

CPSC 349 - Web Front-End Engineering

Homework 3: React Exercise

1. Objectives

This assignment is designed to help you:

- Develop proficiency in **React**.
- Strengthen your ability to **replicate an existing web page's layout and functionality** with precision.
- Build foundational skills for **generating dynamic HTML output** in future server-side scripting tasks.

2. Description

In this exercise, you will create a **React web page from scratch**.

You will be provided with a demo video (`Demo.mov`) that shows the target page's appearance and behavior.

Your goal is to **reproduce the demo as closely as possible** using React components, state, and props.

3. Requirements

Development Environment

- Use **Visual Studio Code** as your code editor (any other editor is also acceptable).
- Do **not** use website builders or external UI frameworks (e.g., Bootstrap, Material UI).
- Use **React version 16.8 or later**.
- Apply **CSS** for all styling.

React Setup

Follow the official documentation to create your React app:

React: <https://react.dev/learn/start-a-new-react-project>

4. Installation Guide

Windows Setup

1. Visit the [Node.js official website](https://nodejs.org).
2. Download the **LTS (Long-Term Support)** version (e.g., Node 18 LTS).
3. Run the installer (.msi file):
 - Click **Next** through all steps.
 - Check “**Automatically install the necessary tools.**”
 - Complete the installation.
4. Verify installation in **Command Prompt** or **PowerShell**:

```
node -v  
npm -v
```

Example output:

```
v18.17.0  
9.6.7
```

macOS Setup

1. Visit nodejs.org.
2. Download the **macOS Installer (.pkg)** for the LTS version.
3. Run the installer and follow the prompts.
4. Verify installation:

```
node -v  
npm -v
```

5. Features

Your React application must include the following features:

Movie Display

- Fetch movie data from **The Movie Database (TMDB) API**.
👉 [TMDB API Documentation](#)
- Sign up for a free TMDB API key to access movie data.
- Display **20 movies per page**, including:
 - Movie poster (image)
 - Movie title
 - Release date
 - Average rating

Pagination

- Display the **current page number** at the bottom.
- Include “**Previous**” and “**Next**” buttons to navigate between pages.

Search Functionality

- Implement a **search bar** that allows users to search for movies by title.
- Display only the movies that match the search query.

Sorting

- Add a **dropdown menu** to sort movies by:
 - Release date
 - Average rating

Demo Consistency

- Ensure all **visuals, layout, and interactions** match the behavior shown in `Demo.mov`.
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6. Testing

- Test your application in **Google Chrome**.
- Verify that:
 - All features function correctly.
 - The layout and behavior match the demo.

7. Submission

What to Do

1. Create a **GitHub account** (if you don’t already have one).
2. Create a **public repository** for this assignment.
3. **Deploy** your React app (you may use any deployment tool or platform).
4. **Deploy your website** so it is publicly accessible.

Note:

If you do **not** want your API key to be visible in your public repository, you can:

- Revoke or rotate the exposed key after deployment, and/or
- Use **environment variables** or a **secret store** to hide it.

If you are comfortable having your key public (e.g., for this homework only), you may leave it as is.

What to Submit

Submit **only one file**: homework3.pdf

This PDF must include:

1. A link to your **GitHub repository**.
2. A link to your **deployed website**.