

## Nodejs Assignment

### Guidelines:

- i. **This assignment is mandatory for everyone**
- ii. **There will only be a single attempt for each exam and no deadline extension in case of assignments**
- iii. **Any case of unfair means or plagiarism would lead to debarring in final placements without any further consideration.**
- iv. Do not use any framework like Express.js/Hapi.js for building the API endpoints in this assignment
- v. The assignment solutions should be uploaded on Github and links to Github repositories should be shared with the coach for code review. Make sure to add appropriate comments in code wherever possible.

### Problem 1:

Build an API to calculate current age of user from date of birth

The screenshot shows a REST client interface for a request named 'Age Calculation'. The request is a GET method to the URL `http://localhost:8080/age?year=1998&month=11&date=23&name=John`. The 'Query Params' tab is active, displaying a table of parameters:

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> year	1998	
<input checked="" type="checkbox"/> month	11	
<input checked="" type="checkbox"/> date	23	
<input checked="" type="checkbox"/> name	John	
Key	Value	Description

The 'Body' tab is also active, showing the response in HTML format:

```

1 <p>Hello John</p>
2 <p>You are currently 22 years old</p>
  
```

Red arrows in the original image point to the 'Request Type' (GET), 'Query Params' table, and the 'Response' HTML output.

Request URL:- <http://localhost:8080/age?year=1998&month=11&date=23&name=John>

Request Method:- GET

Response HTML:-

```
<p>Hello John</p>
<p>You are currently 22 years old</p>
```

## Objective:-

Build an API with the above parameters using Node.js.

## Learnings:

How to make an http-server and endpoints using core Node.js modules.

## Problem 2:

Return a JSON response by reading a local file using Node.js

Examples 0 BUILD

GET http://localhost:8080/vegetables Send Save

Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bu
Key	Value	Description		

Body Cookies Headers (5) Test Results Status: 200 OK Time: 25 ms Size: 400 B Save Respoi

Pretty Raw Preview Visualize JSON

```

1  {
2    "result": {
3      "rootVegetables": [
4        "turnips",
5        "ginger",
6        "beets"
7      ],
8      "leafyVegetables": [
9        "broccoli",
10       "spinach",
11       "cabbage"
12     ]
13   }
14 }
```

Request URL:- <http://localhost:8080/vegetables>

Request Method:- GET

Response JSON:-

```
{
  "result": {
    "rootVegetables": [
      "turnips",
      "ginger",
      "beets"
    ],
    "leafyVegetables": [
      "broccoli",
      "spinach",
      "cabbage"
    ]
  }
}
```

### Objective:-

1. Create a file with `.json` extension in your project folder with below data:-

```
{
  "result": {
    "rootVegetables": [
      "turnips",
      "ginger",
      "beets"
    ],
    "leafyVegetables": [
      "broccoli",
      "spinach",
      "cabbage"
    ]
  }
}
```

2. Next read that JSON file in your server route using Node.js file system module. More details can be found here:-  
[https://www.w3schools.com/nodejs/nodejs\\_filesystem.asp](https://www.w3schools.com/nodejs/nodejs_filesystem.asp)
3. Return the data read from the JSON file in your route's response.

### Learnings

How to use Node.js file system module

## Problem 3:

Build a area and volume calculation API for various objects based on query params sent with the request

GET Metric Calculation

http://localhost:8080/metrics?object=circle&metric=area&radius=5

Send

Params Authorization Headers (6) Body Pre-request Script Tests Settings

Query Params

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> object	circle	
<input checked="" type="checkbox"/> metric	area	
<input checked="" type="checkbox"/> radius	5	
Key	Value	Description

Body Cookies Headers (5) Test Results

Status: 200 OK Time: 13 ms Size: 179 B

Pretty Raw Preview Visualize HTML

1 area of circle is 78.54

API URL:- <http://localhost:8080/metrics>

Query params types possible:-

object: circle, sphere

metric: 1. area(For circle)

2. volume or surfaceArea(For Sphere)

radius: Integer value

### Objective:-

Build an API which can calculate area of a circle or volume/surface area of a sphere based on inputs sent via query params.

For example:-

If the URL is <http://localhost:8080/metrics?object=sphere&metric=volume&radius=5>

Then you need to calculate volume of a sphere with radius 5 units as shown below:-

The screenshot shows a REST client interface with the following details:

- Request Method:** GET
- URL:** `http://localhost:8080/metrics?object=sphere&metric=volume&radius=5`
- Params:** 6 (selected)
- Query Params Table:**

	KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/>	object	sphere	
<input checked="" type="checkbox"/>	metric	volume	
<input checked="" type="checkbox"/>	radius	5	
	Key	Value	Description
- Body:** 5 (selected)
- Test Results:** Status: 200 OK
- Response Body:**

```
1 volume of sphere is 523.60
```

Refer to the query params section stated in the problem to understand other possible combinations.

## Learnings

How to use functions with request routes in Node.js