

20 Frequently Asked Node.js Interview Questions and Answers



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Node.js is a server-side technology that you have to be proficient in to become the ideal MEAN stack developer. It is one of the most rewarding web development tools to learn, not only because of the lucrative salary—averaging \$100,000/ year—but also the fast and continued growth of job postings requiring knowledge of the technology.

If you have a MEAN stack developer interview lined up or are anticipating interviews soon, expect to face cutthroat competition. The 20 interview questions outlined below should help you prepare adequately to answer every question asked confidently.

Node.js is a server side scripting based on Google's V8 JavaScript engine. It is used to build scalable programs especially web applications that are computationally simple but are frequently accessed.

You can use [Node.js in developing](#) I/O intensive web applications like video streaming sites. You can also use it for developing: Real-time web applications, Network applications, General-purpose applications and Distributed systems.

2. Why use Node.js?

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

- It is generally fast
 - It almost never blocks
 - It offers a unified programming language and data type
 - Everything is asynchronous
 - It yields great concurrency
-

3. What are the features of Node.js?

Node.js is a single-threaded but highly scalable system that utilizes JavaScript as its scripting language. It uses asynchronous, event-driven I/O instead of separate processes or threads. It is able to achieve high output via single-threaded event loop and non-blocking I/O.

4. How else can the JavaScript code below be written using Node.js to produce the same output?

```
}, 0);  
console.log("third");
```

Output:

```
first  
third  
second
```

In Node.js version 0.10 or higher, `setImmediate(fn)` will be used in place of `setTimeout(fn,0)` since it is faster. As such, the code can be written as follows:

```
console.log("first");  
setImmediate(function(){  
    console.log("second");  
});  
console.log("third");
```

5. How do you update NPM to a new version in Node.js?

You use the following commands to update NPM to a new version:

```
$ sudo npm install npm -g  
/usr/bin/npm -> /usr/lib/node_modules/npm/bin/npm-cli.js  
npm@2.7.1 /usr/lib/node_modules/npm
```

6. 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 as opposed to the typical thread-based implementation.

A callback function is called at the completion of a given task. This allows other code to be run in the meantime and prevents any blocking. Being an asynchronous platform, Node.js heavily relies on callback. All APIs of Node are written to support callbacks.

8. What is callback hell in Node.js?

Callback hell is the result of heavily nested callbacks that make the code not only unreadable but also difficult to maintain. For example:

```
query("SELECT clientId FROM clients WHERE clientName='picanteverde'", function(id){
  query("SELECT * FROM transactions WHERE clientId=" + id, function(transactions){
    transactions.each(function(transac){
      query("UPDATE transactions SET value = " + (transac.value*0.1) + " WHERE id=" +
transac.id, function(error){
        if(!error){
          console.log("success!!");
        }else{
          console.log("error");
        }
      });
    });
  });
});
```

9. How do you prevent/fix callback hell?

The three ways to prevent/fix callback hell are:

- Handle every single error
- Keep your code shallow
- Modularize – split the callbacks into smaller, independent functions that can be called with some parameters then joining them to achieve desired results.

The first level of improving the code above might be:

```
        console.log("success!!");
    }else{
        console.log("error");
    }
},
updateTransaction = function(t){
    query("UPDATE transactions SET value = " + (t.value*0.1) + " WHERE id=" + t.id,
logError);
},
handleTransactions = function(transactions){
    transactions.each(updateTransaction);
},
handleClient = function(id){
    query("SELECT * FROM transactions WHERE clientId=" + id, handleTransactions);
};

query("SELECT clientId FROM clients WHERE clientName='picanteverde'",handleClient);
```

You can also use Promises, Generators and Async functions to fix callback hell.

10. Explain the role of REPL in Node.js.

As the name suggests, REPL (Read Eval print Loop) performs the tasks of - Read, Evaluate, Print and Loop. The REPL in Node.js is used to execute ad-hoc Javascript statements. The REPL shell allows entry to javascript directly into a shell prompt and evaluates the results. For the purpose of testing, debugging, or experimenting, REPL is very critical.

