IP Workshop Manual

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- GitHub link for the IP-Workshop Repository:
  https://github.com/NinadWalke/ip-workshop

Commands

1. Create React App: npx create-react-app frontend
2. Create Vite React: npm create vite@latest
3. Install Axios for Frontend: npm install axios
4. Install Backend Dependencies: npm install nodemon express cors body-parser

Links

1. NodeJS: *https://nodejs.org/en/download*
2. VSCode: *https://code.visualstudio.com/docs/?dv=win64user*

Theory

1. Features of React.js:

- **Virtual DOM** – React uses a virtual representation of the DOM to optimize updates. Instead of re-rendering the entire UI, it only updates the parts that changed, improving performance.
- **Component-Based Architecture** – UI is built using reusable, self-contained components. This makes code modular, easier to maintain, and encourages reusability.
- **JSX (JavaScript XML)** – React allows writing HTML-like syntax directly in JavaScript, which makes the code more readable and easier to understand.
- **One-Way Data Binding** – Data flows in a single direction from parent to child components, making the app more predictable and easier to debug.
- **Declarative UI** – You describe *what* the UI should look like for a given state and React handles the rendering. This reduces bugs and makes UI logic easier to follow.
- **React Hooks** – Functional components can use state and other React features without writing class components, making code simpler and more modern.