Assignment Name :- Make A note on Web Back-End Development

Rest API Best Practices

1. Use JSON as the Format for Sending and Receiving Data.

2. Use Nouns Instead of Verbs in Endpoints.

### Example: an endpoint should not look like this: https://mysite.com/getPosts or <https://mysite.com/createPost>

### Instead, it should be something like this: https://mysite.com/posts

3. Name Collections with Plural Nouns

### Example: instead of https://mysite.com/post/123, it should be https://mysite.com/posts/123.

### 4. Use Status Codes in Error Handling

| **STATUS CODE RANGE** | **MEANING** |
| --- | --- |
| 100 – 199 | Informational Responses. For example, 102 indicates the resource is being processed |
| 300 – 399 | Redirects For example, 301 means Moved permanently |
| 400 – 499 | Client-side errors 400 means bad request and 404 means resource not found |
| 500 – 599 | Server-side errors For example, 500 means an internal server error |

### 5. Use Filtering, Sorting, and Pagination to Retrieve the Data Request.

**Http methods Best Practices**

1. GET   
 The GET method requests that the target resource transfer a representation of its state.

2. POST

The post method requests that the target resource process the representation enclosed in the request according to the semantics of the target resource.

3. PUT   
 The PUT method requests that the target resource create or update its state with the state defined by the representation enclosed in the request.

4. DELETE

The DELETE method requests that the target resource delete its state.

5. HEAD

The HEAD method requests that the target resource transfer a representation of its state, as for a GET request, but without the representation data enclosed in the response body.

6. patch

The patch method requests that the target resource modify its state according to the partial update defined in the representation enclosed in the request.

7. OPTIONS

The OPTIONS method requests that the target resource transfer the HTTP methods that it supports.

8. CONNECT

The CONNECT method requests that the intermediary establish a TCP/IP tunnel to the origin server identified by the request target.

9. TRACE

The TRACE method requests that the target resource transfer the received request in the response body.

**JSON Best Practices**

1 Always enclose the key, value pair within double quotes. Most JSON parsers don't like to parse JSON objects with single quotes.

2 Never use hyphens in your key fields. Use underscores (\_), all lower case, or camel case.

3. Use a JSON linter to confirm valid JSON.

4. Always create a Root element.

**Web Security Practices**

1. Maintain Security During Web App Development.

2. Encrypt your data

3. Use Exception Management

4. Apply Authentication, Role Management & Access Control.

5. Don't Forget Hosting/Service-Focused Measures

6. Avoid Security Misconfigurations

Collect 50 Interview Question on Web Back-End Development

### ****What is JavaScript?****

### Ans:

JavaScript is a scripting language used mostly in web programming. It is based on an object-oriented model and available in all modern browsers so it's a cross-platform language too. Mostly JavaScript is realized as part of HTML, where it can change itself and other elements of HTML scripts.

**2. What is the callback?**

**Ans:**

It's a function which passed as an argument in another function, so they must be executed one-by-one.

**3. What is an arrow function?**

**Ans:**

It is a short variant of declaring functions, using the "=>" symbol.

### ****4. What is the "debugger" keyword in JS?****

### Ans:

The debugger is the statement which makes possible using the debug functions, like a breakpoint.

### ****5. What JS frameworks are in use?****

### Ans:

The most known are: React (used for UI), Angular (web dev), Vue (UI), JQuery (client-side web dev), Ember (scalable web apps) and Node (server-side web dev).

### ****6. What is enumerable in JavaScript?****

### Ans:

It's the property of an object which with "true" state means that it is available for use in loops as it is enumerable.

### ****7. What are the main JS advantages?****

### Ans:

Versatility (cross-platform), easy for novices, weakly typed, client-side execution, prevails in web development.

### ****8. What are the attributes in JavaScript?****

### Ans:

Attributes is the part of DOM, which describes additional attributes of the element as key-value pairs.

**9. How to write functions in JavaScript?**

**Ans:**

Depending on function difficulty it can be declared in three ways: as callback function, arrow function and inline callback function.

### ****10. What is the difference between BOM and DOM?****

### Ans:

Document Oriented Model is a versatile standard of interacting with web documents (like HTML) but inside in the browsers. Browser Oriented model is non-standardized and stands for interaction with browsers, for example its windows.

### .

### ****11**. **Are there any JS disadvantages?****

### ****Ans:****

### One-thread execution, strong potential of security vulnerabilities, single inheritance, may have different interpretations according to the selected browser.

### ****12. What is an anonymous function in JS?****

### Ans:

It is the function declared without name.

### ****13. What is the strict mode in JavaScript?****

### Ans:

This mode enables special rules of writing JS scripts, like mandatory variables declaring, extended reserved words list, prohibit numbers in octal system, using  "eval" statement for creating new variable.

### ****14. What is the Boolean object in JavaScript?****

### Ans:

Object which can have only two values: "false" or "true".

### ****15. What is the Number object in JavaScript?****

### Ans:

Object to store integer or floating point numeric values.

### ****16. What is the Set object in JavaScript?****

### Ans:

It is the collection of values, object references or primitives. It's main feature - it stores only unique elements.

### ****17. What are the cookies in JavaScript?****

### Ans:

Cookies it's a kind of data saved on a user's PC by some site via browser API. It is used for storing different sorts of data, from preferred site's color theme to signed-in accounts.

### ****18. What loops are available in JavaScript?****

### Ans:

The "for" loop with "for..in" and "for...of" variations, the "while" and "do...while" loops.

### ****19. What is the polyfill in JavaScript?****

### Ans:

It is the code which realizes modern functions unavailable in obsolete browser versions.

### ****20. What are the ECMAScript standards?****

### Ans:

It is the JavaScript standard, which include guidelines and describing of using JavaScript functions. ECMAScript compliance helps to unify JS scripts developing.

### ****21. What is the curry function in JavaScript?****

### Ans:

### Currying divides the initial function that takes multiple arguments into several functions that each take only one.

### ****22. What is the WeakMap in JavaScript?****

### Ans:

It is an Object structure, collected from key-value pairs, where keys are objects.

### ****23. Is JavaScript case-sensitive language?****

### Ans:

Yes, it appends to both: reserved words and variables (or functions) names.

### ****24. What is npm?****

### Ans:

This is a packages manager used in the Node.js environment. As a rule this software is installed on the user's PC together with other parts of Node.js.

### ****25. Is it free to use Node.js?****

### Ans:

Yes, it's a free and open-source project available on Github.

### ****26. What differences are between JavaScript and Node.js?****

### Ans:

JavaScript is more versatile as it can be run in any modern browser, while Node.js requires installation on the user's machine. But at the same time Node.js can launch JavaScript outside the browser, which in some cases is more comfortable. For example, it helps in developing server-side parts (back-end), while JavaScript is good for client-side (front-end) development. Also, as JS scripts execute in the browser it can work with DOM and HTML, which is unavailable in Node.js.

### ****27. Is Node a single threaded application?****

### Ans: Yes, because it was developed for asynchronous operations, which as expected doesn't require multiple threads.

### ****28. What is the purpose of the process object in Node.js?****

### Ans:

It is a global object which can be accessed from anywhere without requiring it.

### ****29. How does Node.js prevent blocking code?****

**Ans:**

It is based on a single-threaded event loop, in other words Node.js executes code in asynchronous mode which helps prevent these cases. It completes all operations according to the queue in the stack, but when some of them require more time it gets the parallel process and executes simultaneously with the main process.

### ****30. What is EventEmitter in Node.js?****

**Ans:**

**Eventemitter** is a class which provides interaction with events, especially their creation.

### ****31. What is the fork() in Node JS?****

Ans:

This is a function which creates a child process, connected to the main process during code execution. In practice it is used for creating multi-tasking inside threads.

### ****32. How does Node.js work?****

**Ans:** It initializes virtual machines based on the V8 JavaScript engine, where the programming language is JavaScript. It works on asynchronous principle with single thread event loop execution. Thankfully it is spared from code block I/O problems. Also it has an HTTP module so it can work as a standalone web server.

### 33: What are the core modules of Node,js? ☆☆

**Answer:**

* EventEmitter
* Stream
* FS
* Net
* Global Objects

**34. What Is Express Js?**

**Ans :** Express JS is a framework which helps to develop web and mobile applications. Its works on nodejs plateform. Its sub part of node.js.

**35. What Type Of Web Application Can Built Using Express Js?**

**Ans:** you can build single-page, multi-page, and hybrid web applications

**36. What Are Core Features Of Express Framework?**

**Ans:**

* 1. Allows to set up middlewares to respond to HTTP Requests
  2. Defines a routing table which can works as per HTTP Method and URL.
  3. Dynamically render HTML Pages

**37. How To Download A File?**

**Ans:**

app.get('/download', function(req, res){  
   var file = \_\_dirname + '/download-folder/file.txt';  
   res.download(file);   
 });

**38.** **How To Remove Debugging From An Express App?**

**Ans:**

var io = require('socket.io').listen(app, { log: false });  
 io.set('log level', 1);

**39.** **How To Do 404 Errors?**

**Ans:** app.get('\*', function(req, res){  
   res.send('what???', 404);  
 });

**40.  How To Output Pretty Html In Express.js?**

**Ans:**

app.set('view options', { pretty: true });

# **41.** How many indexes does MongoDB create by default for a new collection?

# **Ans:**

# By default, MongoDB created the \_id collection for every collection.

# **42.** If you remove an object attribute, is it deleted from the database?

# **Ans:**

Yes, it be. Remove the attribute and then re-save () the object.

# **43.** Does MongoDB need a lot space of Random Access Memory (RAM)?

# **Ans:**

No. MongoDB can be run on small free space of RAM.

# 44.Why does Profiler use in MongoDB?

# **Ans:**

# MongoDB uses a database profiler to perform characteristics of each operation against the database. You can use a profiler to find queries and write operations

# **45.** What is “Namespace” in MongoDB?

# **Ans:**

MongoDB stores BSON (Binary Interchange and Structure Object Notation) objects in the collection. The concatenation of the collection name and database name is called a namespace.

# **46.** Mention the command to insert a document in a database called school and collection called persons?

# **Ans:**

use school;

db.persons.insert( { name: "Mahmudul", dept: "CSE" } )

#### **47. What is Mongoose?**

**Ans** : Mongoose is also called an object document mapper. It is used to provide a schema based solution for the purpose of modeling application data. Validation, Typecasting, query construction, business logic hooks, and other, these are also functionalities of Mongoose.

#### **48. List the abbreviation of MERN ?**

**Ans:**

MERN in abbreviated form is:

* ExpressJS
* MongoDB
* [ReactJS](https://www.cybersuccess.biz/why-learn-react/)
* [NodeJS](https://www.cybersuccess.biz/node-js-vs-angular/)

### 49. What are the aggregate functions of MongoDB?

Following are the aggregate functions of MongoDB:

* AVG
* Sum
* Min
* Max
* First
* Push
* addTo Set
* Last

### 50. What are the CRUD operations of MongoDB?

Following are the CRUD operations of MongoDB:

Create-db.collection.insert();

Read-db.collection.find();

Update-db.collection.update();

Delete-db.collection.remove();

**Request - Response Best Practices**

1. **Request response communication.**
2. **Http client.**
3. **Postman Http client.**
4. **Http request.**
5. **Http response.**