**Intermediate Knowledge on Backend Answer**

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1. Explain about Event Loop & how Event Loop works

Event loops are an important aspect of getting to know node js. This happens because with the event loop, the js node can be asynchronous and has non-blocking. Javascript is single process, where only one thing happens at a time whereas most browsers have event logs from each browser tab to make each process isolated and avoided. The event loop function is then used to manage the relevant event calls so that the program flow runs smoothly.

1. Give an explanation about Callback Hell & how to avoid it?

Callback hell is a term when creating multiple forked callbacks or callbacks within a callback. For example, merging several files into one file. This will lead to code that is harder to read and more difficult error handling. The solution to avoiding callback hell is to make the code more modular to make it easier to read, or use promises. A Promise is a proxy for a value not necessarily known when the promise is created. It allows you to associate handlers with an asynchronous action's eventual success value or failure reason. This lets asynchronous methods return values like synchronous methods: instead of immediately returning the final value, the asynchronous method returns a promise to supply the value at some point in the future.

1. Give an explanation about Middleware concept

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1. Give an explanation about Buffer

A buffer is an area of memory that stores data when it is transferred between two devices or between a device and an application. Buffers help to limit the difference in speed between producers and consumers of a data stream or to match between devices that have a data transfer size.

5. Give a list of differentiation of JavaScript iterator functions & For Loop.

* For Loop is one original ways of iterating over an array and javascript iterator function is a newr way with lesse code to iterate over an array.
* For Loop faster in performance but Javascript iterator function is slower.
* If using for Loop, the break statement can be used to come out from the loop. But it cannot be used in Javascript iterator function because of the callback function.
* In for loop the parameters are the iterator, counter, and incrementor. But in Javascript iterator function the parameters are the iterator, index of item, and array to iterate.
* For loop works with the await keyword and in Javascript iterator function The await keyword cannot be used due to the callback function. It may lead to incorrect output.

1. What is GraphQL?

GraphQL is a new concept API or is a query language for an API. GraphQL functions as a layer between the client and several data sources, accepts requests from clients, and provides data according to what is requested. GraphQL helps in retrieval of data directly to the endpoint of the client request, and is done directly.

1. What is Resolver in GraphQL?

The resolver in GraphQL is as a pointer where a data will be sent according to its respective fields.

1. Give a list about pros & cons using Embedded Document & Reference ID in MongoDB.

Pros:

* Storage system does not need Tables.
* No need to use structured tables.
* Offers faster performance.

Cons

* Not suitable for transactions related to finance because it does not support SQL transactions.

9. What is Aggregation in MongoDB?

Aggregation operations process data records and return calculated results. Group values of aggregation operations of multiple documents together, and can perform various operations on grouped data to return a single result. MongoDB provides three ways to perform aggregation: the aggregation pipeline, the map-reduce function, and single purpose aggregation methods.

1. Give an explanation about Pipeline in Aggregation MongoDB

The MongoDB aggregation framework is modeled on the concept of a data processing pipeline. Documents enter a multi-stage pipeline that converts documents into aggregated results. The most basic pipeline stage provides filters that operate like queries and document transformations that change the shape of the output document.