



Difference between Node.js and React.js

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Node.js: Node.js is an open-source and cross-platform runtime environment for executing [JavaScript](#) code outside a browser. You need to remember that **NodeJS is not a framework and it's not a programming language**. Most people are confused and understand it's a framework or a programming language. We often use Node.js for building back-end services like APIs like Web App or Mobile App.

Features of Node.js: There are other programming languages also that we can use to build back-end services so what makes Node.js different I am going to explain.

1. It's easy to get started and can be used for prototyping and agile development
2. It provides fast and highly scalable services
3. It uses JavaScript everywhere so it's easy for a JavaScript programmer to build back-end services using Node.js
4. Source code cleaner and consistent.
5. Large ecosystem for open source library.
6. It has an Asynchronous or Non-blocking nature.

Code: Here is an example of how to include the HTTP module to build the server.

Filename: App.js

Javascript

```
var http = require('http');

// Create a server object:
http.createServer(function (req, res) {

    // Write a response to the client
    res.write('GeeksforGeeks');

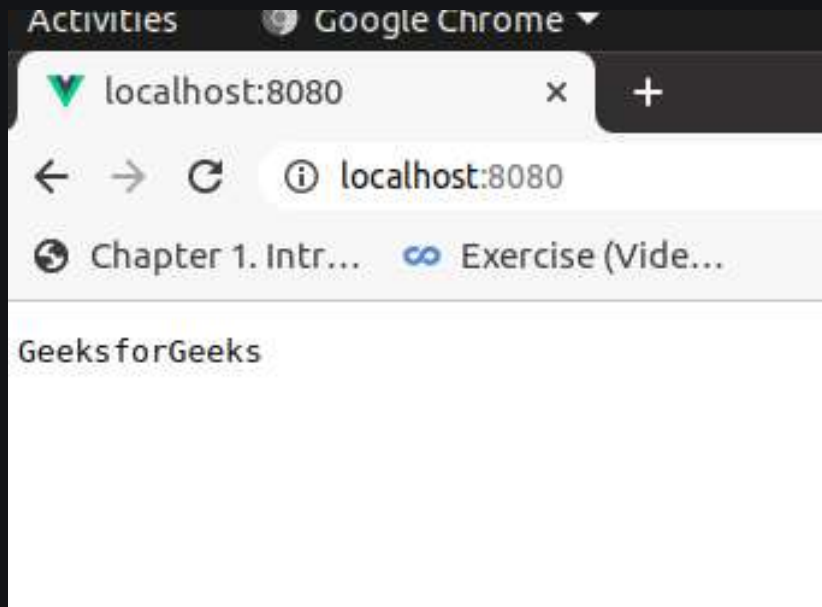
    // End the response
    res.end();

// The server object listens on port 8080
}).listen(8080);
```

Output: For compiling the nodejs file go to terminal and follow the command:

```
node foldername.js
```

Now, open the localhost:8080 in your browser to see the output



ReactJS: It is an open-source JavaScript library for building single-page user interfaces. It is declarative, efficient, flexible, and allows us to create reusable UI components, it used as a base in single-page, complex, interactive web projects, and react components are difficult to reuse. The virtual DOM algorithm of React

HTML. Components can be nested within other components to allow complex applications to be built out of simple building blocks.

Features of React.js: Here are some features that make React.js different from other programming languages:

- React components have reusable codes that make it simple to use and learn.
- React library has JSX (JavaScript XML), which is HTML like syntax, which is processed into JavaScript calls.
- React components are reusable which helps while working on larger scale projects and has their own logic and controls.
- One-way data binding provides better control throughout the application.
- The virtual DOM uses the **ReactDOM** library which ideally/virtually, represents UI and keeps in the memory and syncs with the real DOM.
- DOM has a smoother and faster performance due to virtual components.

Create a react app project and edit the **App.js** file in src folder as:

FilePath:- src/App.js:

Javascript

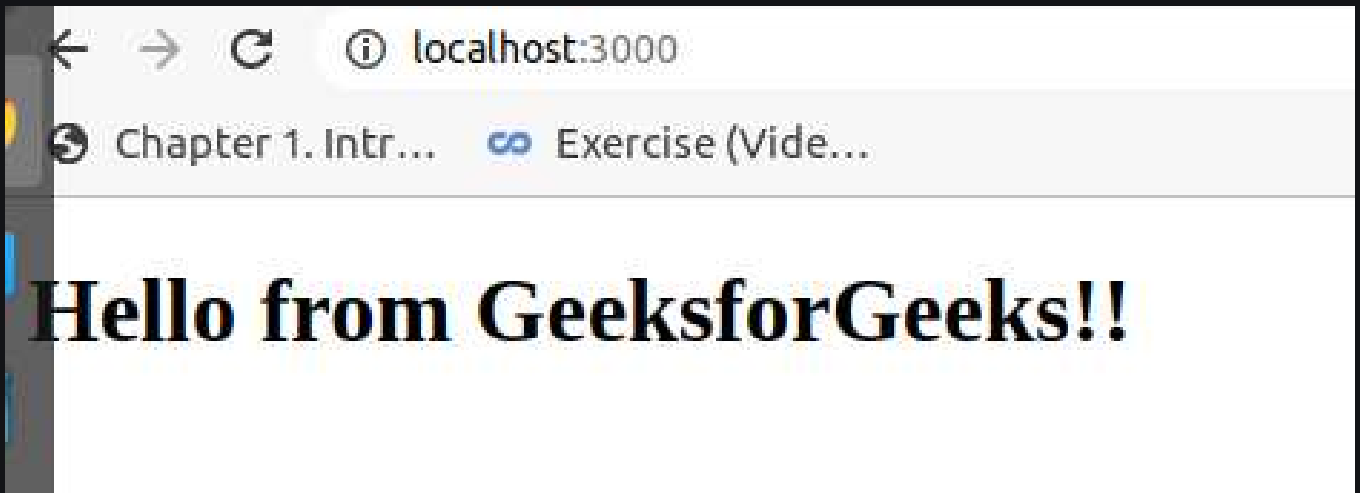
```
import React, { Component } from 'react';

class App extends Component {

  render() {
    return (
      <div className="App">
        <>
          <h1>Hello from GeeksforGeeks!!</h1>
        </>
      </div>
    );
  }
}

export default App;
```

Output:



Difference between Node.js and React.js:

Node.js	React.js
Node.js used as a back-end framework	React is used for developing user interfaces.
It supports the Model-view-controller (MVC) framework.	Does not support the Model-view-controller (MVC) framework.
It runs on chrome's v8 engine and uses an event-driven, non-blocking I/O model, which is written in C++.	It uses Node.js to compile and optimize the JavaScript code and easy to create UI Test cases.
Node.js handles requests and authentication from the browser, make database calls, etc.	It makes API calls and processes in-browser data.
Here the Real-time data streaming is handled easily.	In React complex architecture makes it hard to keep track of the traditional approach.

Node.js

Framework for JavaScript execution having the largest ecosystem of open source libraries.

The language used is only JavaScript.

There is no DOM (Document Object Model) concept that is Used.

It is easy to write microservices in Node.Js

It is highly scalable.

It has a simple architecture.

React.js

Facebook-backed Open Source JS library.

The language used is JSX and JavaScript.

Here the Virtual DOM (Document Object Model) is Used that makes it faster.

Microservices are difficult to be written in React.Js

Scalability is still a challenge.

It has a complex architecture.

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 A-143, 9th Floor, Sovereign Corporate Tower,
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