

Họ và tên: Nguyễn Duy Cao

MSSV:K205480106005

dead-line: 22h ngày 14.5.2024

upload mọi thứ liên quan lên github

có các thứ sau:

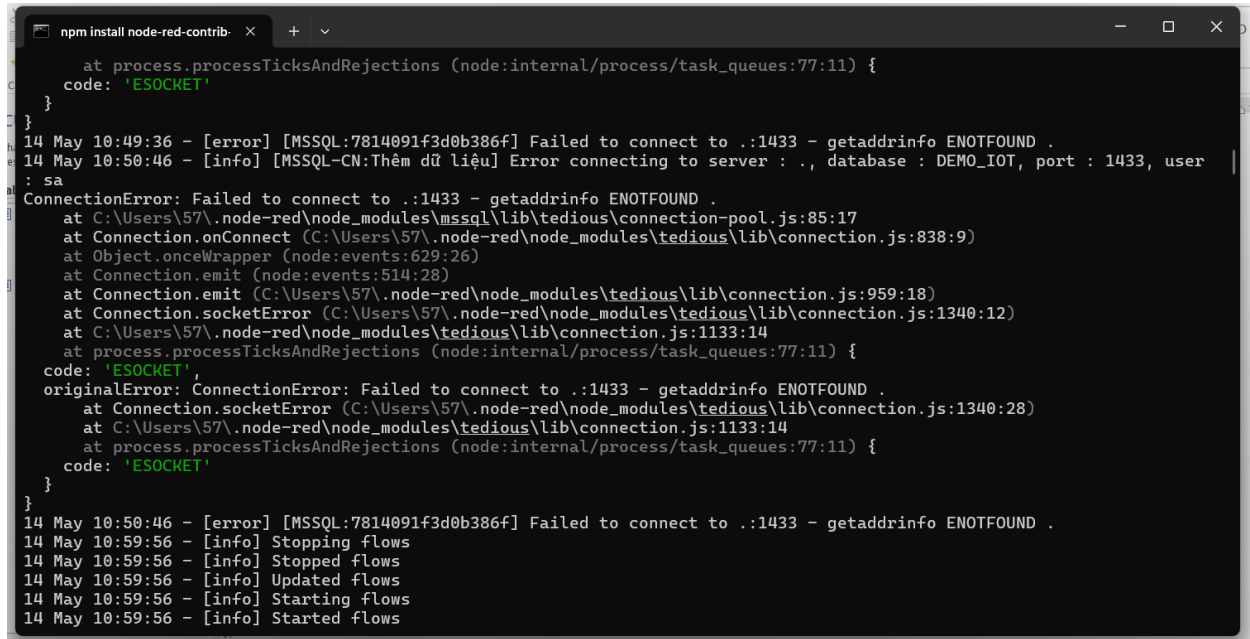
- 1: gen scripts sql : struct + data ;
2. code py fastAPI;
- 3: flow.json exported của node-red
4. project web (asp dot net) : html + js + css + aspx + aspx.cs (api)
5. pdf (save as word) : mô tả lại quá trình làm. nhớ chụp ảnh màn hình những bước quan trọng

Những mục đích đã làm :

- Tạo Api
- Liên kết với noderd
- Vẽ được biểu đồ

Câu lệnh mở node-red:

node C:\Users\57\AppData\Roaming\npm\node\_modules\node-red\red.js



```
npm install node-red-contrib
  at process.processTicksAndRejections (node:internal/process/task_queues:77:11) {
    code: 'ESOCKET'
  }
}
14 May 10:49:36 - [error] [MSSQL:7814091f3d0b386f] Failed to connect to .:1433 - getaddrinfo ENOTFOUND .
14 May 10:50:46 - [info] [MSSQL-CN:Thêm dữ liệu] Error connecting to server : ., database : DEMO_IOT, port : 1433, user : sa
ConnectionError: Failed to connect to .:1433 - getaddrinfo ENOTFOUND .
  at C:\Users\57\.node-red\node_modules\mssql\lib\tedious\connection-pool.js:85:17
  at Connection.onConnect (C:\Users\57\.node-red\node_modules\tedious\lib\connection.js:838:9)
  at Object.onceWrapper (node:events:629:26)
  at Connection.emit (node:events:514:28)
  at Connection.emit (C:\Users\57\.node-red\node_modules\tedious\lib\connection.js:959:18)
  at Connection.socketError (C:\Users\57\.node-red\node_modules\tedious\lib\connection.js:1340:12)
  at C:\Users\57\.node-red\node_modules\tedious\lib\connection.js:1133:14
  at process.processTicksAndRejections (node:internal/process/task_queues:77:11) {
    code: 'ESOCKET'
  }
originalError: ConnectionError: Failed to connect to .:1433 - getaddrinfo ENOTFOUND .
  at Connection.socketError (C:\Users\57\.node-red\node_modules\tedious\lib\connection.js:1340:12)
  at C:\Users\57\.node-red\node_modules\tedious\lib\connection.js:1133:14
  at process.processTicksAndRejections (node:internal/process/task_queues:77:11) {
    code: 'ESOCKET'
  }
}
14 May 10:50:46 - [error] [MSSQL:7814091f3d0b386f] Failed to connect to .:1433 - getaddrinfo ENOTFOUND .
14 May 10:59:56 - [info] Stopping flows
14 May 10:59:56 - [info] Stopped flows
14 May 10:59:56 - [info] Updated flows
14 May 10:59:56 - [info] Starting flows
14 May 10:59:56 - [info] Started flows
```