11. Name the types of API functions in Node.js.

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

- Blocking functions - In a blocking operation, all other code is blocked from executing until an I/O event that is being waited on occurs. Blocking functions execute synchronously

```
console.log(data);  
// moreWork(); will run after console.log
```

The second line of code blocks the execution of additional JavaScript until the entire file is read. `moreWork ()` will only be called after `Console.log`

- Non-blocking functions - In a non-blocking operation, multiple I/O calls can be performed without the execution of the program being halted. Non-blocking functions execute asynchronously.

For example:

```
const fs = require('fs');  
fs.readFile('/file.md', (err, data) => {  
  if (err) throw err;  
  console.log(data);  
});  
// moreWork(); will run before console.log
```

Since `fs.readFile ()` is non-blocking, `moreWork ()` does not have to wait for the file read to complete before being called. This allows for higher throughput.

12. Which is the first argument typically passed to a Node.js callback handler?

Typically, the first argument to any callback handler is an optional error object. The argument is null or undefined if there is no error.

Error handling by a typical callback handler could be as follows:

```
function callback(err, results) {  
  // usually we'll check for the error before handling results  
  if(err) {  
    // handle error somehow and return  
  }  
  // no error, perform standard callback handling  
}
```

13. What are the functionalities of NPM in Node.js?

NPM (Node package Manager) provides two functionalities:

- Online repository for Node.js packages
- Command line utility for installing packages, version management and dependency management of Node.js packages

14. What is the difference between Node.js and Ajax?

Node.js and Ajax (Asynchronous JavaScript and XML) are the advanced implementation of JavaScript. They all serve completely different purposes.

Ajax is primarily designed for dynamically updating a particular section of a page's content, without having to update the entire page.

Node.js is used for developing client-server applications.

15. Explain chaining in Node.js.

Chaining is a mechanism whereby the output of one stream is connected to another stream creating a chain of multiple stream operations.

16. What are “streams” in Node.js? Explain the different types of streams present in Node.js.

Streams are objects that allow reading of data from the source and writing of data to the destination as a continuous process.

There are four types of streams.

- to facilitate both read and write operations
 - is a form of Duplex stream that performs computations based on the available input
-

17. What are exit codes in Node.js? List some exit codes.

Exit codes are specific codes that are used to end a “process” (a global object used to represent a node process).

Examples of exit codes include:

- Unused
 - Uncaught Fatal Exception
 - Fatal Error
 - Non-function Internal Exception Handler
 - Internal Exception handler Run-Time Failure
 - Internal JavaScript Evaluation Failure
-

18. What are Globals in Node.js?

Three keywords in Node.js constitute as Globals. These are:

- **Global** – it represents the Global namespace object and acts as a container for all other objects.
- **Process** – It is one of the global objects but can turn a synchronous function into an async callback. It can be accessed from anywhere in the code and it primarily gives back information about the application or the environment.

19. What is the difference between AngularJS and Node.js?

AngularJS is a web application development framework while Node.js is a runtime system.

20. Why is consistent style important and what tools can be used to assure it?

Consistent style helps team members modify projects easily without having to get used to a new style every time. Tools that can help include Standard and ESLint.

Conclusion

Since every question has more than one answer, feel free to personalize your answers as much as possible, especially when you have work experience to relate the answers to. In case you need a refresher in Node.js or if you do not have any training in it, you should consider [Simplilearn's Node.js certification training](#). This course provides an in-depth knowledge of concepts such as shrink-wrap, asynchronous programming, Node Package Manager (NPM) and more.

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About the Author


Srihari Sasikumar is a Product Manager with over six years of experience in various industries including Information Technology, E-Commerce, and E-Learning. Srihari follows the key trends in Big Data, Data Science, Programming & AI very closely.

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These certifications also help you become a specialist in process improvement and will enhance your career's standard and credibility. Is Six Sigma worth it? Read below and decide for yourself: apart from just being able to add another certification to your resume, there are [many advantages](#) that make Six Sigma certifications wonderfully useful.

Seven Benefits of Six Sigma

1. Help Your Organization Eliminate Errors

From an organization's perspective, acquiring a Six Sigma certification enables an individual to become crucial to an organization's ability to identify and eliminate repeatable process errors.

