Setup n8n
For OEE Monitoring System

Yaser Ali Husen

n8n Installation Linux (VPS)

Presented by: Yaser Ali Husen

n8n Installation - Linux

Source for Linux VPS: https://www.youtube.com/watch?v=R6HsF8Ndeas

1. Update & Upgrade

sudo apt update && sudo apt upgrade –y

2. Create swap memory (For low memory only)

sudo fallocate -l 4G /swapfile
sudo chmod 600 /swapfile
sudo mkswap /swapfile
sudo swapon /swapfile
 # Add to /etc/fstab for persistensi:
echo '/swapfile none swap sw 0 0' | sudo tee -a /etc/fstab

3. Install Docker

Instal required packages

sudo apt install -y apt-transport-https ca-certificates curl gnupg

4. Add GPG key Docker

sudo install -m 0755 -d /etc/apt/keyrings
curl -fsSL https://download.docker.com/linux/debian/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg
sudo chmod a+r /etc/apt/keyrings/docker.gpg

n8n Installation - Linux

5. Setup repository

```
echo \
  "deb [arch="$(dpkg --print-architecture)" signed-by=/etc/apt/keyrings/docker.gpg]
https://download.docker.com/linux/debian \
  "$(. /etc/os-release && echo "$VERSION_CODENAME")" stable" | \
  sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
```

6. Update dan instal Docker

```
sudo apt update
sudo apt install -y docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin
```

7. Verification Installation

```
sudo docker run hello-world
```

n8n Installation - Linux

#Run n8n in Docker----------

mkdir -p ~/n8n_data

8. Run n8n container with memory limitation

```
sudo docker run -d \
  --name n8n \
  --restart unless-stopped \
  --memory=1g \
  --memory-swap=1.5g \
  -p 5678:5678 \
  -v ~/n8n_data:/home/node/.n8n \
  -e N8N_SECURE_COOKIE=false \
  -e N8N_BASIC_AUTH_ACTIVE=true \
  -e N8N_RUNNERS_ENABLED=true \
  n8nio/n8n
```

#Check docker

sudo docker ps

sudo docker logs n8n

#Test using curl

curl -v http://1<IP_Address>:5678

n8n Installation - Linux

Trouble shooting----------

#If want to reset or delete

```
sudo docker stop n8n && sudo docker rm n8n
sudo rm -rf ~/n8n_data
mkdir ~/n8n_data
sudo docker stop n8n && sudo docker rm n8n
```

Run n8n container#Change port to 80, some vps blocks port 5678

```
sudo docker stop n8n && sudo docker rm n8n
sudo docker run -d \
  --name n8n \
  --restart unless-stopped \
  --memory=1g \
  --memory-swap=1.5g \
  -p 80:5678 \
  -e N8N_PORT=5678 \
  -e N8N_HOST=0.0.0.0 \
  -v ~/n8n_data:/home/node/.n8n \
  -e N8N_SECURE_COOKIE=false \
  -e N8N_BASIC_AUTH_ACTIVE=true \
  -e N8N_RUNNERS_ENABLED=true \
  n8nio/n8n
```

n8n Installation Windows

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n8n Installation – Windows (With Docker)

1. Download Docker Desktop for Windows
Website: https://docs.docker.com/desktop/setup/install/windows-install/

2. Install Docker Desktop
3. Install n8n in Docker Desktop

n8n Installation – Windows (Without Docker)

1. Install Nodejs. (version: 20.19 or 22.19)
Website: https://nodejs.org/en/download

2. Install n8n
Open cmd prompt:
npm install n8n –g

3. Run n8n
In cmd prompt:
n8n

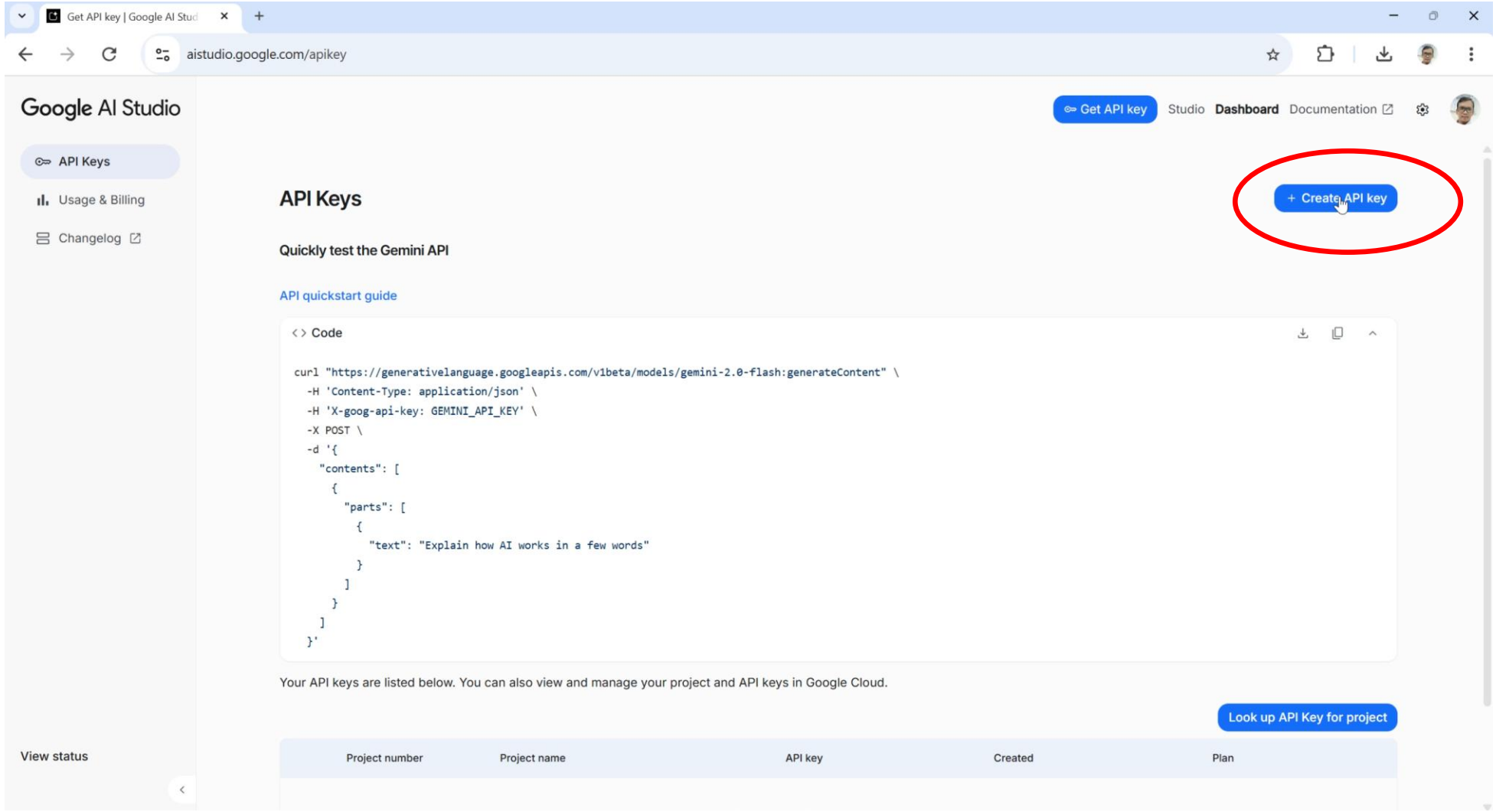
4. Open n8n in Browser
Address: 127.0.0.1:5678

