

Lab 1: Create a React Application

Step 1: Setting Up the Basic React App

1. **Install Node.js and npm:** Make sure you have Node.js and npm installed. You can download them from nodejs.org.
2. **Create a React App:** Use the create-react-app command to set up a new React project. Open your terminal and run:

```
npx create-react-app my-app
```

3. `cd my-app`

Step 2: Exploring the File Structure

After the setup is complete, you'll have a directory structure that looks something like this:

```
my-app
├── node_modules
├── public
│   ├── favicon.ico
│   ├── index.html
│   ├── logo192.png
│   ├── logo512.png
│   ├── manifest.json
│   └── robots.txt
├── src
│   ├── App.css
│   ├── App.js
│   ├── App.test.js
│   ├── index.css
│   ├── index.js
│   ├── logo.svg
│   └── reportWebVitals.js
├── .gitignore
└── package.json
```

├── README.md
└── yarn.lock / package-lock.json

Step 3: Understanding Each File and Directory

1. `node_modules`

- **Purpose:** Contains all the `npm` packages and dependencies required by your React app.
- **Details:** This folder is automatically created when you run `npm install` and you typically don't need to interact with it directly.

2. `public`

- **Purpose:** Holds static assets that will be served directly without processing by Webpack.
- **Key Files:**
 - `index.html`: The main HTML file that gets served. It includes a `<div id="root"></div>` where your React app will be injected.
 - `favicon.ico`: The favicon for your app.
 - `manifest.json`: Used for configuring how your app behaves when installed on a device or served as a Progressive Web App (PWA).
 - `robots.txt`: Instructs web crawlers how to interact with your site.

3. `src`

- **Purpose:** Contains the React components and the main code for your application.
- **Key Files:**
 - `App.js`: The main React component, usually the root of your component tree.
 - `App.css`: Styling specific to the App component.
 - `App.test.js`: Contains tests for the App component using Jest.
 - `index.js`: The entry point of your React application. This file renders the App component into the DOM.

- `index.css`: Global styles for your application.
- `logo.svg`: A React component that displays a logo, used in `App.js`.
- `reportWebVitals.js`: Used for measuring performance in your app.

4. Root Files

- **Purpose:** Configuration and meta-information about your project.
- **Key Files:**
 - `.gitignore`: Specifies files and directories that should be ignored by Git.
 - `package.json`: Lists the dependencies, scripts, and metadata for your project.
 - `README.md`: Contains basic information about your project.
 - `yarn.lock` or `package-lock.json`: Ensures that the exact same versions of dependencies are installed every time.