Sigma Level	Defects Per Million Opportunities (DPMO)	
1	690,000	
2	308,537	
3	66,807	
4	6,210	
5	233	
6	3.4	

With a Six Sigma certification, you would be able to [transform and enable an organization](#) to increase revenue by identifying and eliminating errors that would otherwise have brought poor customer satisfaction and losses to the business. Certified Six Sigma professionals can help reduce invoicing errors, customer complaints, complaint resolution time, spending, schedule delays, and cost overruns.

For example: in 1998, GE attributed their \$350 million in savings to the Six Sigma process, while [Motorola](#) attributed their highest savings of \$17 billion in 2005 to Six Sigma. GE's savings rose to more than \$1 billion later that decade.

2. Improve Business Processes and Sustain Quality Improvement

Once you attain the Six Sigma certification, you'll be able to prove you have the knowledge to identify the characteristics of an organization's manufacturing and business processes and be able to measure, analyze, control, and improve them. You will also have the ability to conduct a complete review of current practices and gain a very clear understanding of their impact on quality performance.

You'll also develop the ability to achieve the level of sustained quality improvement that organizations require—monitoring processes closely to ensure there is little to no deviation from the mean and taking corrective measures to reel in a project that may be straying from the path.

3. Applicability Across Industries

What is the value of a Six Sigma certification? As an industry-agnostic methodology, Six Sigma techniques are applied in aerospace, electronics, telecom, banking and financial services, IT, HR, marketing, and many more industries.

Getting a Six Sigma certification can lead to better job opportunities and improved salary—even though it's not easy to attain. One of the reasons Six Sigma certified professionals get so much respect is that the exams are not easy to pass—and executives and hiring managers at major companies are well aware.

With a Six Sigma certification, you will be able to position yourself as a change agent within the organization, spearheading quality improvement throughout your team or organization, bolstering your leadership skillset. Individuals certified in Six Sigma are knowledgeable in dozens of different methods to streamline business processes, improve employee acceptance, reduce costs, and increase revenue—all of which lead to a better bottom line, no matter the industry.

As a professional, you need to adapt yourself to the changing demands of your industry. No matter what industry you are a part of, you need to learn to adapt your knowledge to different situations.

4. Ensure Compliance

With the stringent quality standards of Six Sigma, manufacturing and process errors are reduced to insignificant figures. This has meant that a number of vendors, procurers, and oversight organizations apply Six Sigma standards when evaluating products or accounts. As a certified Six Sigma professional, you will be able to help your organization comply with international standards, as well as maintain profitable contracts.

5. Helps Nurture Managerial And Leadership Ability

Six Sigma training also prepares you for leadership roles, with the techniques and knowhow to cut costs, increase revenue, and ways to improve the efficiency of the business process. Those who achieve Six Sigma Black Belt are not only educated on the methodologies of Six Sigma, they are also prepared to become a change agent within their organization, leading efforts to improve processes and the quality of products and services delivered to customers.

Once you complete your Six Sigma course and obtain your certification, you will have a clear understanding of measuring and quantifying financial benefits from executing any Six Sigma project. Because financial management and risk assessment are highly desirable skills for middle and top-level management, certified Six Sigma professionals stand a very good chance of rising to senior managerial positions.

6. Excellent Salary

According to a survey carried out by [indeed.com](https://www.indeed.com), the salary for Six Sigma certified individuals routinely break into the \$100,000+ pay bracket, and are among the highest-paid professionals globally.



7. Gain Hands-On Experience In Quality Management

Unlike a few other certifications, the Six Sigma certification process includes hands-on work on industry projects and experience with implementation of theoretical principles to real-life scenarios. As a certified Six Sigma professional, you will gain valuable experience even before you enter the workforce.

Ready to get started on the path to Six Sigma Master Black Belt? Simplilearn's Lean Six Sigma [master's program](#) is taught by Green and Black Belt certified professionals with more than ten years of industry experience in implementing Quality Management and will help you become a Lean Six Sigma champion.

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About the Author

An experienced process analyst at Simplilearn, the author specializes in adapting current quality management best practices to the needs of fast-paced digital businesses. An MS in MechEng with over eight years of professional experience in various domains, Bhargav was previously associated with Paradox Interactive, The Creative Assembly, and Mott MacDonald LLC.

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