**REACT EXERCISE 1**

1. **What is SPA and its benefits?**

**Ans.** SPA (Single Page Application) is a web application that initially loads an HTML page and dynamically updates it without reloading the entire page. Only the required content is updated each time there is a user interaction.

Its benefits are:

1. Faster navigation
2. Better performance once loaded
3. Smoother user experience (like native apps); mobile friendly apps
4. Minimized server load
5. Real-time updates
6. **Define React and Identify its working.**

**Ans**. React is a JavaScript library built by Meta for building user interfaces, especially for SPAs.

Its working:

1. Breaks UI into reusable components
2. Uses a virtual DOM to track changes
3. Updates only the changed parts of the page in the real DOM
4. Uses JSX(JavaScript + XML) to write UI in HTML-like syntax
5. **Difference between SPA and MPA**

**Ans**. SPA:

1. No page reload(AJAX-based updates)
2. Faster after first load
3. Client side routing
4. Initial load time is slightly longer
5. Best for dashboards, social apps

MPA (Multi Page Applications):

1. Each navigation causes page reload
2. It is slower due to full page reloads
3. Routing handled by server
4. Initial load time is usually faster
5. Best for E-commerce, SEO-heavy websites
6. **SPA Pros and Cons**

**Ans**. Pros:

1. Dynamic interaction
2. Reusable components
3. Rich UI
4. Minimized server loads

Cons:

1. Search engine optimization is difficult(JS-heavy content)
2. Initial load can be heavy
3. Limited browser support
4. Heavily dependent on JS

**Q5. Explain about React**

**Ans**: React is a library, not a framework. It is used to build dynamic UI and emphasizes component-based architecture. It uses one-way binding(data flows in a single direction). It uses JSX which allows one to write HTML-like content in JavaScript.

**Q6. Define virtual DOM.**

**Ans**. Virtual DOM is a lightweight copy of real DOM. It is created in memory. On any user interaction, React first updates the virtual DOM, then compares old Virtual DOM with the new Virtual DOM. Then proceeds to update only the changed part in the real DOM.

**Q7. Features of react.**

**Ans.** 1. Component-based architecture: Build UI using reusable components

1. Virtual DOM: efficient DOM update
2. JSX: HTML + JS combined
3. One -way binding: unidirectional data flow
4. Handles client side routing
5. Reusable and testable