Signup Chat Model

Presented by: Yaser Ali Husen

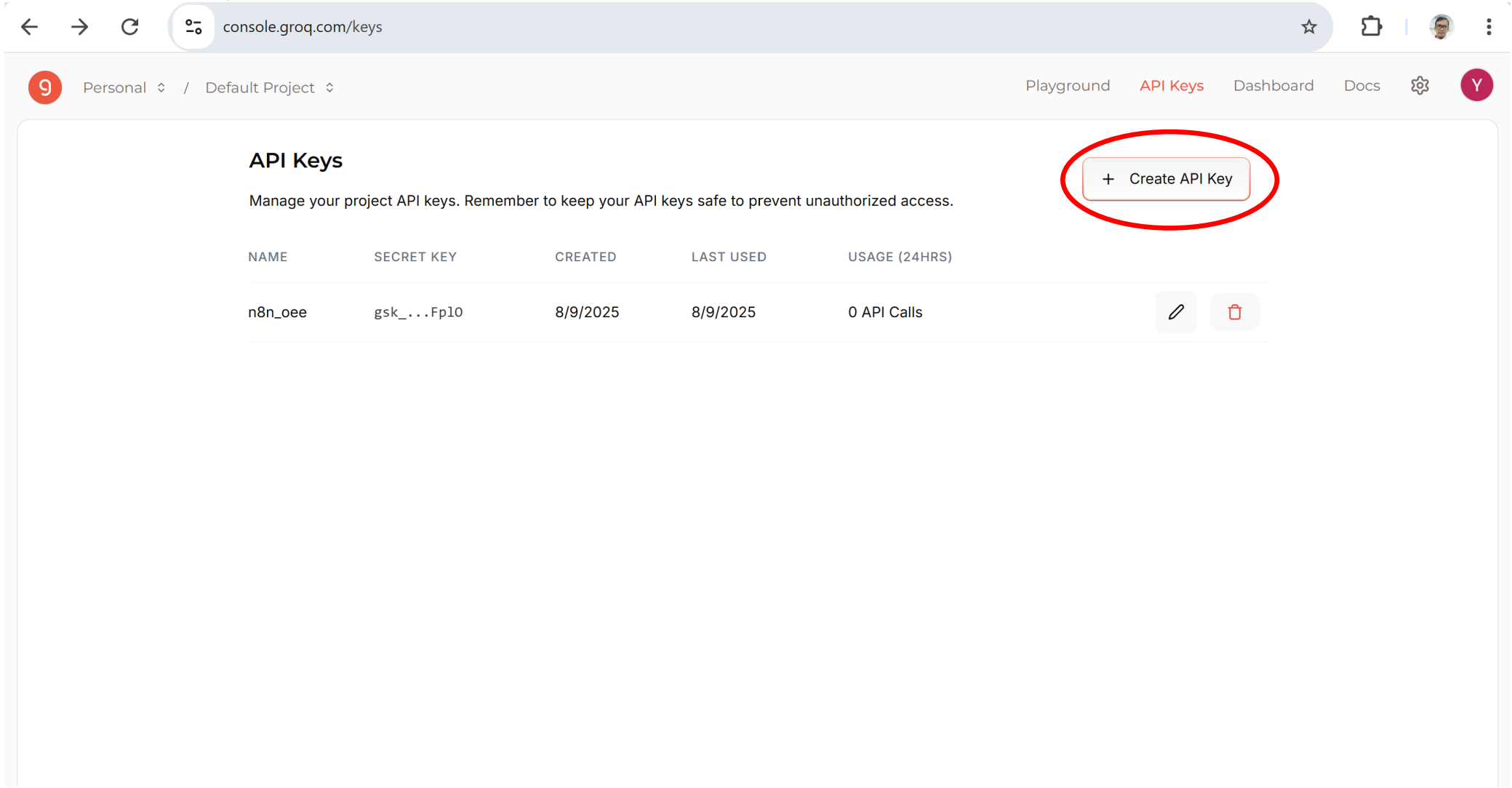
Gemini AI

1. Visit website: https://aistudio.google.com/
2. Create API Key



Groq AI

1. Visit website: https://console.groq.com/
2. Create API Key

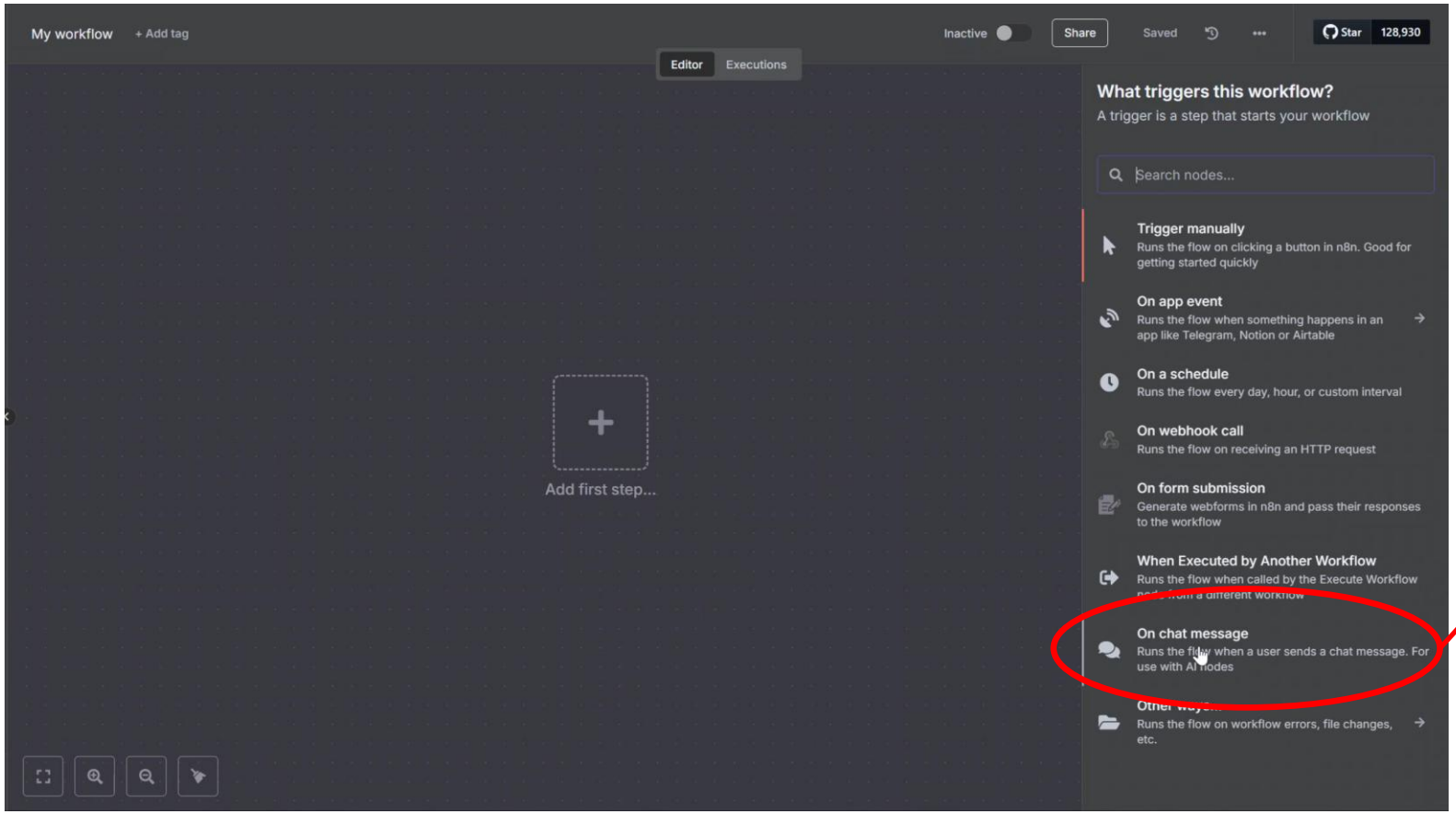


