

1. What is React.js?

Definition:

- **React** is an open-source **JavaScript library** developed by **Facebook**.
- It's used for **building user interfaces**, especially for **single-page applications (SPAs)**.
- React focuses on the **view layer** in the **MVC** (Model-View-Controller) architecture.

Key Features:


- **Component-Based**: Build encapsulated components that manage their own state.
- **Declarative**: Describe what you want to show, React handles the rest.
- **Virtual DOM**: Optimizes updates and rendering.
- **Reusable Code**: Modular and maintainable structure.

Real-World Examples:

- Facebook News Feed
- Instagram Web App
- Netflix Web Interface
- Airbnb dashboard

2. Prerequisites & Tools to Work with React

Required Software:

Tool	Description	
Node.js	JavaScript runtime environment to run and build React apps	
npm (Node Package Manager)	Comes with Node.js. Used to install packages	
VS Code	Recommended code editor	
Browser (Chrome)	To run and debug the app	
Git	For version control (optional but recommended)	

Install Node & npm:

- Download from <https://nodejs.org>
- After installation, open terminal and check:

```
bash
```

```
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```
node -v
```

```
npm -v
```

📌 3. Setting Up the React Environment

✓ Using `create-react-app`:

```
bash                                                                    Copy Edit

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

- `npx`: Executes a package without installing it globally.
- `create-react-app`: Tool that sets up a React project with zero config.
- `npm start`: Runs the development server.

📁 Folder Structure Overview:

```
pgsql                                                                    Copy Edit

my-first-app/
├─ node_modules/
├─ public/
├─ src/
│  └─ App.js
│    └─ index.js
└─ package.json
```

📌 4. Terminal / CLI Basics for React Developers

Command	Purpose
<code>cd foldername</code>	Navigate into a folder
<code>mkdir foldername</code>	Create a new folder
<code>npm start</code>	Start development server
<code>npm run build</code>	Create optimized production build
<code>npm install package-name</code>	Install additional npm package
<code>code .</code>	Open current folder in VS Code (if configured)

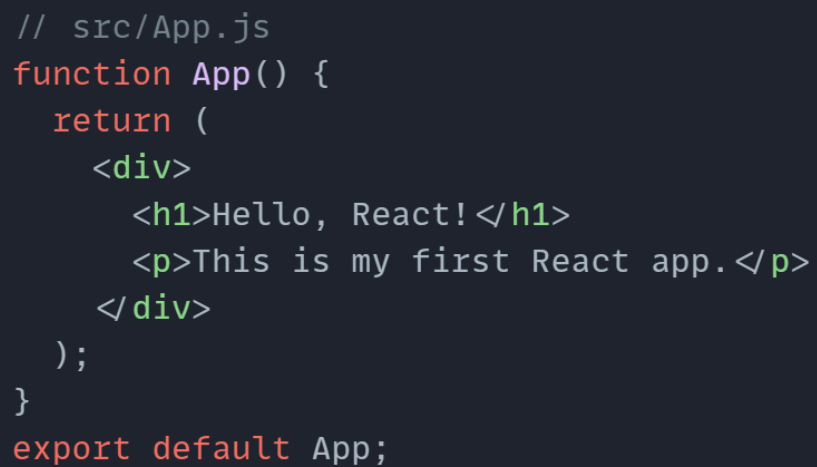
5. MVC Frameworks vs React

✓ Short Explanation:

- MVC stands for **Model-View-Controller**.
 - **Model** – Manages data
 - **View** – Displays data (UI)
 - **Controller** – Handles input and business logic
- React focuses only on the **View layer**, and it **can integrate with MVC frameworks**.

✓ Iterating React into MVC:

- Example: Using **React as frontend** and **Laravel/Express/Django** as backend
- React handles the UI (View), and backend handles Models and Controllers



```
// src/App.js
function App() {
  return (
    <div>
      <h1>Hello, React!</h1>
      <p>This is my first React app.</p>
    </div>
  );
}
export default App;
```