Tạo 1 database bất kỳ dùng để lưu trữ dữ liệu :

Object Explorer

Connect

DUYCAO (SQL Server 16.0.1115.1 - sa)

Databases

System DatabasesDatabase SnapshotsApi\_demoDEMO\_IOT

Database DiagramsTables

System TablesFileTablesExternal TablesGraph Tables

dbo.Sensordbo.SensorHistoryDropped Ledger Tables

ViewsExternal ResourcesSynonymsProgrammabilityQuery StoreService BrokerStorageSecurity

DiemDanhAIDWConfigurationDWDiagnosticsDWQueuefacedataformPro\_QLNKQL\_BanhangQL\_danh\_mucsv56kmtthonnotincanhan

~vs1485.sql - DUYC...EMO\_IOT (sa (102))\*

select \* from SensorHistory

116 %

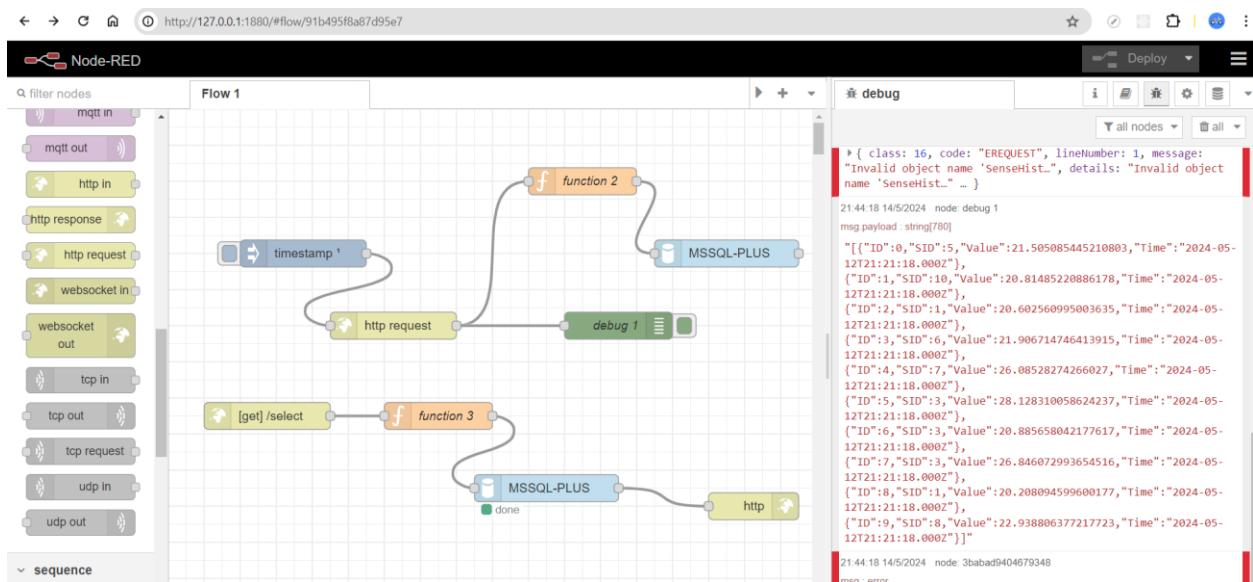
ResultsMessages

|     | ID   | SID | Value | Time                    |
|-----|------|-----|-------|-------------------------|
| 187 | 4087 | 1   | 40.00 | 2024-05-13 07:54:00.000 |
| 188 | 4088 | 1   | 40.00 | 2024-05-13 07:54:30.000 |
| 189 | 4089 | 1   | 40.00 | 2024-05-13 07:54:40.000 |
| 190 | 4090 | 1   | 40.00 | 2024-05-13 07:54:00.000 |
| 191 | 4091 | 1   | 40.00 | 2024-05-13 07:55:00.000 |
| 192 | 4092 | 1   | 40.00 | 2024-05-13 07:55:10.000 |
| 193 | 4093 | 1   | 40.00 | 2024-05-13 07:55:00.000 |
| 194 | 4094 | 1   | 40.00 | 2024-05-13 07:55:30.000 |
| 195 | 4095 | 1   | 40.00 | 2024-05-13 07:55:40.000 |
| 196 | 4096 | 1   | 40.00 | 2024-05-13 07:55:00.000 |
| 197 | 4097 | 1   | 29.02 | 2024-05-13 05:27:00.000 |
| 198 | 4098 | 1   | 30.02 | 2024-05-14 05:44:00.000 |
| 199 | 4099 | 1   | 30.30 | 2024-05-14 06:01:00.000 |
| 200 | 4100 | 1   | 30.30 | 2024-05-14 06:01:00.000 |
| 201 | 4101 | 1   | 32.00 | 2024-05-14 06:03:00.000 |