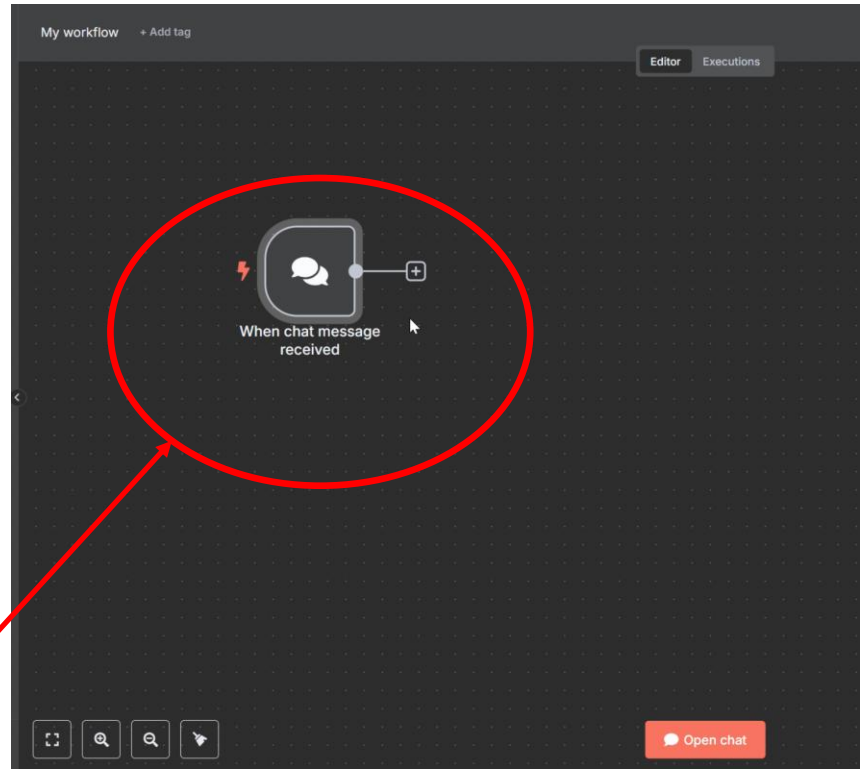
n8n Flow

Presented by: Yaser Ali Husen

n8n Flow - Chat

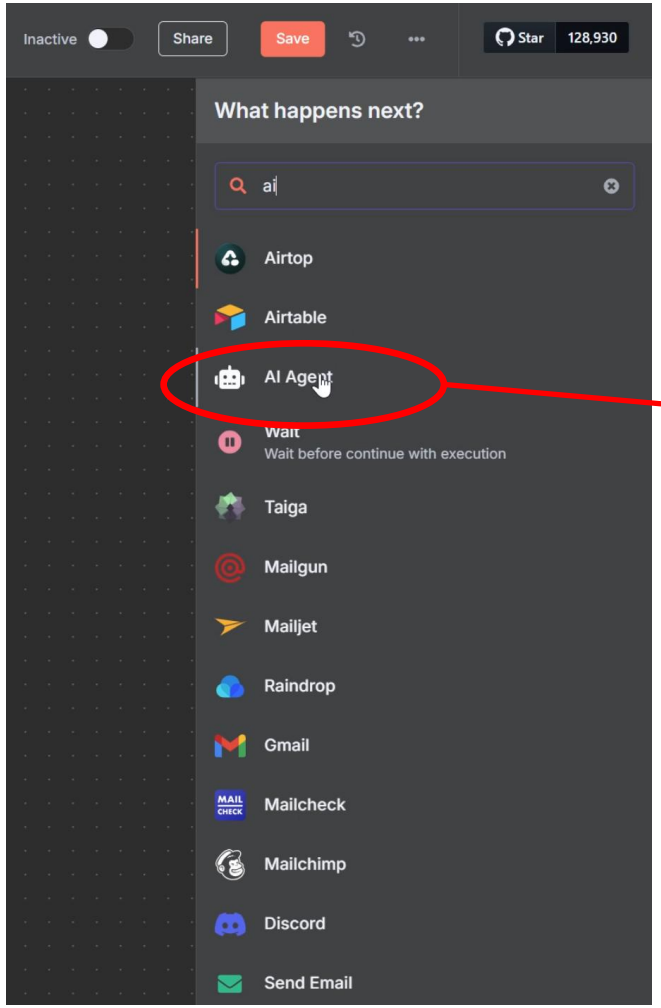
1. Add On chat message

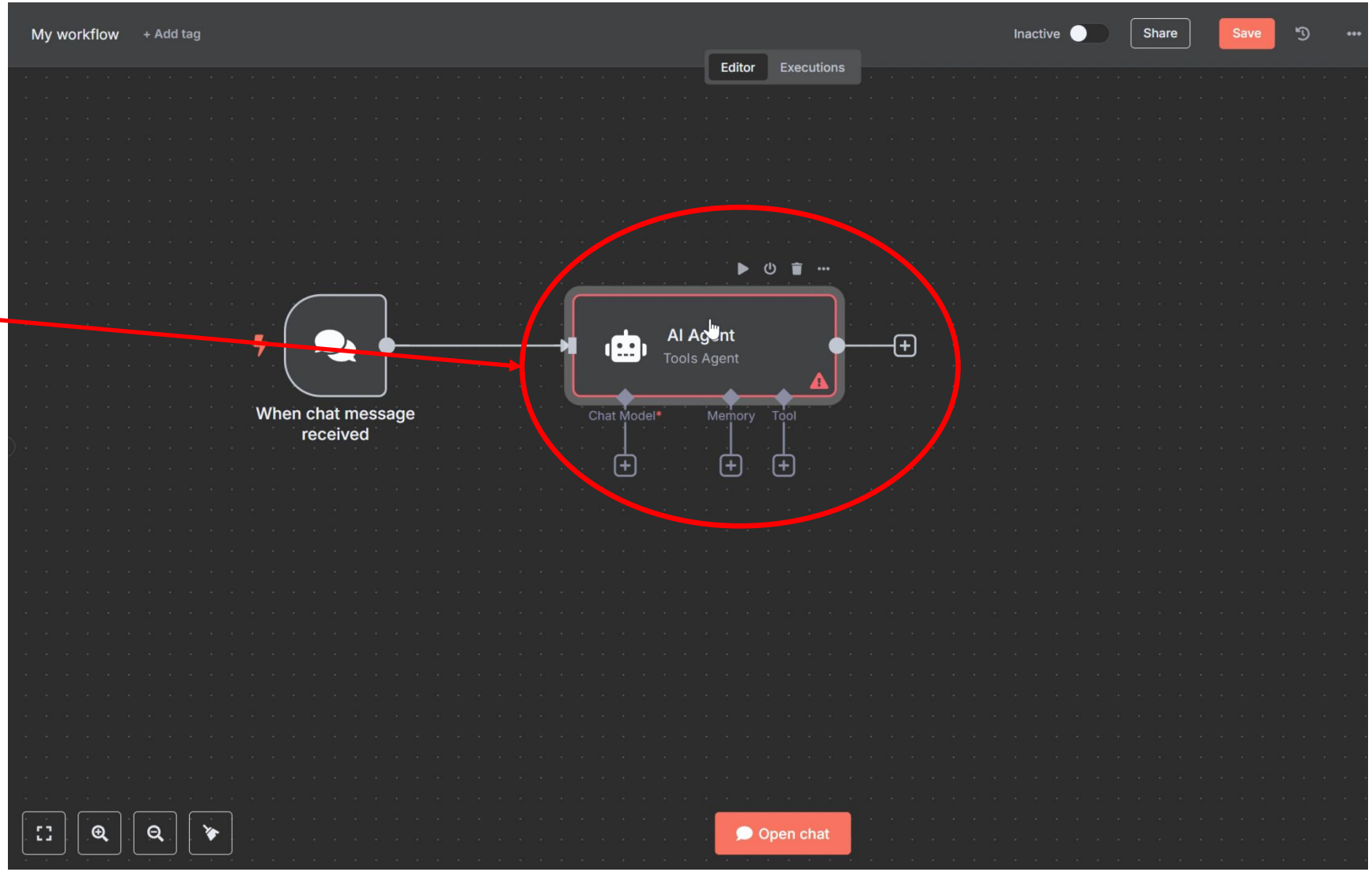




n8n Flow – AI Agent

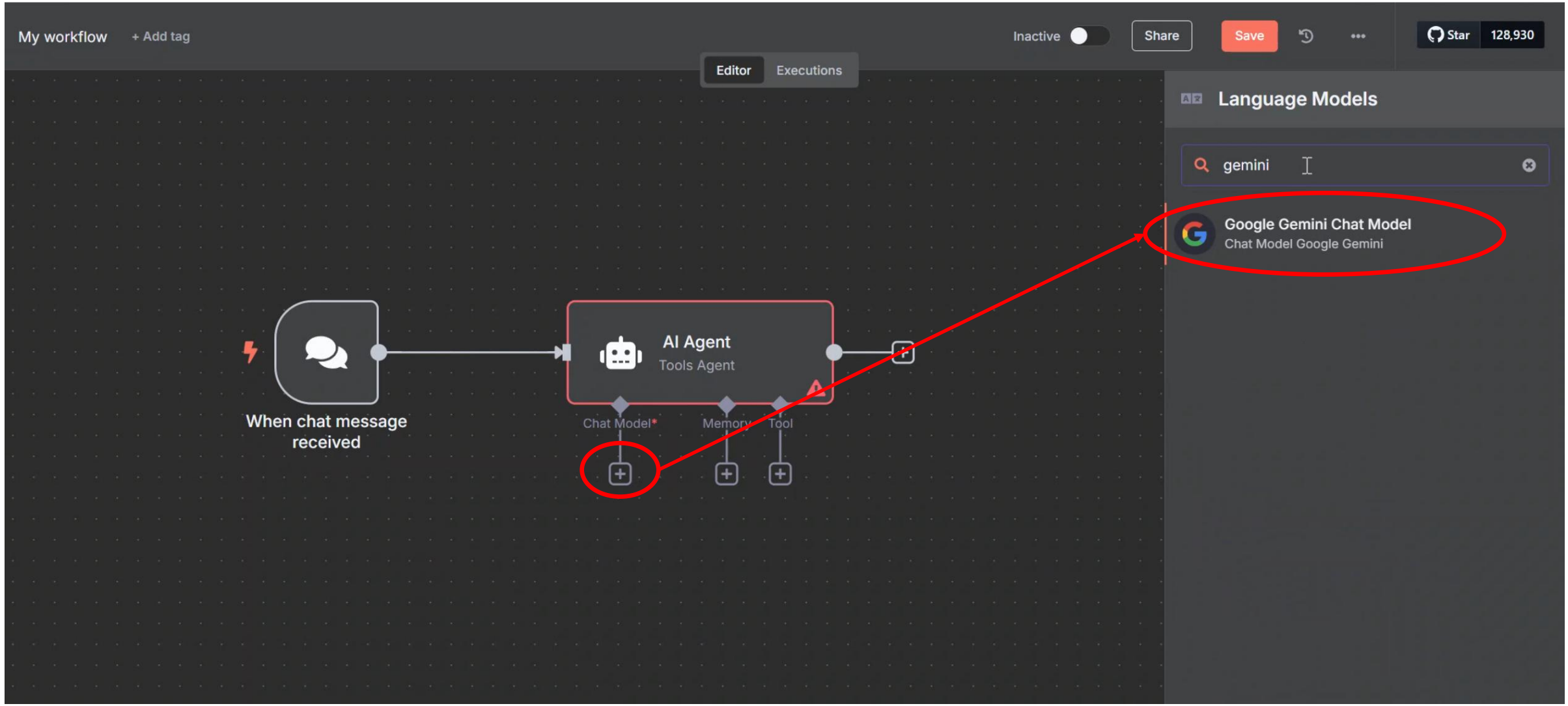
2. Add AI Agent





