# REACTJS HOL

* **Define SPA and its benefits**

A **Single-Page Application (SPA)** is a web application that loads a single HTML page and dynamically updates content without refreshing the entire page. SPAs offer faster navigation, a seamless user experience, reduced server load, and better performance because only the necessary content is updated using JavaScript, typically with frameworks like React or Angular.

* **Define React and identify its working**

**React** is a JavaScript library developed by Facebook for building fast and interactive user interfaces, especially for SPAs. It works by breaking the UI into reusable components and using a virtual DOM to efficiently update and render components when data changes, ensuring high performance and responsiveness.

* **Identify the differences between SPA and MPA**

**SPA (Single-Page Application)** loads a single HTML page and updates content dynamically, while **MPA (Multi-Page Application)** loads a new HTML page from the server for each interaction. SPAs are faster and more interactive, whereas MPAs are better for SEO and more secure due to server-side rendering.

* **Explain Pros & Cons of Single-Page Application**

**Pros of SPA** include faster performance, better user experience, and less server load. **Cons** include poor SEO (without extra setup), slower initial load time, and more complex client-side code management. SPAs are ideal for dynamic applications like dashboards or social platforms.

* **Explain about React**

**React** is a component-based JavaScript library used to build user interfaces. It promotes building reusable UI components, utilizes a virtual DOM for performance optimization, and supports declarative programming. React is widely used for developing SPAs and supports integration with other libraries or frameworks.

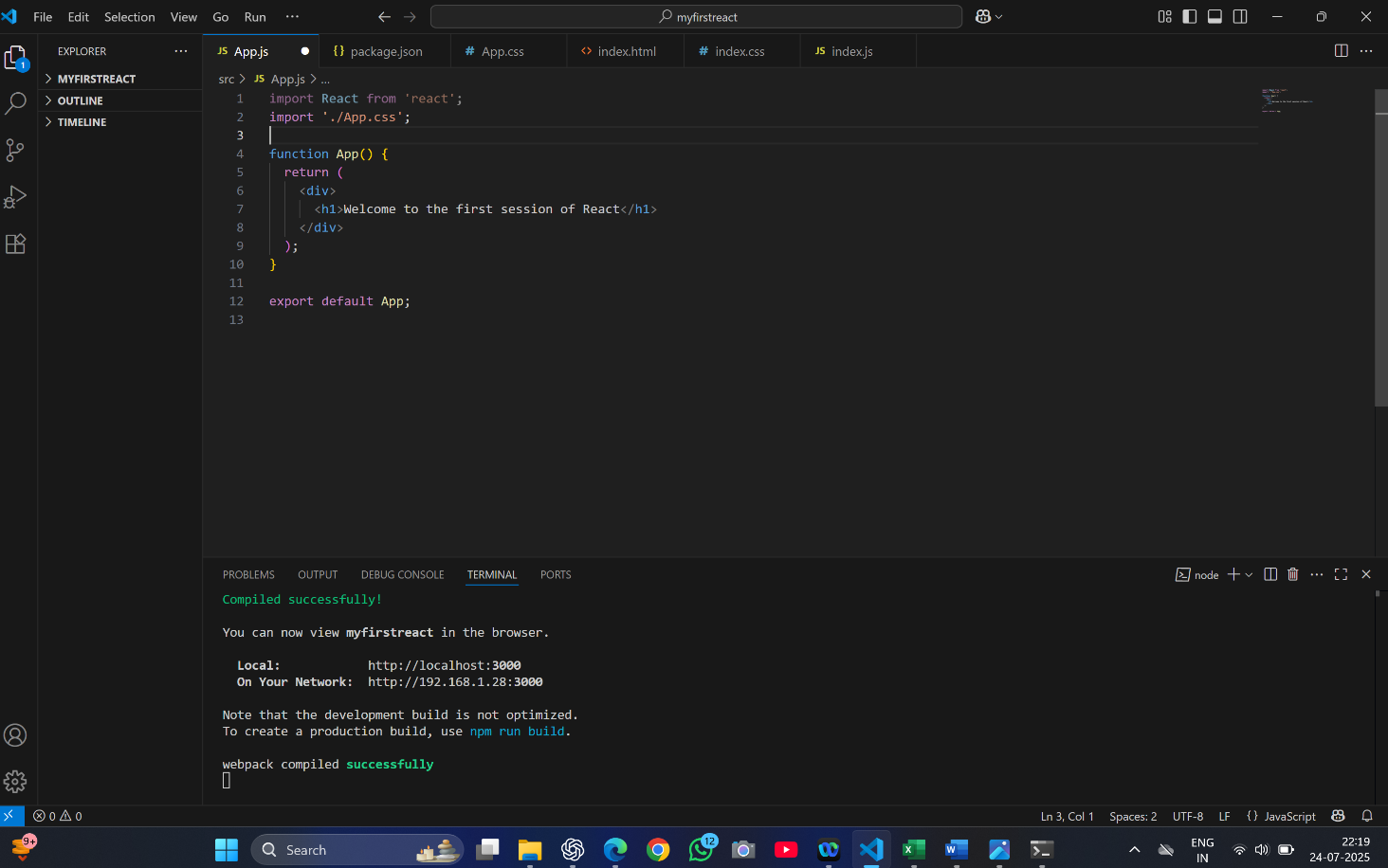
* **Define virtual DOM**

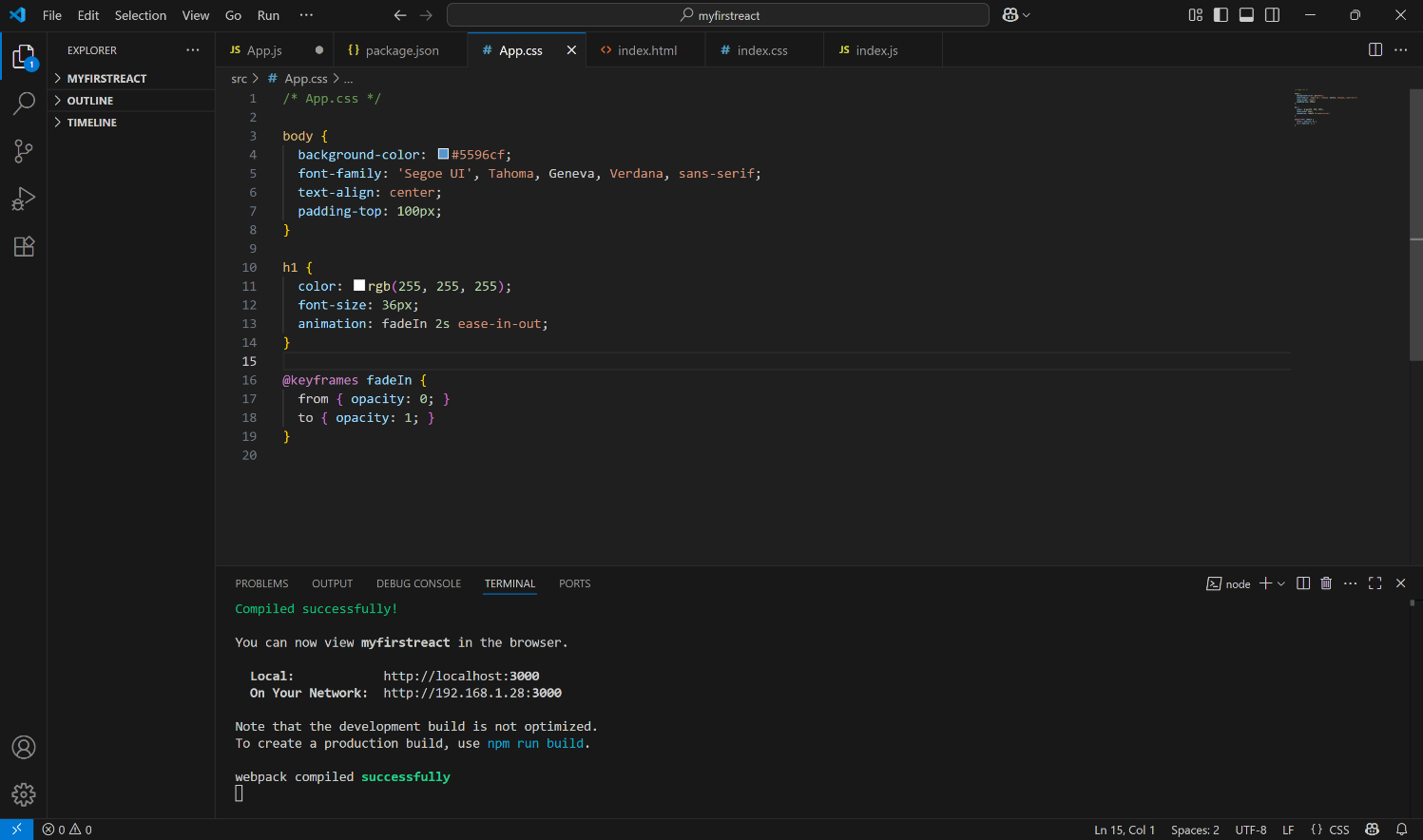
The **virtual DOM** is a lightweight in-memory representation of the real DOM. React uses it to efficiently update the user interface. When a component’s state changes, React updates the virtual DOM first, compares it with the previous version (diffing), and only updates the changed parts in the real DOM, improving performance.

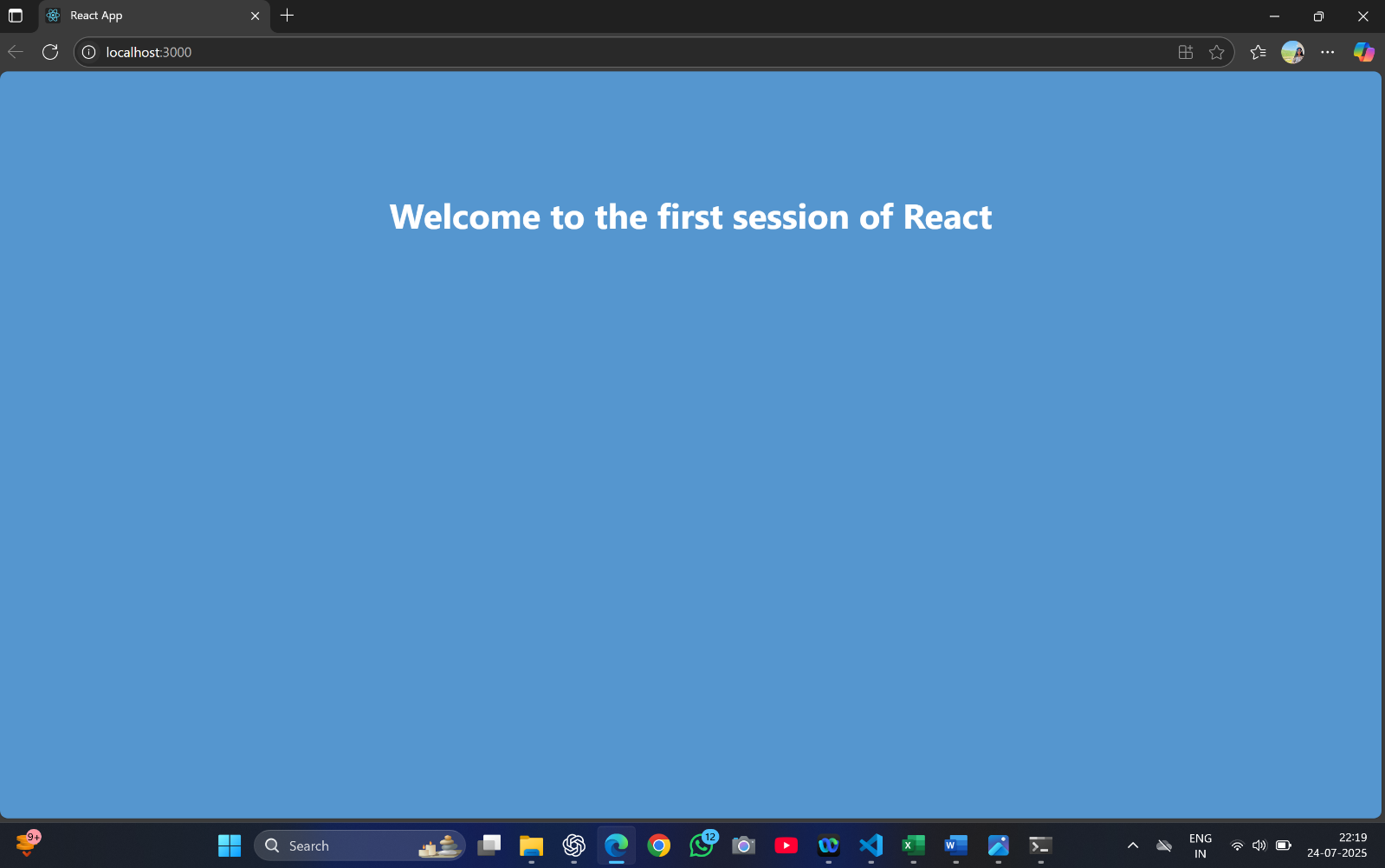
* **Explain Features of React**

Key **features of React** include JSX (a syntax extension for writing HTML in JavaScript), virtual DOM for efficient rendering, component-based architecture, unidirectional data flow, and the use of hooks in functional components. React also supports performance optimization and integration with routing and state management tools.

**Create a new React Application with the name “myfirstreact”, Run the application to print “welcome to the first session of React” as heading of that page.**

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