Homework

task: 1 What is react? & react uses

→ React is an open-source JavaScript library developed by Facebook for building user interfaces (UIs), particularly for single-page applications (SPAs) where you need a fast, interactive experience without constantly reloading the page.

- React in detail :-
- Library for UI : React focuses only on the view layer of an application (in the MVC architecture - Model, View, Controller).

- Component-Based : UIs are built using components, which are small, reusuable pieces of code that return React elements (usually JSX)

- Declarative Syntax: You describe what the UI should look like, and React handles the DOM updates when data changes.

- JSX (JavaScript XML) : React uses JSX, which looks like HTML but works inside Javascript.

- Virtual DOM : React uses a virtual DOM to effiently update the browser's actual DOM, which improves performance.

- key Concepts:

- Component : A self-contained module that renders UI. Can be functional or class-based.
- Props : Short for "properties". Used for passing data from parent to child components.
- State : Local data storage in a component that can change over time.

- Hooks: Special functions like useState, useEffect to manage state & lifecycle in functional components
- JSX: Syntax extension for Javascript that allows writing HTML-like code inside Javascript
- Virtual DOM: A lightweight copy of the real DOM. React updates only what's needed for better performance.

- Uses of React :-

1. Building Single-Page Applications (SPAs)
   React is ideal for SPAs where you need fast navigation without reloading pages. It dynamically updates the UI based on changes in data.

2. Reusable Components - React allows you to create reusable UI components - think buttons, form fields, cards, headers, etc. This encourages consistency & maintainability.

3. Dynamic Web Interfaces - React excels at managing dynamic, data-driven interfaces. For examples, in dashboards, social media feeds, & live content updates.

4. Mobile App Development - Using React Native, you can build native mobile apps for Android & ios using React's architect - ure.

5. E-commerce Sites - React is used in e-commerce for creating smooth, dynamic product pages, carts & checkouts (e.g, Amazon, Shopify, flipkart).

6. SEO-Friendly Websites - Using Next.js (a React framework), developers can build server-side rendered applications that are SEO-optimized.

7. Real-time Applications - React can be combined with tools like socket.IO to build chat apps, live data dashboards, & notifications.

8. Progressive Web Apps - React is used to build PWAs that behave like native apps with offline access, push notifications, etc.

- Popular Companies Using React:-
- Facebook (creator of React)
- Instagram
- WhatsApp Web
- Netflix
- Airbnb
- Uber
- Twitter
- Dropbox