n8n Flow – Chat Model

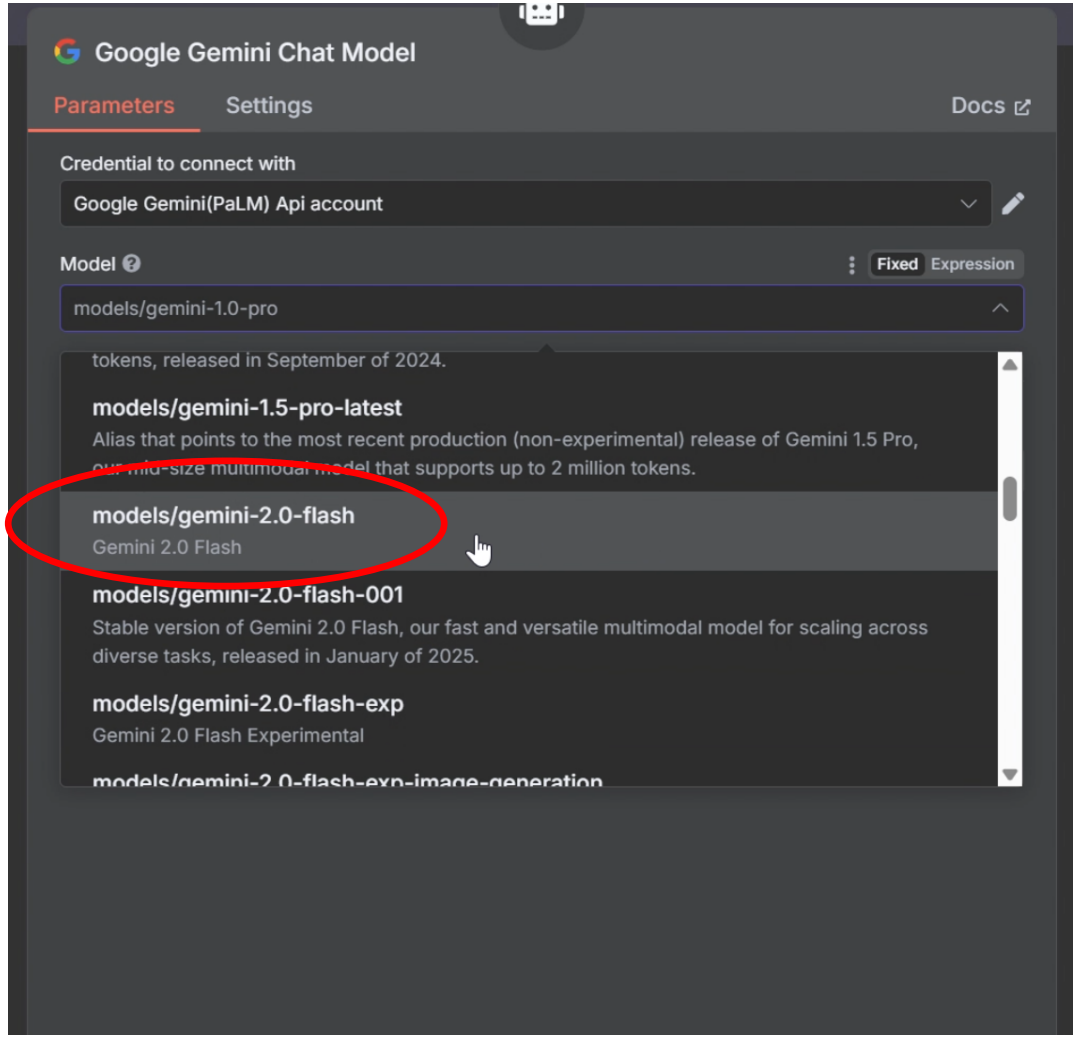
3. Add AI Chat Model



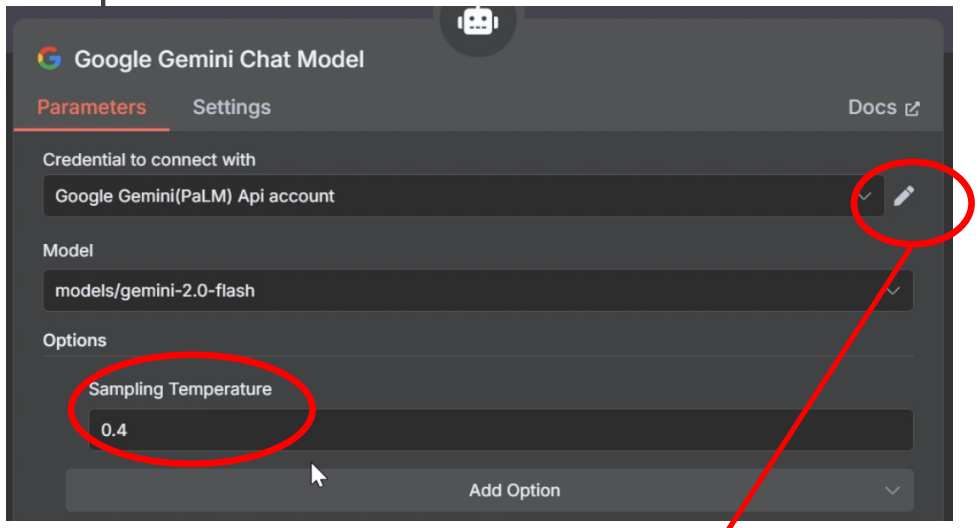
n8n Flow – Chat Model

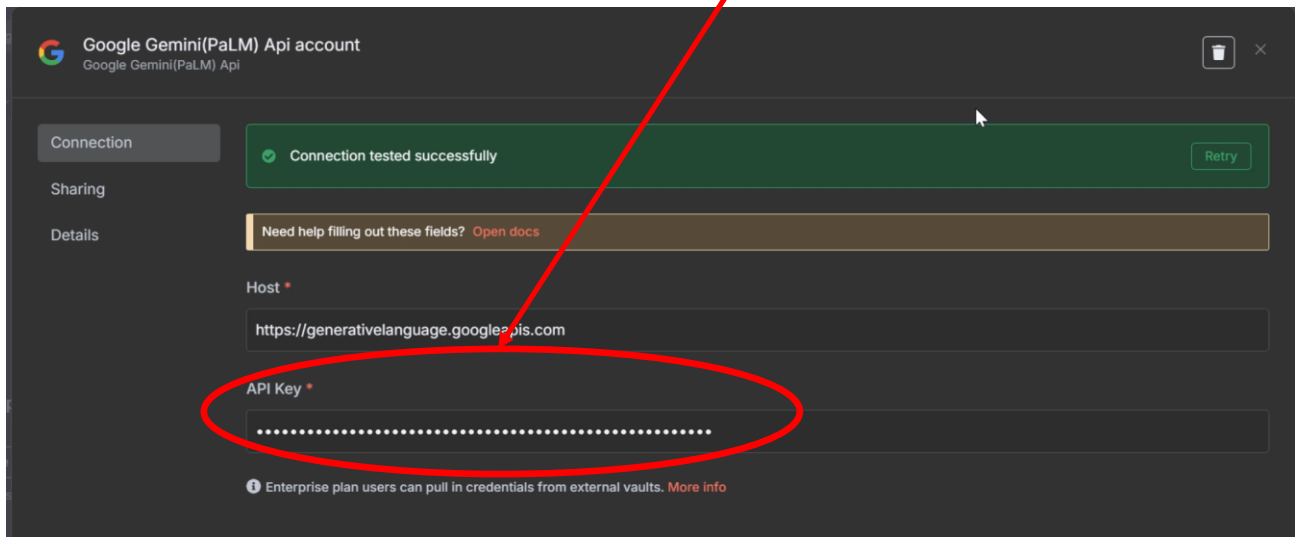
Chat Model Configuration

AI Model:

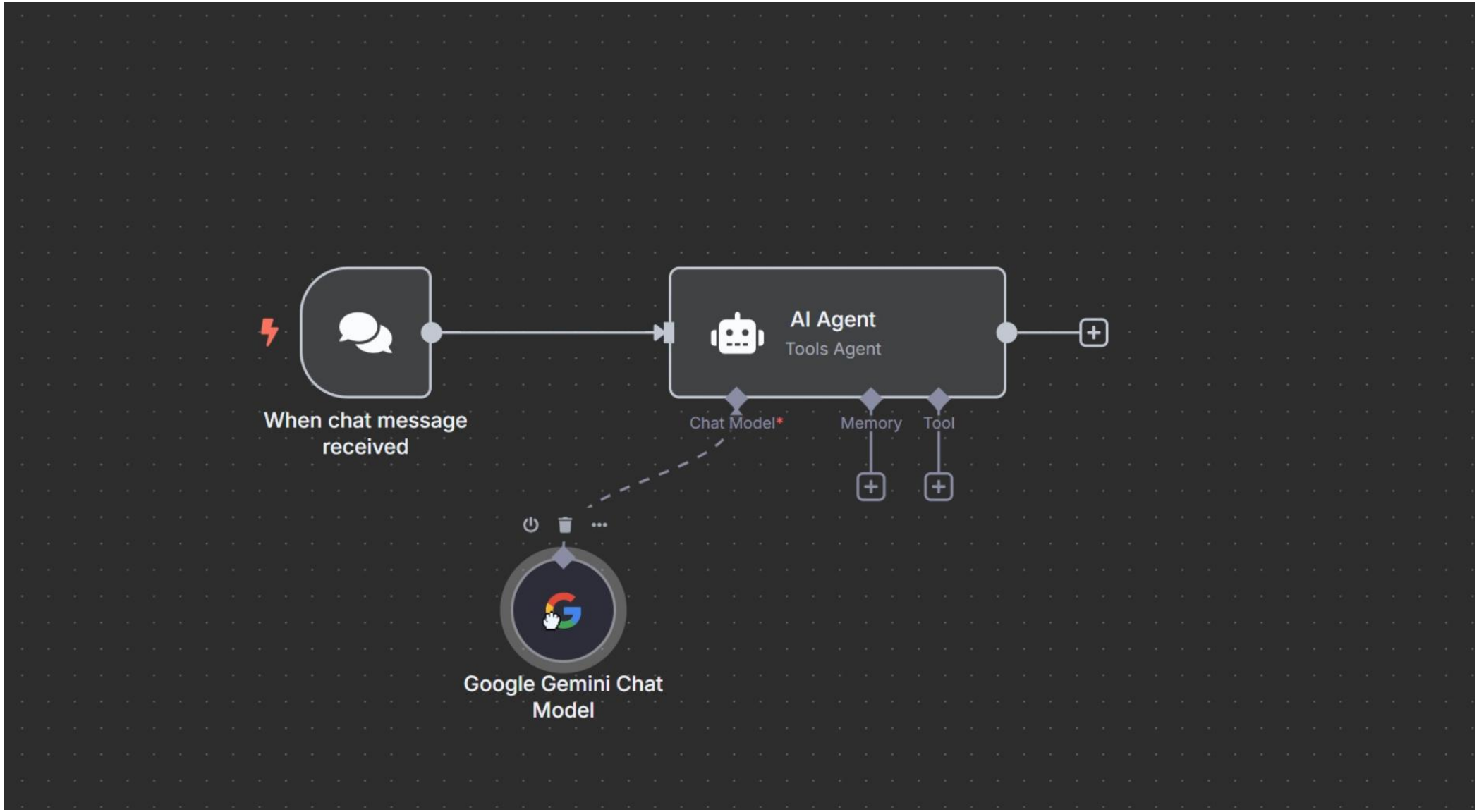


Temperature:



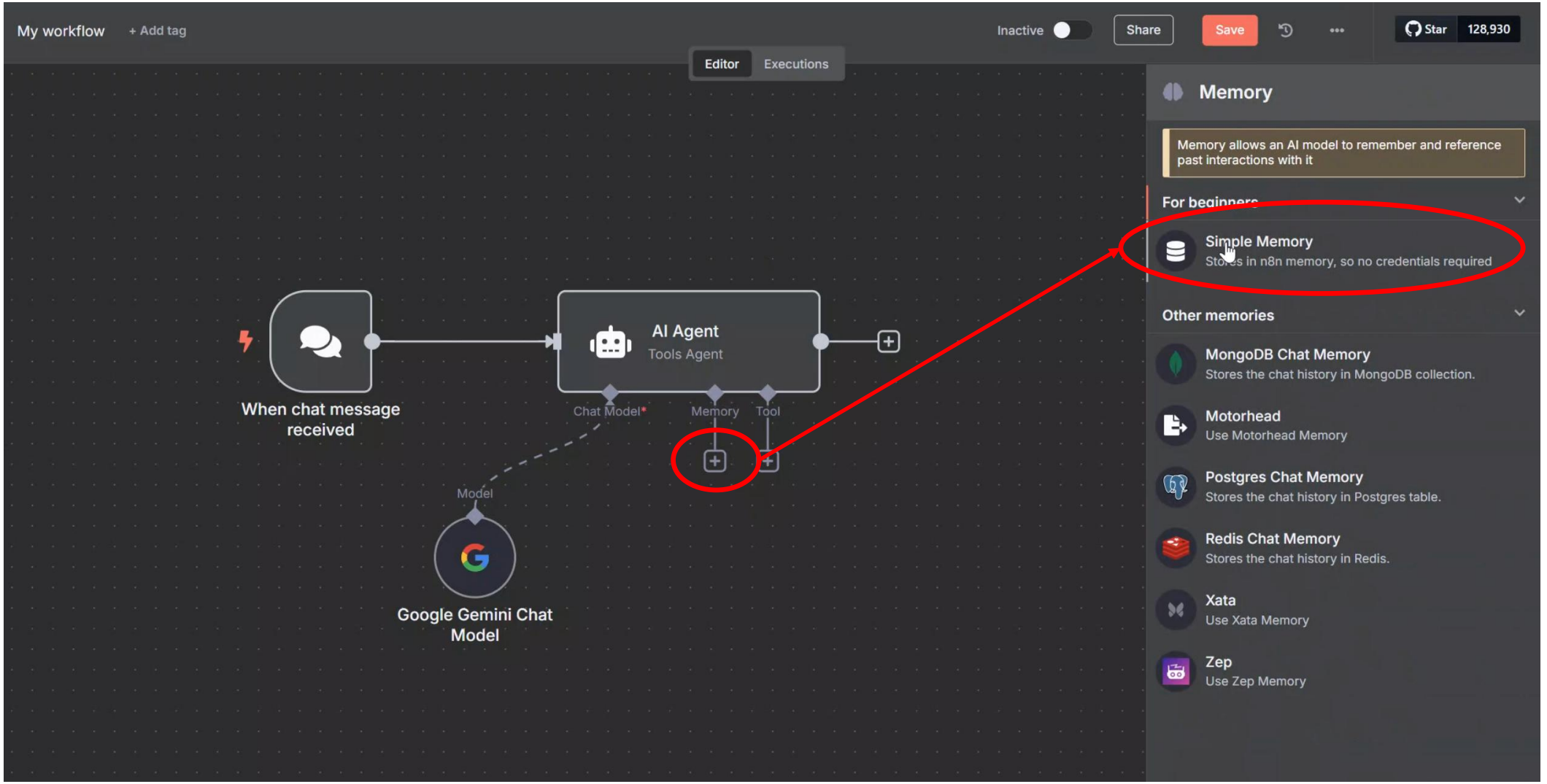


n8n Flow – Chat Model



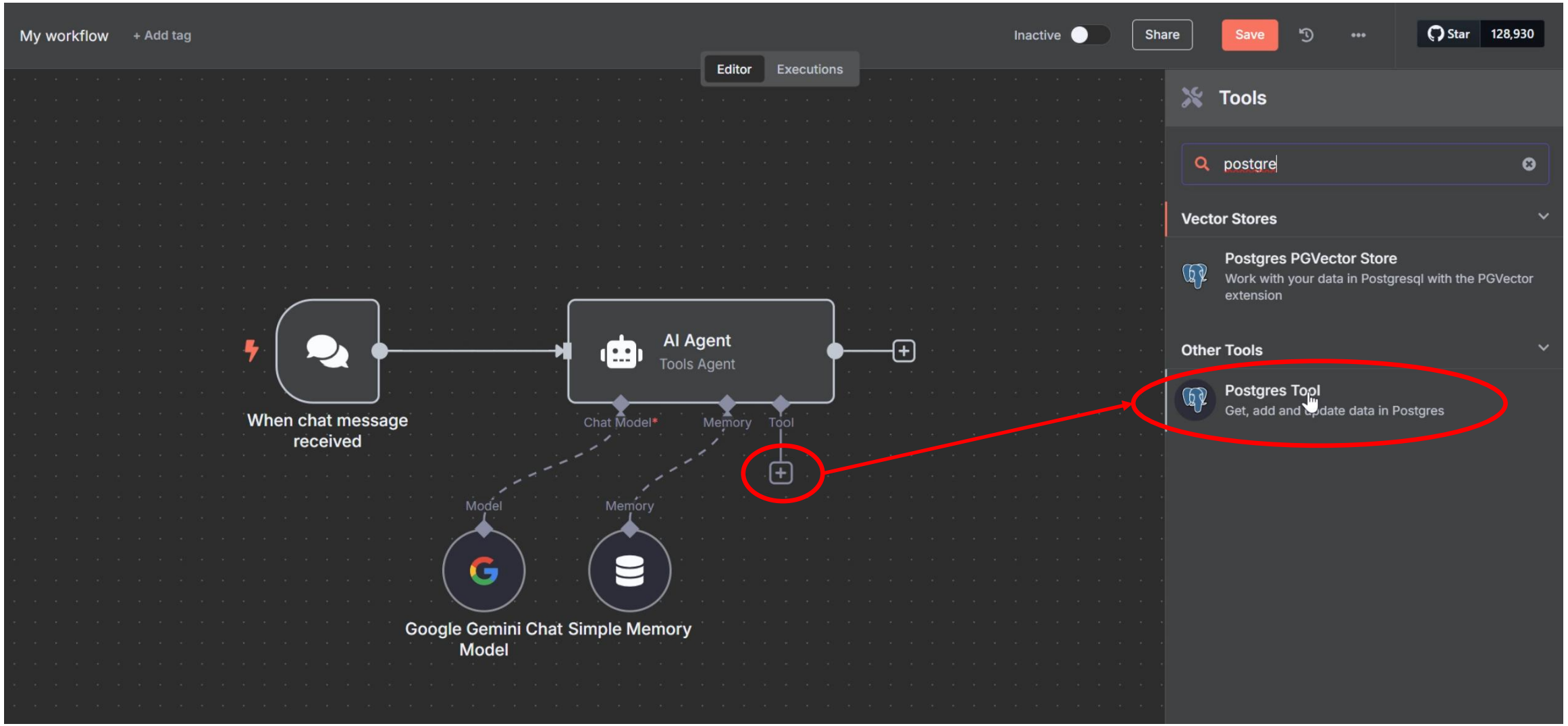
n8n Flow - Memory

4. Add Memory



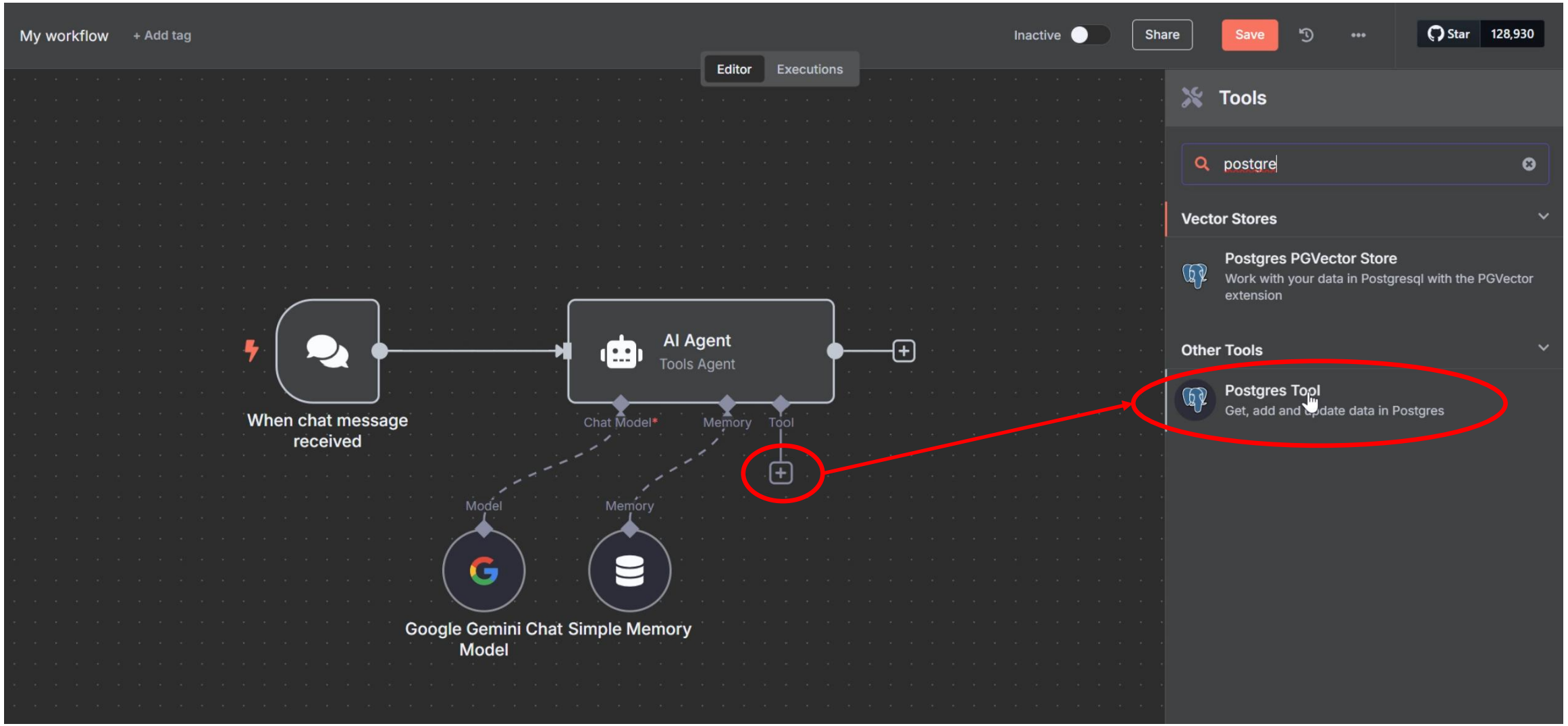
n8n Flow – Tool: Table List

5. Add Tool: Table List



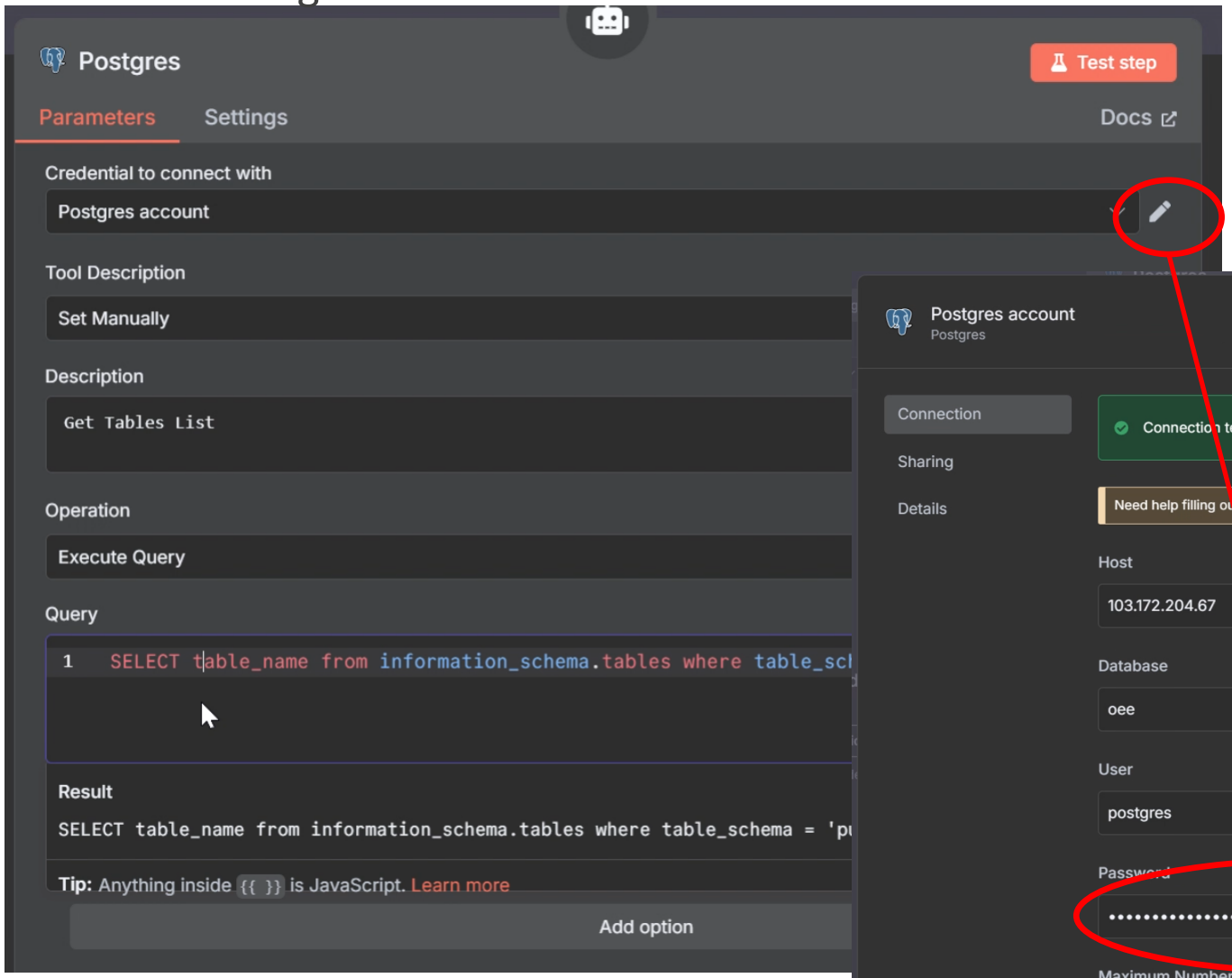
