NODE JS

1).What is node js where can u use it?

-Node.js is an open source server environment

Node.js is free

Node.js runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)

Node.js uses JavaScript on the server

Node.js is a platform built on Chrome's JavaScript runtime for easily building fast and scalable network applications.

2).Why use node js?

-Because Node. js is single-threaded, we use it primarily for non-blocking, event-driven servers. We can also use Node. js for traditional websites and back-end API services, as it was designed with real-time, push-based architectures in mind.

3).how does node js work

-Node.js simply enters the event loop after executing the input script. Node.js exits the event loop when there are no more callbacks to perform. This behavior is like browser JavaScript — the event loop is hidden from the user. HTTP is a first-class citizen in Node.js, designed with streaming and low latency in mind.

4).why is node js single threaded

Node. js runs JavaScript code in a single thread, which means that your code can only do one task at a time.

5).explain callback in node.js

-A callback is a function called when the task finishes, and a callback function allows other code to run in the meantime. Using the Callback concept, Node. js can process many requests without waiting for any function to return the result, making Node. js highly scalable.

6).what are the advantages of using promis insted of callback?

-They are composable, unlike callbacks, therefore we can avoid callback hells. You can easily execute code with Promise. all when multiple responses are returned. You can wait for only one result from concurrent pending promises with the help of Promise.

7).how is node js most frequently used

-It is used to create server-side web applications. Node.js is perfect for data-intensive applications as it uses an asynchronous, event-driven model.

8).what js NPM in Node js?

-NPM is a package manager for Node.js packages, or modules if you like. www.npmjs.com hosts thousands of free packages to download and use. The NPM program is installed on your computer when you install Node.js.

9). What are the Modules in node js?

-Modules can be a single file or a collection of multiples files/folders.

10).why node js is the best compare the other languages?

The runtime environment is highly scalable in nature and can grow with your business.

js is fast in nature and is light for legacy systems.

js can work with multiple hosting providers for a good web app.

js comes with effective caching abilities.

js is highly extensible in nature.

The coding process and developing expertise in Node.js is easy to understand.

11) What Are the props?

- Props are used to store data that can be accessed by the children of a React component.[ children to parent and parent to children data pass ] They are part of the concept of reusability. Props take the place of class attributes and allow you to create consistent interfaces across the component hierarchy

12) What is an event loop in node js?

-Event loops handle asynchronous callbacks in Node.js. It is the foundation of the non-blocking input/output in Node.js, making it one of the most important environmental features.

13) What are tow types of API function in node.js?

- The two types of API functions in Node.js are:

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

14) What is the Express.js Package?

- Express is a node js web application framework that provides broad features for building web and mobile applications. It is used to build a single page, multipage, and hybrid web application.

### 15. What are streams in Node.js?

Streams are objects that enable you to read data or write data continuously.

There are four types of streams:

**Readable –** Used for reading operations

**Writable −** Used for write operations

**Duplex −** Can be used for both reading and write operations

**Transform −** A type of duplex stream where the output is computed based on input

### 16) Explain asynchronous and non-blocking APIs in Node.js.

* All Node.js library APIs are asynchronous, which means they are also non-blocking
* A Node.js-based server never waits for an API to return data. Instead, it moves to the next API after calling it, and a notification mechanism from a Node.js event responds to the server for the previous API call

17) what is REPL?

-A Read-Eval-Print Loop, or REPL, is a computer environment where user inputs are read and evaluated, and then the results are returned to the user. REPLs provide an interactive environment to explore tools available in specific environments or programming languages.

18)what is middlewear and how its work?

-Middleware is software that different applications use to communicate with each other. It provides functionality to connect applications intelligently and efficiently so that you can innovate faster.

19)what is the pourpose of modle.export?

- module.exports is an object in a Node.js file that holds the exported values and functions from that module. Declaring a module.exports object in a file specifies the values to be exported from that file. When exported, another module can import this values with the require global method.

20)What is the Control flow function?

- An example of a control flow statement is an if/else statement,

21. Why use Node.js?

Node.js makes building scalable network programs easy. Some of its advantages include:

* It is generally fast
* It rarely blocks
* It offers a unified programming language and data type
* Everything is asynchronous
* It yields great concurrency

### 22. Why is Node.js Single-threaded?

Node.js is single-threaded for async processing. By doing async processing on a single-thread under typical web loads, more performance and scalability can be achieved instead of the typical thread-based implementation.

