflect the underlying array of tasks.
2. Add event listeners to handle adding, completing, and deleting a task.
    2.1. Tasks should have unique non-empty titles, that is, a duplicate task or a task lacking a title should not be added.
3. Check the provided screenshots for a sample design.

3. Random Photo Gallery

The goal of this exercise is to develop an application that fetches several random photos on demand and displays them in a gallery.

1. Add a button that fetches a random photo and adds it to the gallery.

    1.1. Use the Lorem Picsum API to fetch the random photos from `https://picsum.photos`.

    1.2. Define and attach an event handler to fetch and add a photo to the array.

2. Use the RAM pattern to render the photos in a grid.

3. Allow the user to remove a photo by clicking on it.

4. Check the provided screenshots for a sample design.

4. Additional Resources

1. The modern JavaScript tutorial: `https://javascript.info`

2. Eloquent JavaScript: `https://eloquentjavascript.net`

3. MDN JavaScript: `https://developer.mozilla.org/en-US/docs/Web/JavaScript`