It is used to develop I/O intensive web applications like video streaming sites, single-page applications, and other web applications.

Node.js is an open-source and cross-platform JavaScript runtime environment. It is a popular tool for almost any kind of project!

Node.js is completely free and used by thousands of developers around the world.

A single language for both frontend and backend.

Javascript can be used on the server.

Node.js runs the V8 JavaScript engine, the core of Google Chrome, outside of the browser. This allows Node.js to be very performant.

A Node.js app runs in a single process, without creating a new thread for every request. Node.js provides a set of asynchronous I/O primitives in its standard library that prevent JavaScript code from blocking and generally, libraries in Node.js are written using non-blocking paradigms, making blocking behavior the exception rather than the norm.

When Node.js performs an I/O operation, like reading from the network, accessing a database or the filesystem, instead of blocking the thread and wasting CPU cycles waiting, Node.js will resume the operations when the response comes back.

This allows Node.js to handle thousands of concurrent connections with a single server without introducing the burden of managing thread concurrency, which could be a significant source of bugs.

Node.js has a unique advantage because millions of frontend developers that write JavaScript for the browser are now able to write the server-side code in addition to the client-side code without the need to learn a completely different language.

Node.js has a fantastic [standard library](https://nodejs.org/api/), including first-class support for networking.

res.statusCode = 200

res.setHeader('Content-Type', 'text/plain')

Features of Node.js

Following are some of the important features that make Node.js the first choice of software architects.

* **Asynchronous and Event Driven** − All APIs of Node.js library are asynchronous, that is, non-blocking. It essentially means a Node.js based server never waits for an API to return data. The server moves to the next API after calling it and a notification mechanism of Events of Node.js helps the server to get a response from the previous API call.
* **Very Fast** − Being built on Google Chrome's V8 JavaScript Engine, Node.js library is very fast in code execution.
* **Single Threaded but Highly Scalable** − Node.js uses a single threaded model with event looping. Event mechanism helps the server to respond in a non-blocking way and makes the server highly scalable as opposed to traditional servers which create limited threads to handle requests. Node.js uses a single threaded program and the same program can provide service to a much larger number of requests than traditional servers like Apache HTTP Server.
* **No Buffering** − Node.js applications never buffer any data. These applications simply output the data in chunks.
* **License** − Node.js is released under the [MIT license](https://raw.githubusercontent.com/joyent/node/v0.12.0/LICENSE)

Where to Use Node.js?

Following are the areas where Node.js is proving itself as a perfect technology partner.

* I/O bound Applications
* Data Streaming Applications
* Data Intensive Real-time Applications (DIRT)
* JSON APIs based Applications
* Single Page Applications

http.createServer(function (request, response) {

// Send the HTTP header

// HTTP Status: 200 : OK

// Content Type: text/plain

response.writeHead(200, {'Content-Type': 'text/plain'});

// Send the response body as "Hello World"

response.end('Hello World\n');

}).listen(8081);

var http = require("http");

http.createServer(function (request, response) {

// Send the HTTP header

// HTTP Status: 200 : OK

// Content Type: text/plain

response.writeHead(200, {'Content-Type': 'text/plain'});

// Send the response body as "Hello World"

response.end('Hello World\n');

}).listen(8081);

The REPL feature of Node is very useful in experimenting with Node.js codes and to debug JavaScript codes.

You will see the REPL Command prompt > where you can type any Node.js command −

$ node

>

$ node

> 1 + 3

4

> 1 + ( 2 \* 3 ) - 4

3

>

$ node

> x = 10

10

> var y = 10

undefined

> x + y

20

> console.log("Hello World")

Hello World

undefined

$ node

> var x = 0

undefined

> do {

... x++;

... console.log("x: " + x);

... }

while ( x < 5 );

x: 1

x: 2

x: 3

x: 4

x: 5

### Underscore Variable

You can use underscore **(\_)** to get the last result −

$ node

> var x = 10

undefined

> var y = 20

undefined

> x + y

30

> var sum = \_

undefined

> console.log(sum)

30

## REPL Commands

* **ctrl + c** − terminate the current command.
* **ctrl + c twice** − terminate the Node REPL.
* **ctrl + d** − terminate the Node REPL.
* **Up/Down Keys** − see command history and modify previous commands.
* **tab Keys** − list of current commands.
* **.help** − list of all commands.
* **.break** − exit from multiline expression.
* **.clear** − exit from multiline expression.
* **.save filename − save the current Node REPL session to a file.**
* **.load filename − load file content in current Node REPL session.**