Node.js

Node.js is a JavaScript runtime built on Chrome's V8 JavaScript engine. Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on a JavaScript Engine and executes JavaScript code outside a web browser, which was designed to build scalable network applications.

Functionality

Node.js is primarily used for non-blocking, event-driven servers, due to its single-threaded nature. It's used for traditional web sites and back-end API services, but was designed with real-time, push-based architectures in mind. The non-blocking methods execute asynchronously, allowing for higher throughput of operations.

It is faster in comparison to Python because of its use of JavaScript, and can be used on both the front-end and back-end. It's also easy to build a web server using Node.js.

Concurrency

JavaScript execution in Node.js is single threaded, so concurrency allows the event loop's capacity to execute JavaScript callback functions after completing other work. Any code that is expected to run in a concurrent manner must allow the event loop to continue running as non-JavaScript operations, like I/O, are occurring.

It’s important to pay attention to the order of operations when dealing with non-blocking functions. If a non-blocking operation could be waiting for a parameter such as in I/O, there can’t be a following function that edits or removes that parameter before it can be dealt wwith by the non-blocking operation.