### 23. Explain the difference between frontend and backend development?

|  |  |
| --- | --- |
| **Front-end** | **Back-end** |
| Frontend refers to the client-side of an application | Backend refers to the server-side of an application |
| It is the part of a web application that users can see and interact with | It constitutes everything that happens behind the scenes |
| It typically includes everything that attributes to the visual aspects of a web application | It generally includes a web server that communicates with a database to serve requests |
| HTML, CSS, JavaScript, AngularJS, and ReactJS are some of the essentials of frontend development | Java, PHP, Python, and Node.js are some of the backend development technologies |

24. What are some of the most commonly used libraries in Node.js?

There are two commonly used libraries in Node.js:

* [ExpressJS](https://www.simplilearn.com/tutorials/nodejs-tutorial/what-is-express-js)- Express is a flexible Node.js web application framework that provides a wide set of features to develop web and mobile applications.
* Mongoose - [Mongoose](https://www.simplilearn.com/tutorials/nodejs-tutorial/nodejs-mongodb) is also a Node.js web application framework that makes it easy to connect an application to a database.

### 25. What is the package.json file?

The package.json file is the heart of a Node.js system. This file holds the metadata for a particular project. The package.json file is found in the root directory of any Node application or module

This is what a package.json file looks like immediately after creating a Node.js project using the command: **npm init**

### 26. For Node.js, why does Google use the V8 engine?

The V8 engine, developed by Google, is open-source and written in [C++](https://www.simplilearn.com/tutorials/cpp-tutorial/learn-cpp-basics). Google Chrome makes use of this engine. V8, unlike the other engines, is also utilized for the popular Node.js runtime. V8 was initially intended to improve the speed of JavaScript execution within web browsers.

### 27.What are the different types of HTTP requests?

HTTP defines a set of request methods used to perform desired actions. The request methods include:

**GET:**Used to retrieve the data

**POST:**Generally used to make a change in state or reactions on the server

**HEAD:**Similar to the GET method, but asks for the response without the response body

**DELETE:** Used to delete the predetermined resource

28. How would you connect a MongoDB database to Node.js?

To create a database in MongoDB:

* Start by creating a MongoClient object
* Specify a connection URL with the correct IP address and the name of the database you want to create

IMP QUATION---

1. Explain GET, POST, PUT DELET?

GET : Get object

PUT : Modify Object

DELETE: Delete Object

POST : Create Object

* A GET should be used for requesting information from the web service.
* A POST should be used to put data to a web server, where there is no specification as to where the web service should put the data. An example might be a question on StackOverflow. This may be considered the equivalent of an insert.
* A PUT should be used when you want to specify where the data goes. This is an idempotent action as repeating it will not change anything on each repeated call. An example might be an answer or comment on StackOverflow as they would be linked to a resource such as being the answer to a specific question. Alternatively this may be considered as the equivalent of an update.
* And a DELETE is obviously to be used to delete some data or a resource from the web server.

2)Write a node js code to create serevr?

- onst http = require("http")

// Creating server

const server = http.createServer((req, res) => {

    // Sending the response

    res.write("This is the response from the server")

    res.end();

})

// Server listening to port 3000

server.listen((3000), () => {

    console.log("Server is Running");

})

3)What is rest Api node.js?

- RESTful API is an interface that two computer systems use to exchange information securely over the internet.

4). Error handling and code node.js?

Then and catch

Try and catch

MONGODB------------------------------

29.What is MONGODB?

- MongoDB is a document database used to build highly available and scalable internet applications. With its flexible schema approach, it's popular with development teams using agile methodologies.

30)Advantages of Mongodb?

* - a. Flexible Database. We know that MongoDB is a schema-less database. ...
* b. Sharding. We can store a large data by distributing it to several servers connected to the application. ...
* c. High Speed. MongoDB is a document-oriented database. ...
* d. High Availability. ...
* h. Full Technical Support.

31) What is an collection in mongo db?

- A collection is a grouping of MongoDB documents. Documents within a collection can have different fields. A collection is the equivalent of a table in a relational database system. A collection exists within a single database.

32) What is the Mongo Shell?

- The mongo shell is an interactive JavaScript interface to MongoDB. You can use the mongo shell to query and update data as well as perform administrative operations

33)What are some features of mongodb?

* - Ad-hoc queries for optimized, real-time analytics. ...
* Indexing appropriately for better query executions. ...
* Replication for better data availability and stability. ...
* Sharding. ...
* Load balancing.

34) How To perform queries in MONGODB?

1. - use DATABASE\_NAME command is used to create database Example: >use hdfc switched to db mydb.
2. db command is used to check currently selected database Example: >db mydb.
3. show dbs command check all database lists Example: >show dbs local 0.78125GB test 0.23012GB.

35)What are the data types in MONGODB?

* String.
* Integer.
* Double.
* Boolean.
* Array.