

# Day 1: Introduction to React.js

Today, you'll set up your environment, understand the basics of React, and create your first React app.

---

## 1 What is React.js?

**React.js** is a **JavaScript library** for building **user interfaces**. It was developed by **Facebook (Meta)** and is widely used for creating single-page applications (SPAs).

### Why Use React?

- ✅ **Component-Based Architecture** – Break UI into reusable components
- ✅ **Virtual DOM** – Efficient rendering for better performance
- ✅ **Declarative Syntax** – Easier to read and debug
- ✅ **Strong Community & Ecosystem** – Many libraries and tools available

### 🔴 Real-World Examples

- **Facebook, Instagram, Netflix, Airbnb** all use React

---

## 2 Setting Up the Development Environment

You need **Node.js** and **npm** to run React.

### ◇ Install Node.js & npm

Download and install **Node.js (LTS version)** from:

👉 <https://nodejs.org/>

After installation, check the versions:

```
node -v
```

```
npm -v
```

---

## 3 Creating a New React App

### Method 1: Using Vite (Recommended)

Vite is **faster** than Create React App.

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

Visit **http://localhost:5173** in your browser.

---

### Method 2: Using Create React App (Slower)

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

Visit **http://localhost:3000** in your browser.

---

## 4 Understanding JSX & Virtual DOM

### What is JSX?

JSX (**J**ava**S**cript **X**ML) allows writing HTML-like syntax inside JavaScript.

#### Example JSX Code:

```
const element = <h1>Hello, React!</h1>;
```

JSX is converted into **JavaScript**:

```
const element = React.createElement('h1', null, 'Hello, React!');
```

✅ **JSX makes React code easier to read and write!**

---

### What is the Virtual DOM?

Instead of updating the real DOM directly, React uses a **Virtual DOM** (a lightweight copy of the real DOM) to update only the necessary parts.

✅ **Improves performance**

---

## 5 Creating Your First React Component

### Modify App.jsx

Inside src/App.jsx, update the file:

```
function App() {  
  return (  
    <div>  
      <h1>Hello, React!</h1>  
      <p>My first React component</p>  
    </div>  
  );  
}  
  
export default App;
```

---

## 6 Hands-on Exercise: Create a Simple React Component

Create a **new file** inside src/components/ folder named Welcome.jsx.

```
function Welcome() {  
  return <h2>Welcome to my first React project!</h2>;  
}  
  
export default Welcome;
```

Now **import** and use it inside App.jsx:

```
import Welcome from "../components/Welcome";  
  
function App() {  
  return (  
    <div>  
      <h1>Hello, React!</h1>  
      <Welcome />  
    </div>  
  );  
}  
  
export default App;
```

✅ Your first reusable component is ready!

---

## Running the App


- Open the terminal and start the server:

```
npm run dev    # For Vite  
npm start     # For Create React App
```

- Open **http://localhost:5173** (Vite) or **http://localhost:3000** (CRA)
- 

### Summary of Day 1

- ✓ Installed Node.js & npm
  - ✓ Set up a React project using Vite
  - ✓ Learned JSX and Virtual DOM
  - ✓ Created your first React component
  - ✓ Ran the project successfully
- 

 **Next Step: Day 2 - Components & Props**