

# CS 465P/565 – Full Stack Web Development

## Homework 3 – Full Stack Frameworks and Libraries

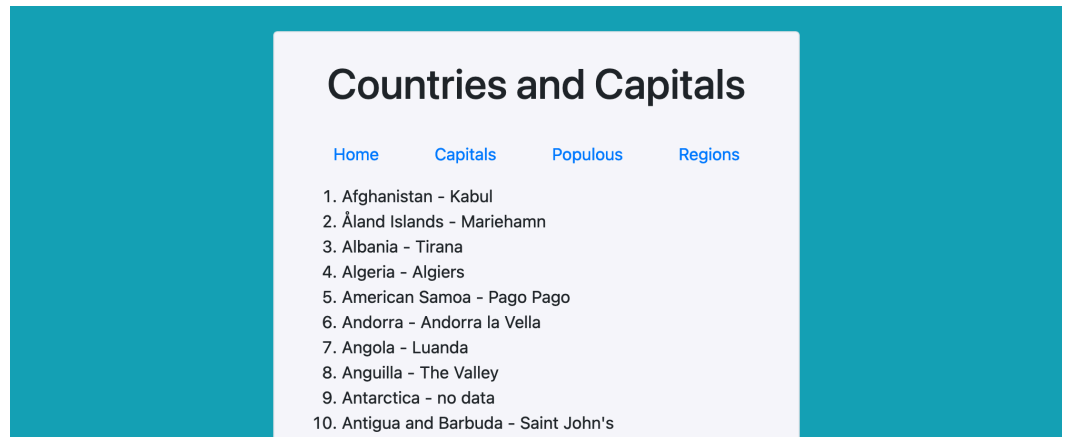
### Setup

- ❑ In this assignment, you will practice using some of the frameworks, libraries, and APIs used in full stack web development.
- ❑ There are no starter files for this assignment. Instead, you will set up the file structure and the files needed.
- ❑ Create a new folder for **hw3/**. Inside that folder, create a folder for each tutorial or exercise you work on and upload your files in those subfolders.
  - ❑ Make sure you include a **Readme file** with directions for how to run the tutorials and exercises.
  - ❑ You should also have a **package.json**, **package-lock.json**, and a **.gitignore**. These tutorials will generate many **node\_modules/** that should never be pushed to your remote repository.

### Tutorials and Exercises

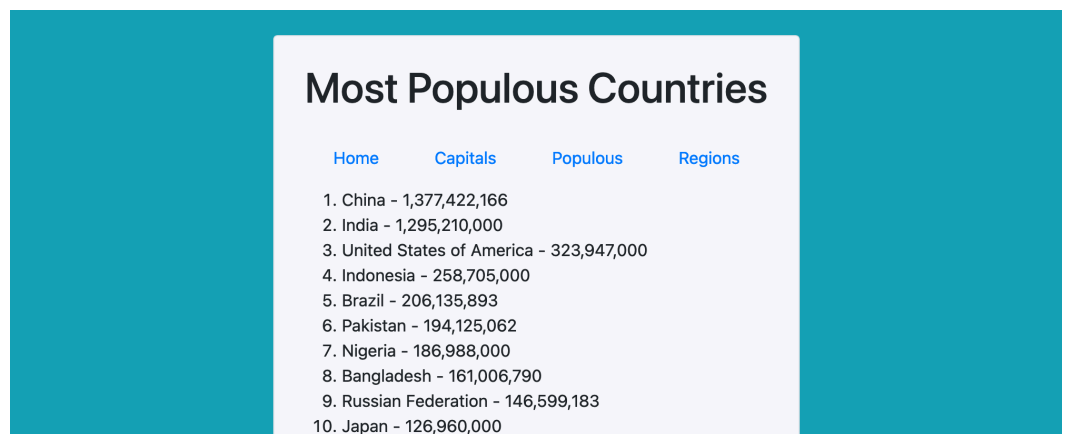
- ❑ In this assignment, you will be completing different tutorials to give you more insight into how to use different libraries and frameworks. You are welcome to complete all the tutorials below, but to fulfill the requirements of this assignment, you only need to complete one of the options below.
  - ❑ **Option 1** - Complete two of the following tutorials:
    - ❑ **React** - from react.dev:
      - ❑ Create a **react/** folder
      - ❑ Tutorial: [Intro to React with a tic-tac-toe game](#)
    - ❑ **TypeScript** - from TypeScript Exercises
      - ❑ Create a **typescript/** folder

