A JSON web token(JWT) is JSON Object which is used to securely transfer information over the web(between two parties). It can be used for an authentication system and can also be used for information exchange.The token is mainly composed of header, payload, signature.

Header consit tha predefined algo and type will be jwt

Payload will be the data consist of such as username, id

Signature will conist the alogo and secrete key string with we can set

REST stands for REpresentational State Transfer and API stands for Application Program Interface.

REST is a software architectural style that defines the set of rules to be used for creating web services. Web services which follow the REST architectural style are known as RESTful web services. It allows requesting systems to access and manipulate web resources by using a uniform and predefined set of rules

**REST API** is a way of accessing web services in a simple and flexible way without having any processing. All communication done via REST API uses only HTTP request.

There are six architectural constraints which makes any web service are listed below:

* Uniform Interface
* Stateless
* Cacheable
* Client-Server
* Layered System
* Code on Demand

A Restful system consists of a:

* client who requests for the resources.
* server who has the resources.

**What are Microservices?**

**Microservices**, aka [***microservice architecture***](https://www.edureka.co/blog/microservice-architecture/), is an architectural style that structures an application as a collection of small autonomous services, modelled around a **business domain.**In a Microservice Architecture, each service is self-contained and implements a single business capability.

the principles in which the microservice architecture has been built.

1. Scalability  
   2. Flexibility  
   3. Independent and autonomous  
   4. Decentralized governance  
   5. Resiliency  
   6. Failure isolation.  
   7. Continuous delivery through the DevOps

*"async and await make promises easier to write"*

**async** makes a function return a Promise

**await** makes a function wait for a Promise

A Promise in Node means **an action which will either be completed or rejected**. In case of completion, the promise is kept and otherwise, the promise is broken. So as the word suggests either the promise is kept or it is broken.

What does event-driven programming mean?

An event-driven programming approach uses events to trigger various functions. An event can be anything, such as typing a key or clicking a mouse button. A call-back function is already registered with the element executes whenever an event is triggered.

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.

Callbacks

A **callback** is a function which is called when a task is completed, thus helps in preventing any kind of blocking and a callback function allows other code to run in the meantime. Callback is called when task get completed and is asynchronous equivalent for a function.

Hositing

JavaScript Hoisting refers to **the process whereby the interpreter appears to move the declaration of functions, variables or classes to the top of their scope, prior to execution of the code**.

**23. What are node.js buffers?**

In general, buffers is a temporary memory that is mainly used by stream to hold on to some data until consumed. Buffers are introduced with additional use cases than JavaScript’s Unit8Array and are mainly used to represent a fixed-length sequence of bytes. This also supports legacy encodings like ASCII, utf-8, etc. It is a fixed(non-resizable) allocated memory outside the v8.

**24. What is middleware?**

Middleware comes in between your request and business logic. It is mainly used to capture logs and enable rate limit, routing, authentication, basically whatever that is not a part of business logic. There are third-party middleware also such as body-parser and you can write your own middleware for a specific use case.

Closure

 a closure is a [function](https://www.javascripttutorial.net/javascript-function/) that references variables in the outer scope from its inner scope. The closure preserves the outer scope inside its inner scope.

Call backs

A callback is a function that will be executed after another function gets executed. In javascript, functions are treated as first-class citizens, they can be used as an argument of another function, can be returned by another function, and can be used as a property of an object.

### 32. What are arrow functions?

Arrow functions were introduced in the ES6 version of javascript. They provide us with a new and shorter syntax for declaring functions. Arrow functions can only be used as a function expression.

**Callback Hell:**

Callback Hell is essentially nested callbacks stacked below one another forming a pyramid structure. Every callback depends/waits for the previous callback, thereby making a pyramid structure that affects the readability and maintainability of the code.

## **What are Streams?**

Streams are objects that let you read data from a source or write data to a destination in continuous fashion. In Node.js, there are four types of streams −

* **Readable** − Stream which is used for read operation.
* **Writable** − Stream which is used for write operation.
* **Duplex** − Stream which can be used for both read and write operation.
* **Transform** − A type of duplex stream where the output is computed based on input.