

Important AFS Questions:

- 1) Write JS code to remove duplicate values from an array?
- 2) Define the underlying Architecture of Node?
- 3) What is middleware? Write a function to explain middleware?
- 4) What is Event Loop?
- 5) What is spread and rest operator?
- 6) How to Fetch and print out all keys from an object?
- 7) What is Node Package Manager?
- 8) What is the importance of package.json file?
- 9) How we can create package.json through terminal?
- 10) Why Global installation of Modules requires?
- 11) Ques: What is the output of below code:

```
var a = function(){  
    console.log(a);  
    var a = 10;
```

```
}  
console.log(a());  
var b = function(){  
    console.log(a);  
    let a = 10;  
}  
console.log(b());
```

12) What is the difference between var, let and const?

13) What is callback function and higher order function?

14) what is arrow function? Can you write the syntax of arrow function

15) In any JS file I have two variables a and b. I want to use both these variable in any other js file, how can I do this?

16) What is deep copy and shallow copy?

17) What is prototype?

18) What is worker in node.js?

19) What is hoisting?

20) What is closure?

21) Write code to connect node.js with MySQL database?

22) What is Http status code?

23) Write code to count Duplicate elements from an array

```
let arr = ["one","two","three","one","two","one"];
let count = {};
arr.forEach((element)=>{
    //The expression count[element] || 0 returns the value of count[element] if it is
    //set, otherwise 0.
    //Then just add one and set it again in the object.
    count[element] = (count[element] || 0) + 1;
})
```

24) What is 'in' and 'of' keyword in JS?

25) Explain below array functions

- a) join()
- b) split()
- c) slice()
- d) splice()
- e) indexOf()

26) How the event loop works internally?

Event loop continuously runs in the following sequence

Timers -> Pending callbacks -> Idle, Prepare -> Poll -> Check -> close callbacks

After completing one cycle, it starts again if there are more tasks.

Node.js uses **libuv**, a C++ library that provides the **event loop** and manages asynchronous operations.

The event loop consists of **six phases** that execute in a fixed order, handling various types of callbacks.

1. **Timer Phase:** It checks if any timer has expired and executes its callback.
2. **Pending Callbacks phase:** This phase executes I/O callbacks that were deferred (like errors or TCP errors)
3. **Idle, Prepare Phase:** This phase is used only internally by libuv.
4. **Poll Phase:** This is the heart of Event Loop. This phase can pause if no timers are pending. It handles:
 - a. Incoming I/O events (like reading files or network requests)
 - b. Blocking I/O operations (if none are pending, it waits here)
 - c. Executes I/O callbacks immediately if available.
5. **Check Phase:** This phase executes `setImmediate()` callbacks. Callbacks from `setImmediate()` always executes after the poll phase
6. **Close callbacks phase:** This phase executes
 - a. Callbacks from `process.exit()`
 - b. `Socket.on('close')`
 - c. `Stream.on('close')`

27) What is the output of below code:-

```
setTimeout(() => console.log('Timeout'), 0);  
  
setImmediate(() => console.log('Immediate'));  
  
process.nextTick(() => console.log('Next Tick'));  
  
Promise.resolve().then(() => console.log('Promise'));  
  
console.log('Sync');
```

Output:

Sync
Next Tick
Promise
Timeout
Immediate

NOTE: Microtasks always execute **before** the next phase.

Summary

Task	Type	Phase
setTimeout()	Macrotask	Timers
setImmediate()	Macrotask	Check
process.nextTick()	Microtask	Before next phase
Promise.then()	Microtask	Before next phase
fs.readFile() callback	Macrotask	Poll

28) Difference between put and patch Http request method?

29) Difference between post and GET http request method?

30) What is SQL injection?

31) Why should we use ORM like sequelize?

32) how many types of modules or packages are there in node js?

- Core Modules (built-in)
- Local Modules (user-created)
- Third Party modules (installed via NPM)

33) What is Debouncing?

34) What is throttling?

35) What is MVC? Draw its architecture diagram?