- ☐ Tutorial: [TypeScript exercises](#) - Complete exercises 1-8
- ☐ **Socket.IO** - from Socket.IO
  - ☐ Create a **socketio/** folder
  - ☐ Tutorial: [Basic chat application](#)
- ☐ **Google Maps** - from Google Codelabs
  - ☐ Create a **googlemaps/** folder
  - ☐ Tutorial: [Build a Nearby Business Search service with Google Maps Platform](#)
  - ☐ Note: For these codelab, you will need a Google Cloud Platform account with billing enabled. Completing this tutorial on the GCP platform will not cost you anything, but to use the platform you do need to have a credit card on file on the account.
- ☐ **Option 2** - Complete the MDN Express tutorial
  - ☐ **Express Tutorial** - from MDN:
    - ☐ Create an **express/** folder
    - ☐ Tutorial: [Express Tutorial: Creating a skeleton website](#)
    - ☐ Complete Parts 2-6 of this tutorial (Part 7 is optional)
- ☐ **Option 3** - Complete the **Templating** exercise
  - ☐ Create a folder called **templating**. You will be using Express.js and the Pug Templating Engine in this exercise.
  - ☐ Use the [REST Countries API](#) to make a GET request for all the countries in the world.
  - ☐ Create a back-end .js file that serves different pages for different routes:
    - ☐ **/home** route
      - ☐ You can have any welcome message or description for this route.
    - ☐ **/capitals** route
      - ☐ Return the list of all the countries in the world and their capitals in alphabetical order.



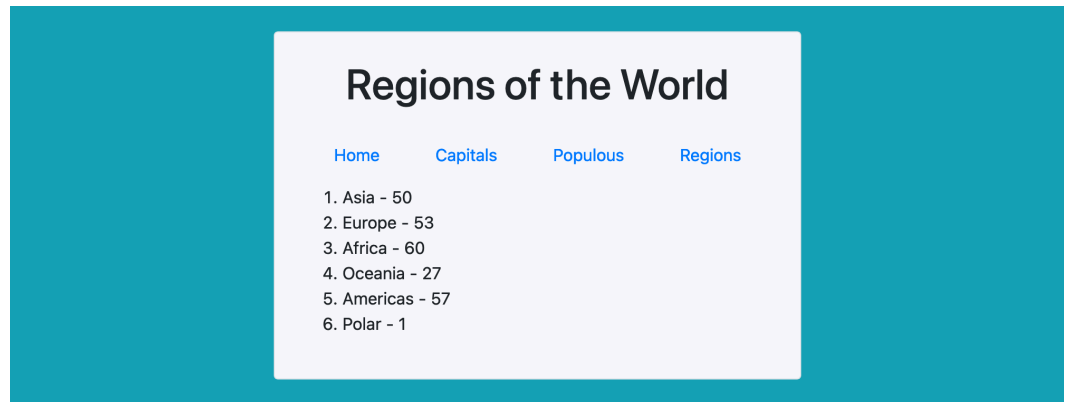
#### ❏ **/populous** route

- ❏ Return the list of countries with a population of at least 50 million and their populations, starting with the most populous.



#### ❏ **/regions** route

- ❏ Return the number of countries in each region of the world, according to the data. Make sure you handle all data you get back from the API.



❑ Further Reading:

❑ [Pug documentation - Getting Started with Pug](#)

## Additional Guidelines

- ❑ **Issues with a tutorial:** If you run into any issues with the tutorials, please document what the issue is and how far you got with the tutorial.
  - ❑ Every tutorial will work with the version of the npm packages used in that tutorial, but you may run into issues when attempting a tutorial with a newer version of the npm package.
- ❑ **Code Reviews:** You may be wondering why we are doing code reviews if you are mostly following tutorials in this assignment. It's important to remember that not all documentation is regularly updated and not all tutorial instructions are going to follow the [Airbnb JavaScript Style Guide](#). One of the goals of this assignment is to adapt the instructions you read to the style of writing JavaScript that we have talked about in this class.

## Submission Guidelines

- ❑ Submit the URL to the pull request in the **Discussion 4: PR and Code Review for HW 3** as part of the initial post on Sunday.
- ❑ Add the Canvas discussion groups members as reviewers.
- ❑ You will need to review two pull requests as part of the **Discussion 4: PR and Code Review for HW 3** post the following Friday.