🌐 What is the React Environment?

The **React development environment** is the setup that lets you write, run, and build React applications smoothly.

It includes:

Tool/Feature	Purpose
Node.js	Allows running JavaScript outside the browser
npm / yarn	Package manager to install React and dependencies
Webpack / Vite	Bundles your code (used behind the scenes)
Babel	Converts JSX and ES6+ to browser-compatible JS
React Scripts	Provides default build, run, and test scripts
JSX	HTML-like syntax for writing UI in JavaScript
Browser / Dev Tools	Where your app runs and can be debugged

⚙️ Tools Used in React Environment

✅ Node.js

- Required to run JavaScript tools outside the browser.
- Must be installed before you can use React CLI tools.

✅ npm (or yarn)

- Manages all dependencies (React, React DOM, libraries, etc.)
- Comes installed with Node.js.

✅ Create React App (CRA) — *[Easy Starter]*

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```bash
npx create-react-app my-app cd my-app npm start
```

- Sets up everything for you: Babel, Webpack, ESLint, file structure, etc.
- Great for beginners.

✅ Vite — *[Faster Alternative]*

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```bash
npm create vite@latest my-app --template react cd my-app npm install npm run dev
```

- Lightweight and super fast.
- Great for newer React projects.

🧠 React Project Folder Structure (Basic)

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```pgsql
my-app/
├── public/
│   └── index.html         ← HTML shell
├── src/
│   ├── App.js             ← Main app component
│   ├── index.js           ← App entry point
│   └── components/        ← Your custom React components
├── package.json           ← Lists dependencies & scripts
└── node_modules/          ← Installed packages (auto-managed)
```

🖥️ Development Commands

Command	What it Does
npm start	Runs the app in dev mode
npm run build	Builds for production
npm test	Runs tests (if any)

Command	What it Does
`npm install`	Installs dependencies

✳️ JSX, Babel & Webpack

- **JSX**: HTML-like syntax that React converts into JavaScript.
- **Babel**: Converts JSX + ES6 into regular JavaScript.
- **Webpack**: Bundles all your files together into one package to be served in the browser.

✅ Summary

Tool	Role
Node.js	Runs JavaScript outside browser
npm / yarn	Installs React & packages
Babel	Converts JSX to JavaScript
Webpack/Vite	Bundles your code
Create React App	Easiest way to start React
Vite	Lightweight modern setup