

Simple Calculator Microservice Documentation

GitHub Link:

https://github.com/HaydenDuong/SIT323_Cloud_Native_Application_Development/tree/main/task_4.2C

1. What It Does

This is an upgraded version of 4.1P calculator API built with Node.js and Express. It can do:

- Addition (/add)
- Subtraction (/subtract)
- Multiplication (/multiply)
- Division (/divide)
- Exponentiation(/exponent)
- Square Root(/sqrt)
- Modulation(/modulus)

2. How to Run

1. Make sure you have **Node.js** installed.
2. Download the code and run:

```
npm install
```

```
node server.js
```
3. The server will start at <http://localhost:3040>.

3. How to Use

Send a **GET** request with two numbers (num1 and num2) in the URL.

Examples:

- **Add two numbers:**

GET /add?a=5&num2=3

Response: {"status":"success","statusCode":200,"message":"Addition successful","data":{"result":8}}

- **Subtract two numbers:**

GET /subtract?a=3&b=5

Response: {"status":"success","statusCode":200,"message":"Subtraction successful","data":{"result":-2}}

- **Multiply two numbers:**

GET /multiply?a=3&b=3

Response: {"status":"success","statusCode":200,"message":"Multiplication successful","data":{"result":9}}

- **Divide two numbers:**

- **Success:**

GET /divide?a=3&b=5

Response: {"status":"success","statusCode":200,"message":"Division successful","data":{"result":0.6}}

- **Error:**

GET /divide?a=10&b=0

Response: {"status":"error","statusCode":400,"message":"Division by zero is not allowed."}

- **Error if input is invalid:**

GET /add?a=abc&b=3

Response: {"error":"Invalid input. Please provide two numbers."}

- **Exponentiation:**

GET /exponent?a=3&b=4

Response: {"status":"success","statusCode":200,"message":"Exponentiation successful","data":{"result":81}}

- **Square Root:**

- **Success:**

GET /sqrt?a=100

Response: {"status":"success","statusCode":200,"message":"Square root successful","data":{"result":10}}

- **Error:**

GET /sqrt?a=-100

Response: {"status":"error","statusCode":400,"message":"Square root of negative numbers is not allowed."}

- **Modulation:**

- **Success:**

GET /modulus?a=10&b=3

Response: {"status":"success","statusCode":200,"message":"Modulus successful","data":{"result":1}}

- **Error:**

GET /modulus?a=5&b=0

Response: {"status":"error","statusCode":400,"message":"Division by zero is not allowed."}

4. Code Structure

- **server.js** – Main file with all the API routes.
- **package.json** – Lists required dependencies (only express).

5. Testing

You can test it with:

- **Browser:** Just open the URL (e.g., <http://localhost:3000/add?a=2&b=3>).