**1. ReactJS-HOL**

**✅ Define SPA and its Benefits**

**SPA (Single Page Application):  
A web application that dynamically rewrites the current page with new data from the web server, instead of loading entire new pages.**

**Benefits:**

* **Faster user experience (no full page reloads).**
* **Seamless navigation.**
* **Better performance after the initial load.**
* **Easier to turn into a mobile app.**

**✅ Define React and Identify Its Working**

**React:  
A JavaScript library for building user interfaces, maintained by Facebook.**

**How It Works:**

* **Uses components (independent pieces of UI).**
* **Utilizes a Virtual DOM to detect changes and update only necessary parts of the real DOM.**

**✅ Identify Differences Between SPA and MPA**

| **SPA (Single Page App)** | **MPA (Multi Page App)** |
| --- | --- |
| **Loads a single HTML file** | **Each page has its own HTML file** |
| **Faster navigation** | **Slower navigation (full reloads)** |
| **Uses AJAX/JavaScript** | **Server loads new content per page** |
| **Example: Gmail, Facebook** | **Example: Amazon, LinkedIn** |

**✅ Explain Pros & Cons of SPA**

**Pros:**

* **Fast and responsive.**
* **Reduced server load.**
* **Better user experience.**

**Cons:**

* **SEO limitations (less content for crawlers).**
* **Initial load can be heavy.**
* **Browser back button issues unless handled.**

**✅ Explain About React**

* **A JavaScript library to build fast, dynamic, and modular user interfaces.**
* **Based on components, JSX, props, state, and lifecycle methods.**

**✅ Define Virtual DOM**

* **A lightweight copy of the real DOM kept in memory.**
* **React compares old and new virtual DOMs using diffing and then updates only the changed parts in the real DOM (reconciliation).**

**✅ Features of React**

* **Component-Based Architecture**
* **Virtual DOM**
* **One-way Data Binding**
* **JSX (JavaScript XML)**
* **Performance Optimization**
* **Developer Tools (React DevTools)**

Task-1

import React from 'react';

function App() {

  return (

    <div>

      <h1>Welcome to the first session of React</h1>

    </div>

  );

}

export default App;



