Node.js Developer Interview Questions

1. What is NPM?

NPM stands for Node Package Manager. It is used for command line environment applied to install and manage Node.js Packages and repositories.

2. What is Closures?

Closure is a first-class function which is defined within another scope that has access to all the variables within the outer scope. Global variables can be made private with closures.

3. Explain Modules in Node.js

Modules are simple or complex functionalities in JavaScript files which can be reused throughout the Node.js platform. Each module in Node.js can be placed in a .js file in a separate folder. Also, Node.js modules have their own context, so it cannot interfere with others.

4. Explain V8 Engine

V8 is an open source JavaScript engine. It was developed by Google and is now used in Google Chrome, Node.js Couchbase, and MongoDB. The engine compiles JavaScript to machine code before executing it, instead of most other techniques. The compiled code is further optimized dynamically at runtime, based on heuristics of the code's execution profile.

5. Explain event loop in Node.js

The event loop (Event Loop) is a mechanism that allows Node.js to perform non-blocking I / O operations (despite the fact that JavaScript is single-threaded) by uploading operations to the system kernel.

6. Explain what is libuv in Node.js

libuv in Node.js is a cross-platform I/O abstraction library, written in C. It suppors Windows IOCP, epoll(4), kqueue(2), and Solaris event ports.

libUV library is used for the following:

- cross-platform I / O operations, working with files, network
- main Node.js event loop support

7. Why Node is single threaded?

As single thread operations run better than multi-threaded ones, it is done in order to improve Node.js general performance.

8. What are event emitters in Node.js?

Node.js objects trigger events to support asynchronous execution of core APIs used. Objects that emit events as called 'event emitters'.

9. What is a cluster?

Cluster is a process used to handle thread execution load while working with multi-core systems.

10. Explain the difference between readFile and createReadStream in Node.js.

readFile loads the whole file into the memory you selected, and fs.createReadStream reads the entire file in specified chunks of sizes. Using **createReadStream,** the client receives the data faster since it is sent in chunks while it's being read. **readFile** though reads the whole file first before sending it to the client.

11. Write the steps for setting up an Express.js application.

In order to set Express.js up, a user has to follow these steps:

1. Create a folder with the same name as the project is called.
2. Add package.json file to the folder.
3. Run "npm install" command to install all the libraries from package.json.
4. Create a file named 'server.js'.
5. Create a "router" file inside the package consisting of a folder named index.js.
6. To the package consisting of index.html file add "App" one.

The installation of Express.js is done.

12. Since Node is a single threaded process, how to make use of all CPUs?

It's possible to take advantage of all CPUs by using the cluster module. It contains a

set of properties that help to create programs which use all the CPUs of multi-core systems.

13. How can you use middleware in Express?

Middleware in Express.js is a function that applies to the routing process, performing operations at some points. It's widely used for editing request and response objects as well as terminating the request before it reaches the route handler code.

In order to set a middleware up, you need to invoke app.use() for each new layer you'd like to add. Middleware in Express.js can be the same for all paths or used only for a specific path your server handles.

14. Explain the difference between process nextTick() and setImmediate()?

The main difference between nextTick() and setImmediate() processes is that setImmediate() queus its callbacks on the even loop and nextTick() does not. Thus, as nextTick() callbacks execute before the even loop, they run prior to setImmediate() ones.