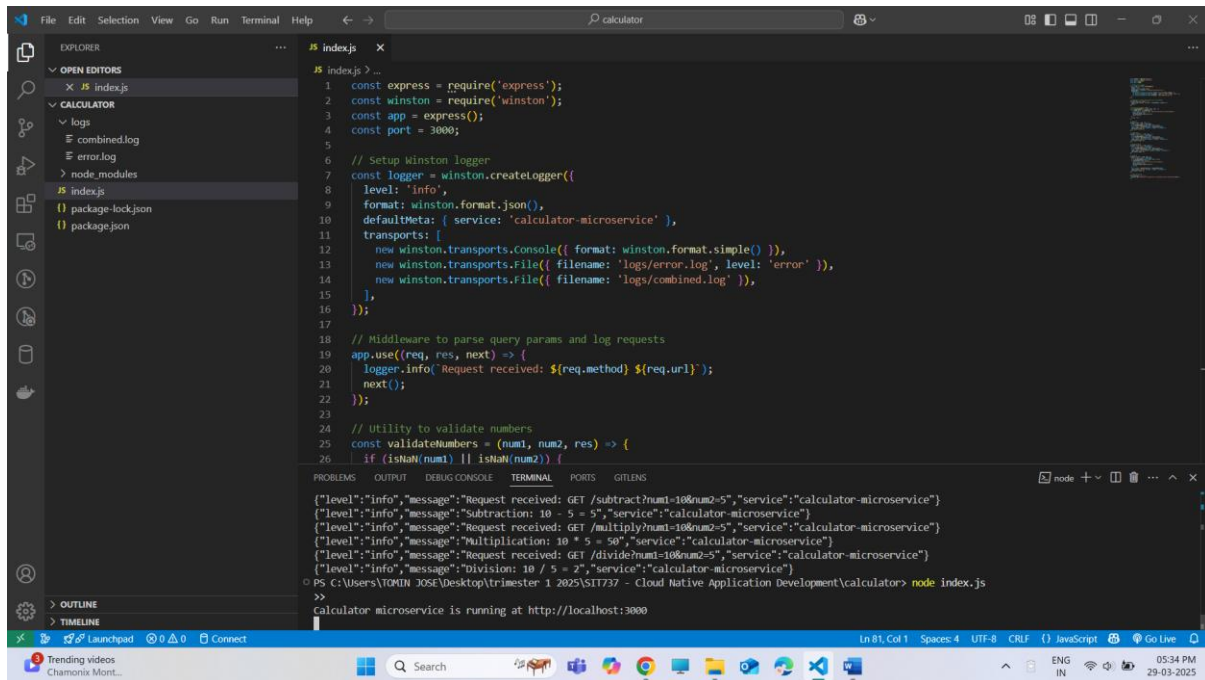


Git Repo: <https://github.com/TOMINJOSE88/sit737-2025-prac4p.git>

Running the code:

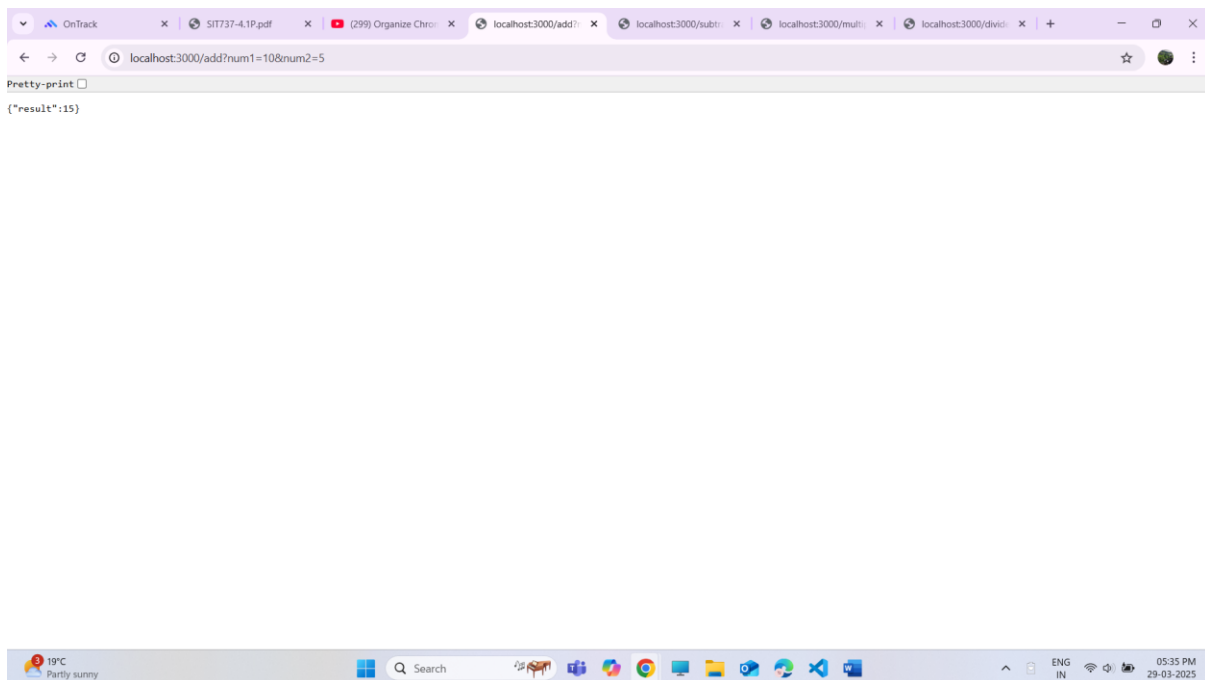


```
1 const express = require('express');
2 const winston = require('winston');
3 const app = express();
4 const port = 3000;
5
6 // Setup Winston logger
7 const logger = winston.createLogger({
8   level: 'info',
9   format: winston.format.json(),
10  defaultMeta: { service: 'calculator-microservice' },
11  transports: [
12    new winston.transports.Console({ format: winston.format.simple() }),
13    new winston.transports.File({ filename: 'logs/error.log', level: 'error' }),
14    new winston.transports.File({ filename: 'logs/combined.log' }),
15  ],
16 });
17
18 // Middleware to parse query params and log requests
19 app.use((req, res, next) => {
20   logger.info("Request received: ${req.method} ${req.url}");
21   next();
22 });
23
24 // Utility to validate numbers
25 const validateNumbers = (num1, num2, res) => {
26   if (isNaN(num1) || isNaN(num2)) {
27     res.status(400).send("Invalid numbers");
28     return;
29   }
30
31   // Handle different operations
32   const url = req.url;
33   let result;
34
35   if (url.includes('/subtract?')) {
36     result = num1 - num2;
37   } else if (url.includes('/multiply?')) {
38     result = num1 * num2;
39   } else if (url.includes('/divide?')) {
40     result = num1 / num2;
41   } else {
42     result = num1 + num2;
43   }
44
45   res.status(200).send(result);
46 }
47
48 // Routes
49 app.get('/subtract?num1=10&num2=5', (req, res) => {
50   validateNumbers(10, 5, res);
51 });
52 app.get('/multiply?num1=10&num2=5', (req, res) => {
53   validateNumbers(10, 5, res);
54 });
55 app.get('/divide?num1=10&num2=5', (req, res) => {
56   validateNumbers(10, 5, res);
57 });
58 app.get('/add?num1=10&num2=5', (req, res) => {
59   validateNumbers(10, 5, res);
60 });
61
62 app.listen(port, () => {
63   logger.info(`Calculator microservice is running at http://localhost:${port}`);
64 });
```

node index.js

```
{
  "level": "info",
  "message": "Request received: GET /subtract?num1=10&num2=5",
  "service": "calculator-microservice"
}
{"level": "info", "message": "Subtraction: 10 - 5 = 5", "service": "calculator-microservice"}
{"level": "info", "message": "Request received: GET /multiply?num1=10&num2=5", "service": "calculator-microservice"}
{"level": "info", "message": "Multiplication: 10 * 5 = 50", "service": "calculator-microservice"}
{"level": "info", "message": "Request received: GET /divide?num1=10&num2=5", "service": "calculator-microservice"}
{"level": "info", "message": "Division: 10 / 5 = 2", "service": "calculator-microservice"}
PS C:\Users\TOMIN JOSE\Desktop\trimester 1 2025\SIT737 - Cloud Native Application Development\calculator> node index.js
Calculator microservice is running at http://localhost:3000
```

Addition:



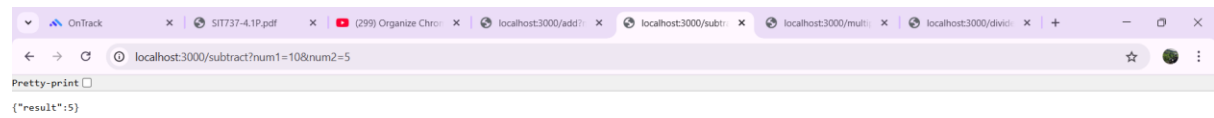
localhost:3000/add?num1=10&num2=5

Pretty-print

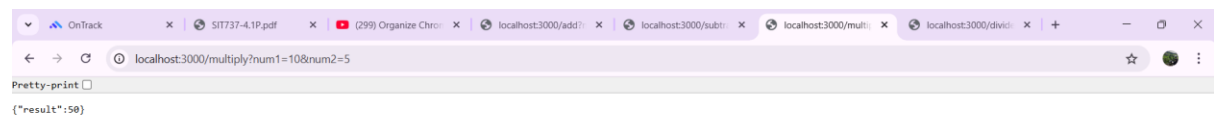
(*result:15)

19°C Partly sunny

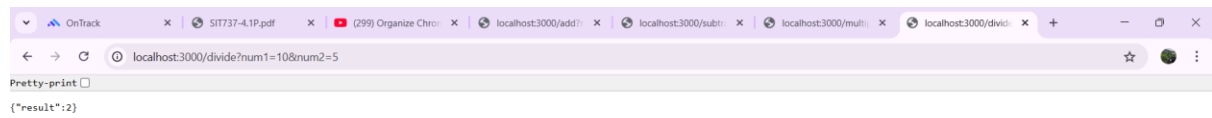
Subtraction:



Multiplication:



Division:



Logs:

