## **Objectives**

* Define SPA and its benefits

Single Page Application (SPA) has become a popular design pattern for building fast, interactive, and seamless user experiences. Unlike traditional web applications that reload entire pages upon interaction, SPAs dynamically load content without refreshing the page. This creates a smoother, more fluid experience for users.

* Define React and identify its working

React is a JavaScript library developed by Meta (formerly Facebook) for building user interfaces, especially single-page applications (SPAs).It helps developers build interactive, fast, and modular UIs using components.

* Identify the differences between SPA and MPA

A Single Page Application (SPA) is a web application that loads a single HTML page and dynamically updates content as the user interacts with the app. This means that when navigating between pages, only specific portions of the page are updated without reloading the entire page from the server. Technologies like React, Angular, and Vue.js are commonly used to build SPAs, offering faster user experiences and smooth transitions.

A Multi-Page Application (MPA) reloads the entire web page from the server every time the user navigates to a different page. Each route or view in an MPA corresponds to a separate HTML file, and page transitions often involve full-page refreshes. MPAs are traditional web apps and are more suitable for large-scale enterprise applications with complex navigation or SEO requirements.

* Explain Pros & Cons of Single-Page Application

Pros: Fast user experience

Smooth navigation

Efficient client-side rendering

Cons: Poor SEO

Initial load time can be high

JavaScript dependency

* Explain about React

React is an open-source JavaScript library developed by Meta (formerly Facebook) for building user interfaces, particularly for Single Page Applications (SPAs). It allows developers to create reusable UI components that manage their own state and render dynamically when data changes.

* Define virtual DOM

The Virtual DOM (V-DOM) is a lightweight, in-memory representation of the real DOM used by libraries like React to optimize and speed up UI updates.

* Explain Features of React

Features: Component based architecture

Virtual DOM

Declarative UI

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.

**OUTPUT:**

