# Why Node.js is single threaded?

Node.js uses a single threaded model in order to support async processing. With async processing, an application can perform better and is more scalable under web loads. Thus, Node.js makes use of a [single-threaded model](https://www.edureka.co/blog/nodejs-tutorial/#nodearchitecture) approach rather than typical thread-based implementation.

# **How do Node.js works?**

Node.js is a virtual machine that uses JavaScript as its scripting language and runs on a v8 environment. It works on a single-threaded event loop and a non-blocking I/O which provides high rate as it can handle a higher number of concurrent requests. Also, by making use of the [‘HTTP’ module](https://www.edureka.co/blog/nodejs-tutorial/#http), Node.js can run on any stand-alone web server.

# **How many types of API functions are there in Node.js?**

There are two types of API functions in Node.js:

* Asynchronous, non-blocking functions
* Synchronous, blocking functions

# **What is an error-first callback in Node.js?**

Error-first callbacks in Node.js are used to pass errors and data. The very first parameter you need to pass to these functions has to be an error object while the other parameters represent the associated data. Thus you can pass the error object for checking if anything is wrong and handle it. In case there is no issue, you can just go ahead and with the subsequent arguments.

var myPost = new Post({title: 'edureka'});

myPost.save(function(err,myInstance){

if(err){

//handle error and return

}

//go ahead with `myInstance`

});

# **Explain the purpose of module.exports?**

A module in Node.js is used to encapsulate all the related codes into a single unit of code which can be interpreted by shifting all related functions into a single file. For example, suppose you have a file called greet.js that contains the two functions as shown below:

module.exports = {

greetInHindi: function(){

return "NAMASTE";

},

greetInKorean: function(){

return "ANNYEONGHASEYO";

}};

As you can see module.exports provide two functions which can be imported in another file using below code:

var eduGreets = require ("./greet.js");

eduGreets.greetInHindi() //NAMASTE

eduGreets.greetInKorean() //ANNYEONGHASEYO

# **List down the major security implementations within Node.js?**

Major security implementations in Node.js are:

* Authentications
* Error Handling

# **Explain the concept of middleware in Node.js?**

In general, middleware is a function receives the Request and Response objects. In other words, in an application’s request-response cycle these functions have access to various request &  response objects along with the next function of the cycle. The next function of middleware is represented with the help of a variable, usually named next. Most commonly performed tasks by the middleware functions are:

* Execute any type of code
* Update or modify the request and the response objects
* Finish the request-response cycle
* Invoke the next middleware in the stack

# **Explain the concept of URL module.**

The **URL module** of Node.js provides various utilities for **URL** resolution and parsing. It is a built-in module that helps in splitting up the web address into a readable format

# **For Node.js, why Google uses V8 engine?**

Google uses V8 as it is a Chrome runtime engine that converts JavaScript code into native machine code. This, in turn, speeds up the application execution and response process and give you a fast running application.

# Why node.js is a single threaded/multi-threaded?

js is a single-threaded for asynchronous processing. With the help of asynchronous processing on a single-thread under typical web loads, leads more the performance and the scalability can be achieved thread-based implementation.