

CMPS 356

Web Applications Design and Development

Lab 01

Review of Key JavaScript Skills and Introduction to React

Objective

- Practice using Visual Studio Code and some of its extensions
- Review key JavaScript skills and concepts
- Get introduced to building applications using React

Prerequisites

- Install GitHub Desktop from <https://desktop.github.com>
- Install Visual Studio Code from <https://code.visualstudio.com>
- Install Node.js from <https://nodejs.org>
- Install Postman from <https://www.postman.com>
- Join the classroom invitation to create your personal repository

1. Notable Visual Studio Code Extensions

Take some time to set up Visual Studio Code to your liking. The following extensions are quite useful to install and explore:

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|---|---|
| ▪ GitLens | ▪ REST Client |
| ▪ Emmet (built-in support) | ▪ ESLint |
| ▪ Live Server | ▪ Prettier |
| ▪ ES7+ React/Redux/React-Native/JS snippets | ▪ Path Intellisense |
| ▪ Babel JavaScript | ▪ Live Share, Live Share Audio |
| ▪ JavaScript (ES6) code snippets | ▪ Better Comments |
| ▪ JavaScript Debugger | ▪ Markdown All in One |
| ▪ Debugger for Firefox | ▪ PolaCode, Code Snap |
| ▪ CSS Peek | ▪ TODO Highlight |
| ▪ CSS Intellisense | ▪ NextJS Developer Extensions Pack |
| ▪ Auto Close Tag | ▪ Tomorrow and Tomorrow Night Theme Kit |
| ▪ Auto Rename Tag | ▪ VS Code Icons |

2. JavaScript Recap

Implement the following tasks:

- Reverse an array using reduce and the spread operator.
- Tally the elements (count the occurrences of every element) of an array using reduce.
- Create an application that fetches the current weather conditions in Doha using a publicly available API, e.g., <https://open-meteo.com>, and displays it to the end-user. Use async/await for your asynchronous calls.
- Add a button to your application that allows the end-user to refresh the information that is displayed.

- Create an Express application that fetches the countries from <https://restcountries.com/v3.1/all> and returns an array of countries with their common name and country code only. Test your API using Postman.
- Create an application that uses your API to fetch and save the list of countries locally such that they are fetched only when they have not been stored locally already. Display the list of countries using a table to the end-user.

3. Introduction to React

Follow the tutorial at <https://reactjs.org> to get yourself familiarized with the library then use the create-react-app utility from <https://github.com/facebook/create-react-app> to create a sample application and test it locally.