Creating a React Application

Node.js and npm, creating a new project with Vite, project structure, package.json, npm run dev, and the difference between development and production.

Beginner 10 min

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Creating a React Application

In "What Is React?" we saw what React actually is. In this lesson, we'll look at how to create a real React project on your computer. We still won't write any React code -- we're just learning how to set up and run a project. We'll start writing code in the "JSX" lesson.

What Are Node.js and npm?

React projects run on your computer first (during development), not just in the browser. For that you need **Node.js** -- a program that lets you run JavaScript outside the browser.

Node.js comes bundled with **npm** (Node Package Manager). npm lets you add ready-made code packages ("libraries") written by other people to your project -- React itself is one such package.

```
node --version
npm --version
```

These two commands show whether Node.js and npm are installed on your computer, and which version.

Creating a New Project with Vite

The easiest way to start a new React project is with **Vite**. Vite sets up the project for you and runs fast during development.

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

- The first line creates a new React project named `my-first-app`.
- The second line moves into that folder.
- The third line downloads all the packages the project needs.

> An older tool called "Create React App" (CRA) used to be the standard way to do this. CRA is no longer maintained -- Vite is the right choice for a new project today.

Project Structure

Once `npm create vite` finishes, you'll see a folder structure like this:

```
my-first-app/
├── node_modules/     (all downloaded packages live here -- you never touch this)
├── public/           (files copied as-is, e.g. a favicon)
├── src/
│   ├── App.jsx       (the app's main component)
│   └── main.jsx       (the file where the app starts)
├── index.html         (the single HTML file the browser opens)
└── package.json       (the project's name, dependencies, and commands)
```

You'll spend most of your time in the `src/` folder -- that's where you'll write your own components.

What Is package.json?

`package.json` is like a React project's "ID card." It lists the project's name, which packages it needs, and which commands it can run:

```
{
  "name": "my-first-app",
  "scripts": {
    "dev": "vite",
    "build": "vite build"
  },
  "dependencies": {
    "react": "^19.0.0",
    "react-dom": "^19.0.0"
  }
}
```

The `react` and `react-dom` entries under `dependencies` are the two core packages the project downloads to be able to use React. The `dev` and `build` entries under `scripts` are shortcuts for the commands we'll see below.

Running the App: npm run dev

Once the project is set up, start the development server with:

```
npm run dev
```

This prints an address in the terminal (usually `http://localhost:5173`). Open that address in your browser to see your React app. When you change something in `src/App.jsx`, the browser updates **automatically** -- you never need to refresh it by hand.

Development vs. Production

The version you run with `npm run dev` is the **development** version -- it includes features that make development easier, like instant reloads, but it isn't meant for real users (it's larger and slower).

When your app is ready for real users:

```
npm run build
```

This creates a `dist/` folder -- minified files, fast to load, ready for **production**. We'll return to "production" and "deployment" with a real example later in this course.

Summary and Glossary

Setting up a React project needs Node.js/npm; you create the project with Vite; `npm run dev` runs it during development; `npm run build` prepares it for production.

Glossary

Node.js — A program that lets you run JavaScript outside the browser.

npm (Node Package Manager) — A tool for adding ready-made code packages to your project.

Vite — A tool for creating a new React project and running it fast during development.

`package.json` — The file that lists a project's name, dependencies, and commands.

Development — The mode you use while writing code -- fast, but not optimized.

Production — The minified, optimized version served to real users.