| 202 | 4102 | 1   | 33.00 | 2024-05-14 06:28:00.000 |

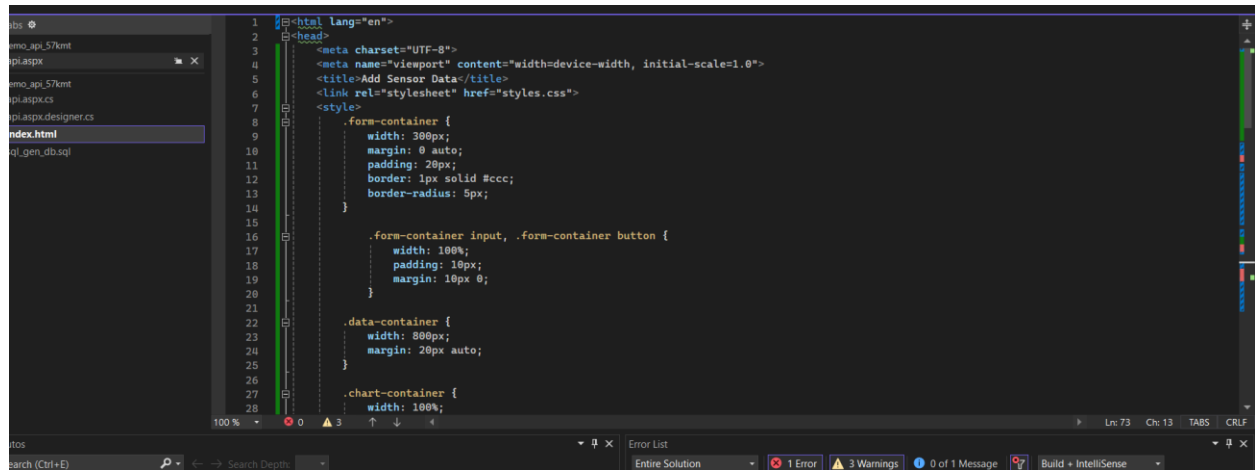
Tạo Api làm những nhiệm vụ mà đề bài yêu cầu :

```
Click here to ask Blackbox to help you code faster
1 from fastapi import FastAPI
2 import random
3 from fastapi.middleware.cors import CORSMiddleware
4 import requests
5 app = FastAPI()
6
7 # Allow CORS for development
8 app.add_middleware(
9     CORSMiddleware,
10     allow_origins=["*"],
11     allow_methods=["*"],
12     allow_headers=["*"],
13 )
14
15 @app.get("/api/data")
16 def get_data():
17     # Example of generating random data
18     data = [
19         {"ID": i, "SID": random.randint(1, 10), "Value": random.uniform(20.0, 30.0), "Time": "2024-05-12T21:21:18.000Z"}
20         for i in range(10)
21     ]
22     return data
```

Trong nodeRed ta thiết kế 1 file lấy dữ liệu API 1 file lấy dữ liệu thô và sau đó lưu dữ liệu đó vào cơ sở dữ liệu:



Sau đó dùng C# để vẽ biểu đồ hiển thị:



```
1 <html lang="en">
2 <head>
3   <meta charset="UTF-8">
4   <meta name="viewport" content="width=device-width, initial-scale=1.0">
5   <title>Add Sensor Data</title>
6   <link rel="stylesheet" href="styles.css">
7   <style>
8     .form-container {
9       width: 300px;
10      margin: 0 auto;
11      padding: 20px;
12      border: 1px solid #ccc;
13      border-radius: 5px;
14    }
15
16    .form-container input, .form-container button {
17      width: 100%;
18      padding: 10px;
19      margin: 10px 0;
20    }
21
22    .data-container {
23      width: 800px;
24      margin: 20px auto;
25    }
26
27    .chart-container {
28      width: 100%;
```

## Sensor Data

