**Ex 1 :**

1. **What is SPA?**  
   SPA refers to a *Single-Page Application*, where the entire application runs on a single web page. Rather than requesting new HTML pages from the server, it dynamically updates content using JavaScript, leading to smoother navigation.

**Advantages of SPA:**

* Seamless user experience with faster navigation
* Reduced server load and bandwidth usage
* Easily adaptable for mobile platforms (via tools like React Native)

1. **What is MPA?**  
   MPA means *Multi-Page Application*. Every user action in an MPA leads to a full-page refresh by fetching new HTML from the server.

**SPA vs MPA Comparison:**

| **Feature** | **SPA** | **MPA** |
| --- | --- | --- |
| Page Reloading | Not required | Required for each request |
| Speed | Fast (after initial load) | Slower due to page reloads |
| SEO Capability | Limited | Strong |
| Examples | Gmail, Instagram | Amazon, Flipkart |

1. **What is React?**  
   React is a widely-used JavaScript library developed by Meta (Facebook) to build interactive user interfaces, especially SPAs. It promotes a component-based architecture for creating reusable UI pieces.
2. **What is the Virtual DOM?**  
   The Virtual DOM is an in-memory representation of the real DOM. React utilizes it to detect changes efficiently and update only the affected parts of the actual DOM — improving performance.

**Benefits of Virtual DOM:**

* Fast UI updates
* Reduced direct DOM access
* Optimized performance

1. **Key Features of React:**

* Modular, **component-based** structure
* Efficient rendering via **Virtual DOM**
* Clean and readable **declarative syntax**
* One-way **data binding**
* Integration of **JSX** (JavaScript + XML)

**Code:**

function App() {

return (

<div style={{ display: 'flex', justifyContent: 'center', alignItems: 'center', height: '100vh' }}>

<h1>Welcome to React Learning Session</h1>

</div>

);

}

export default App

**Output** :