n8n Flow – Tool: Table List

5. Add Tool: Table List



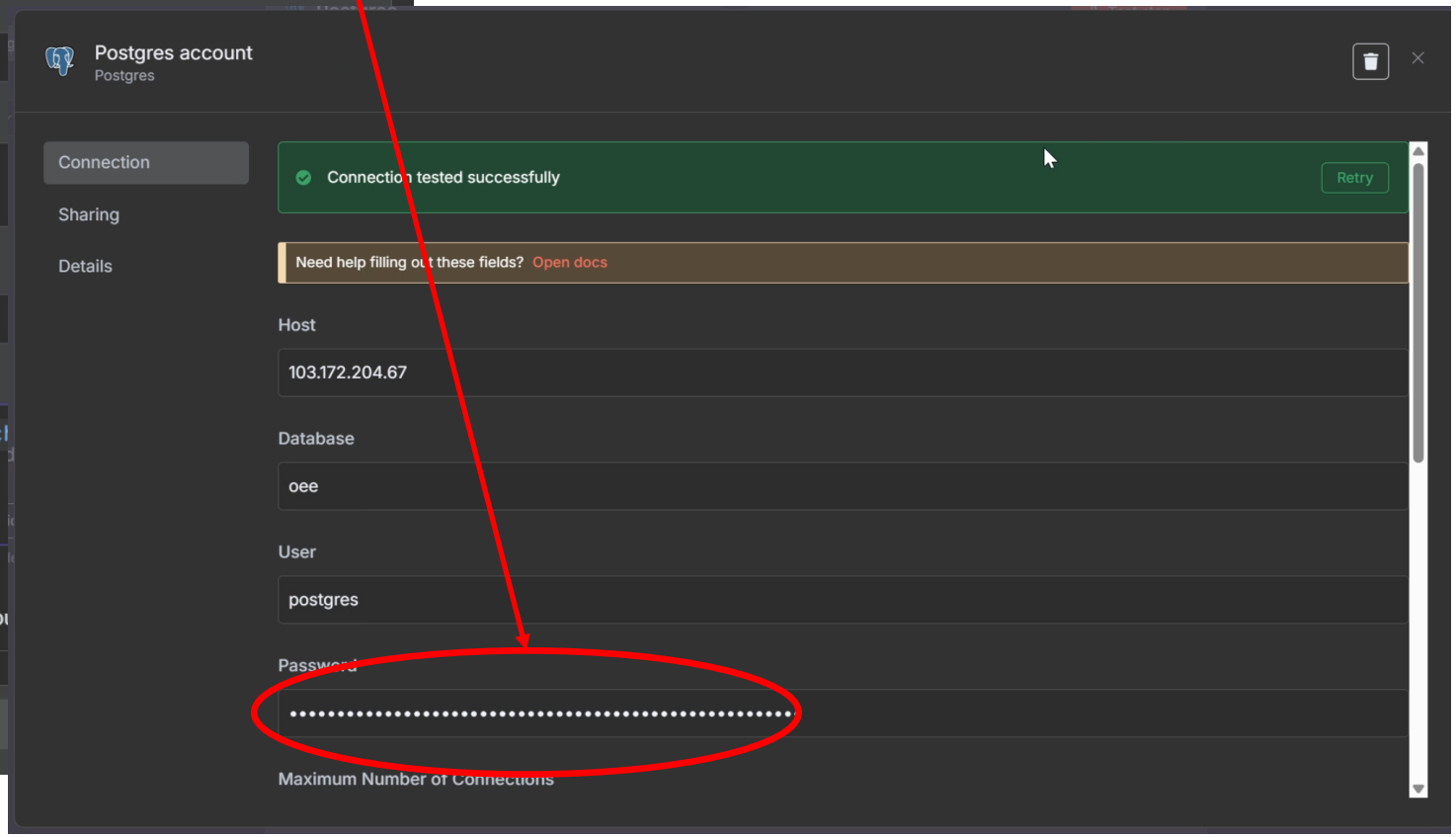
n8n Flow – Tool: Table List

Table List Configuration



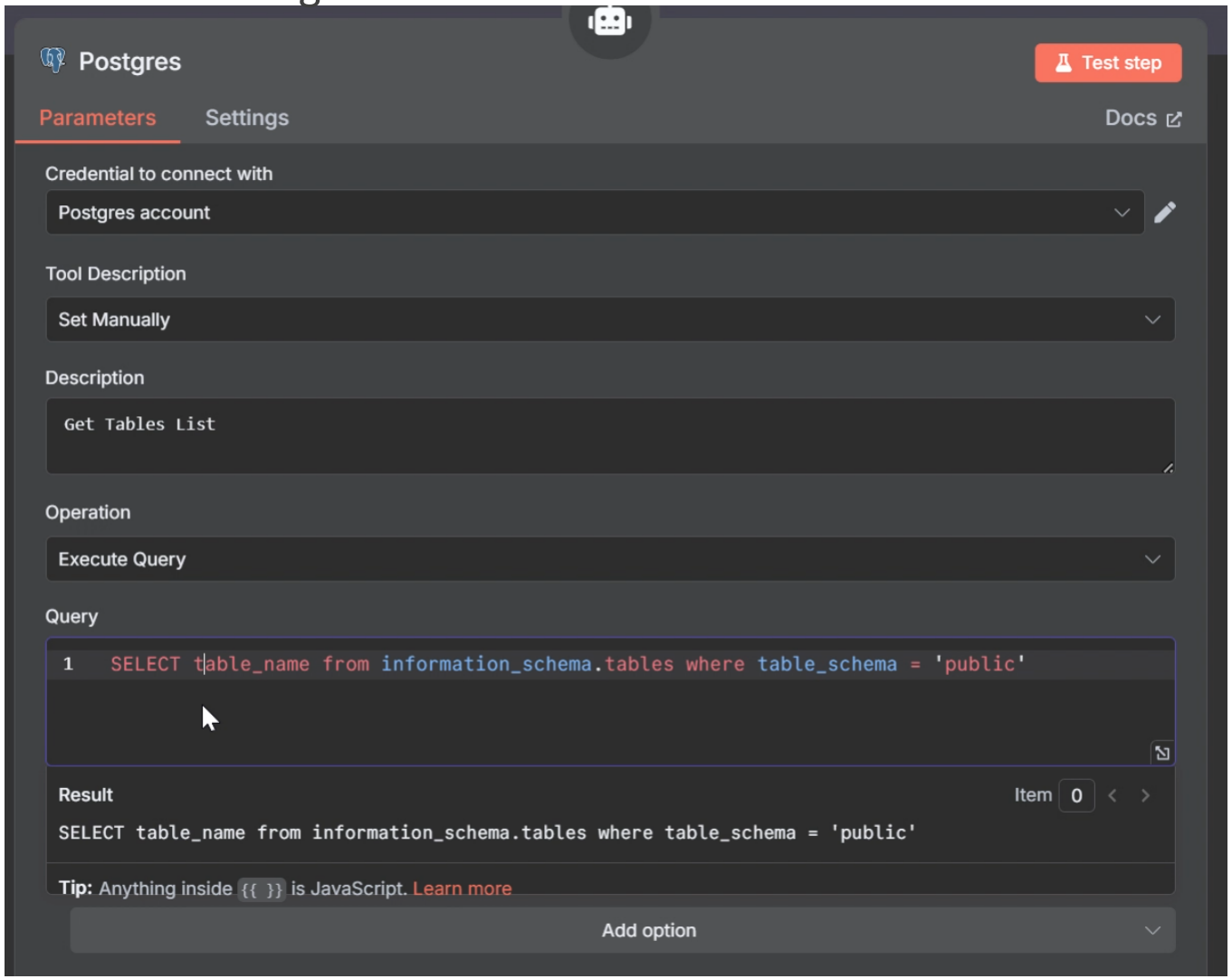
If using n8n on docker, please user database IP address instead localhost
Get IP Cmd: ip route

Database Connection:



n8n Flow – Tool: Table List

Table List Configuration

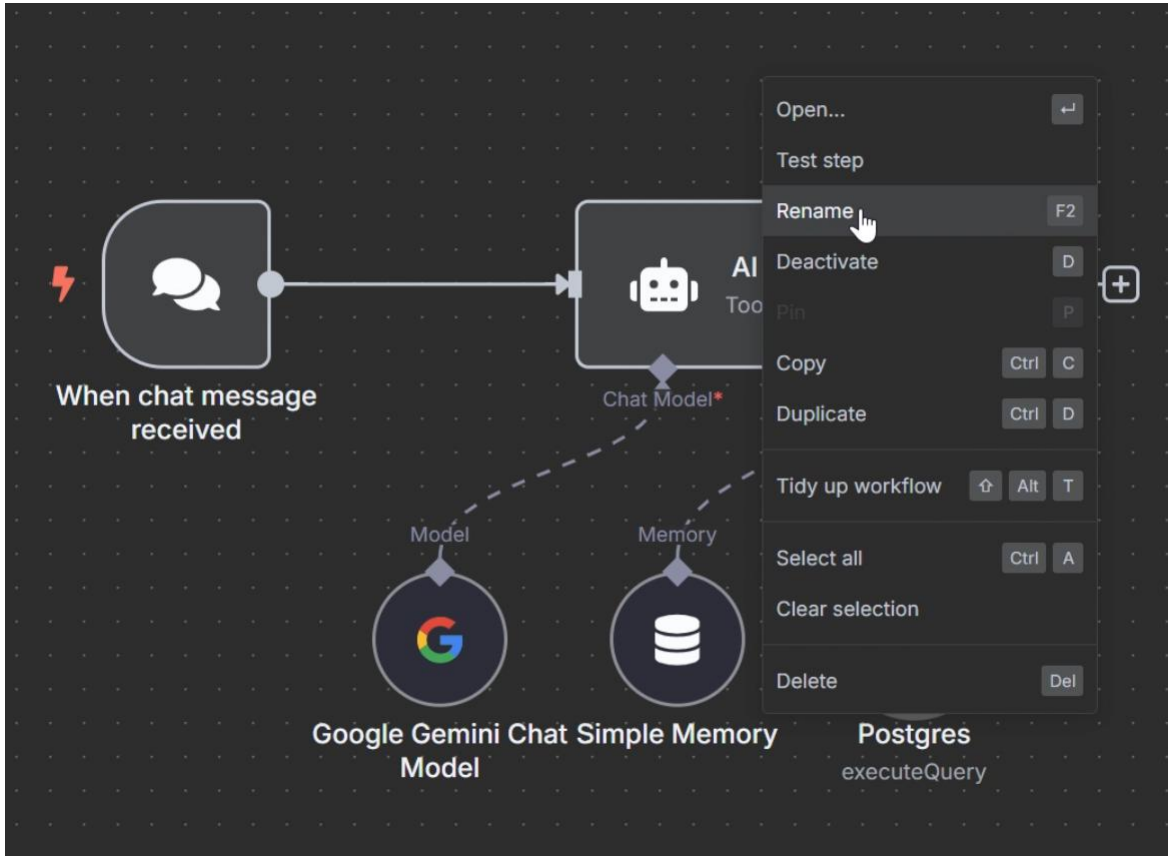


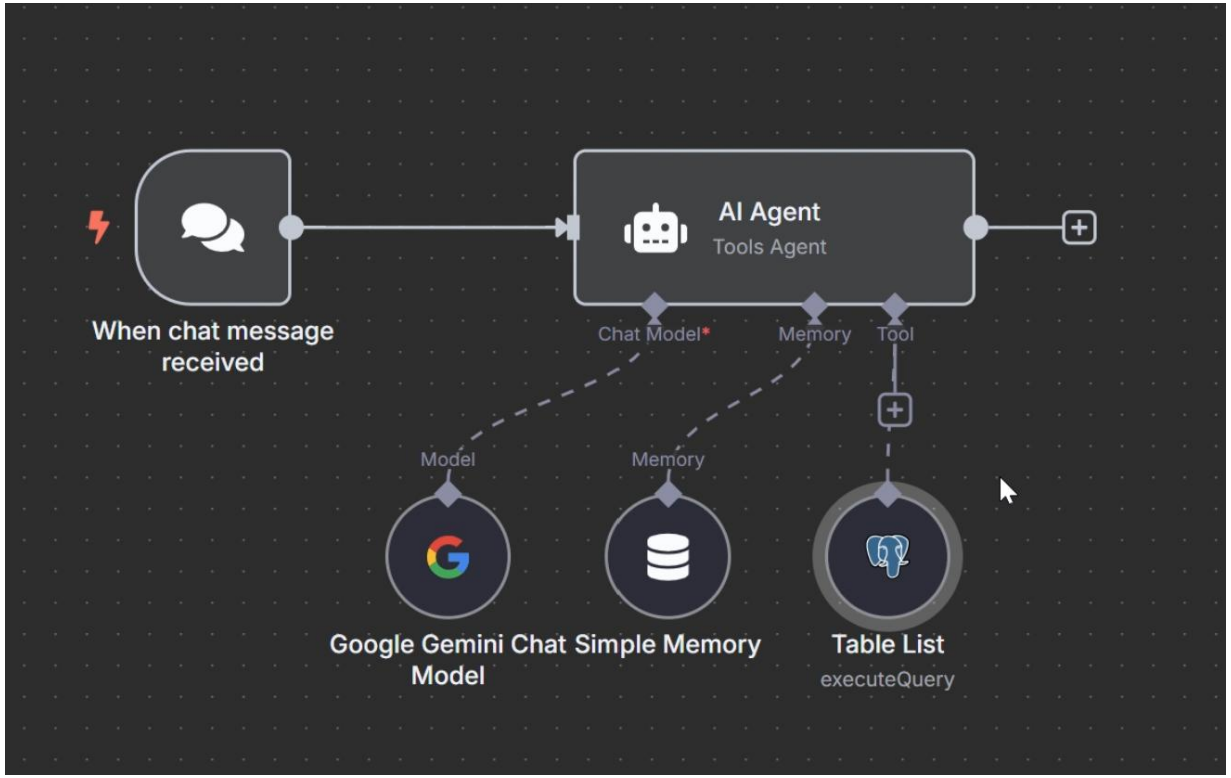
Query:

SELECT table_name from information_schema.tables where table_schema = 'public'

n8n Flow – Tool: Table List

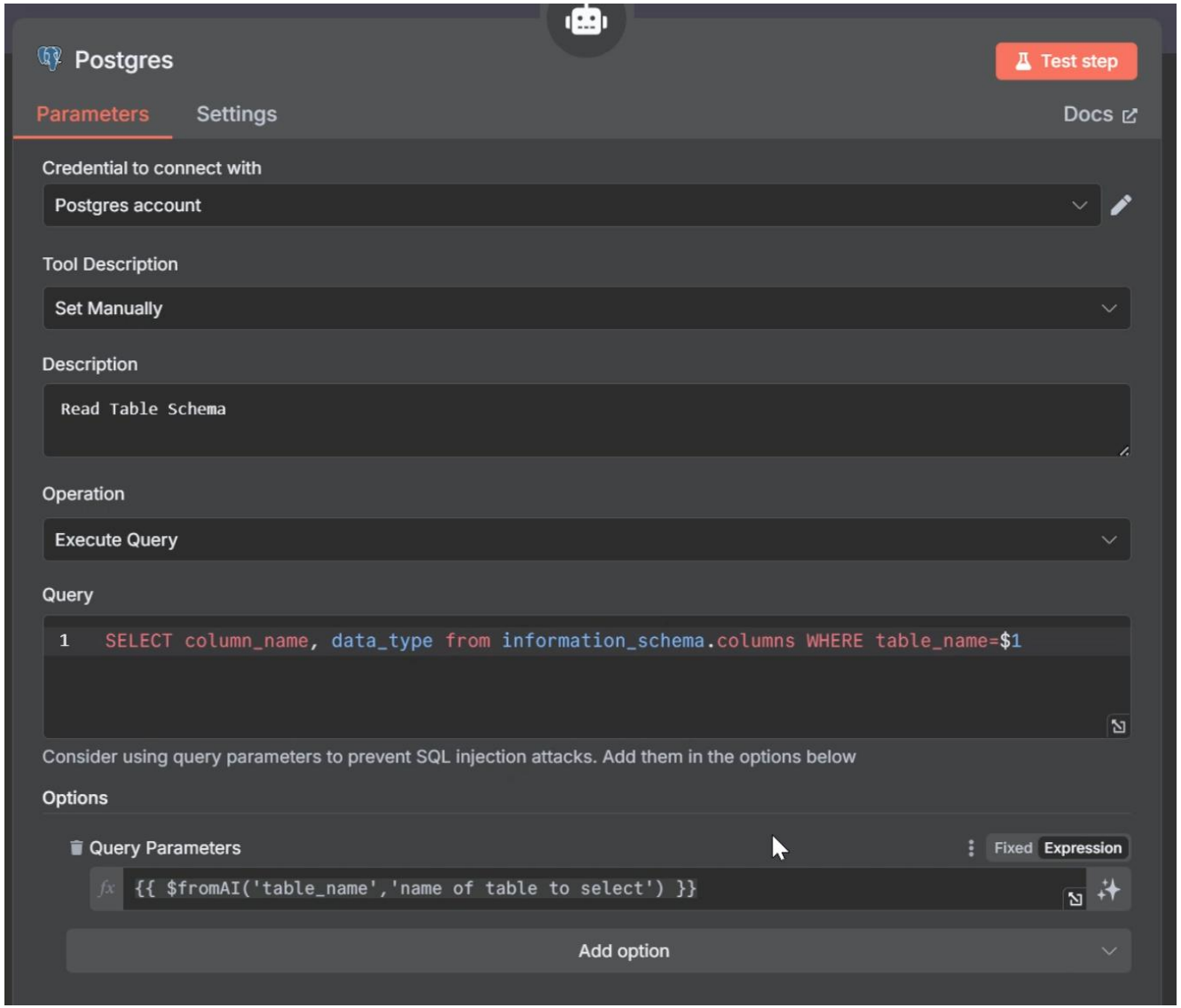
Rename Tool





n8n Flow – Tool: Table Schema

6. Add Tool: Table Schema



Query:

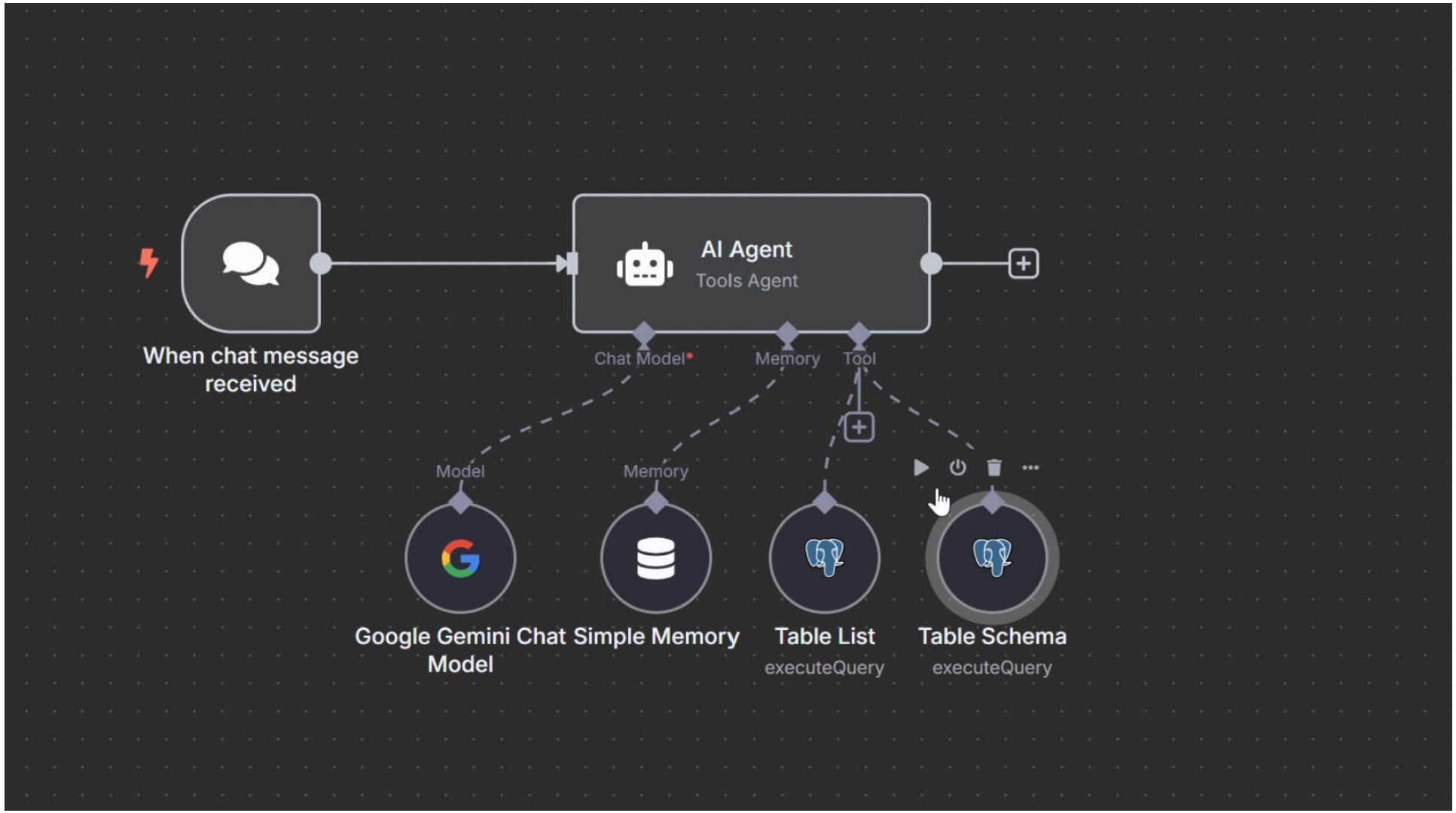
SELECT column_name, data_type from information_schema.columns WHERE table_name=$1

Add option → Query Parameters:

{{ $fromAI('table_name','name of table to select') }}

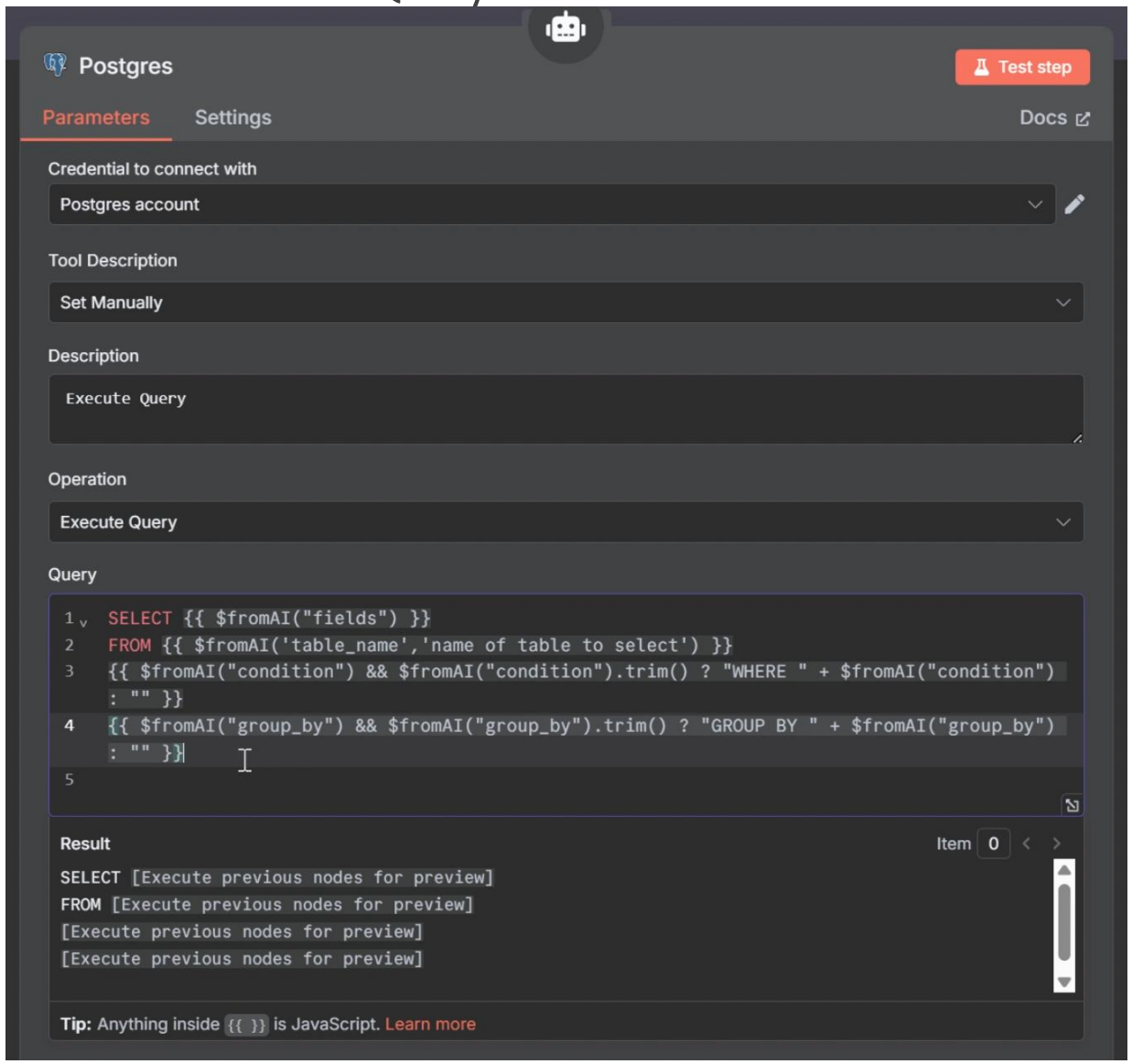
n8n Flow – Tool: Table Schema

Table Schema



n8n Flow – Tool: Execute Query

7. Add Tool: Execute Query

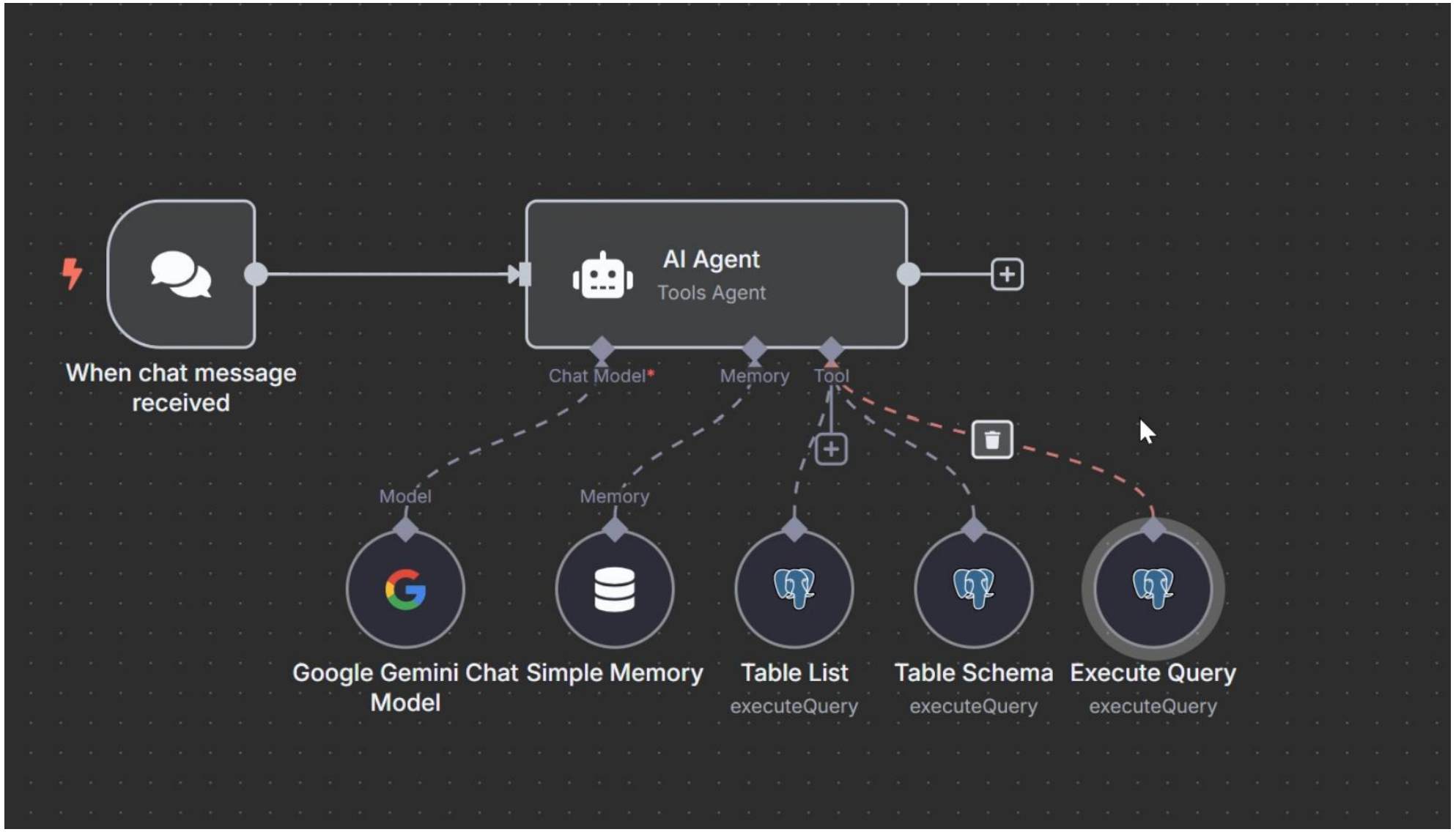


Query:

SELECT {{ $fromAI("fields") }}FROM {{ $fromAI('table_name','name of table to select') }}{{ $fromAI("condition") && $fromAI("condition").trim() ? "WHERE " + $fromAI("condition") : "" }}{{ $fromAI("group_by") && $fromAI("group_by").trim() ? "GROUP BY " + $fromAI("group_by") : "" }}

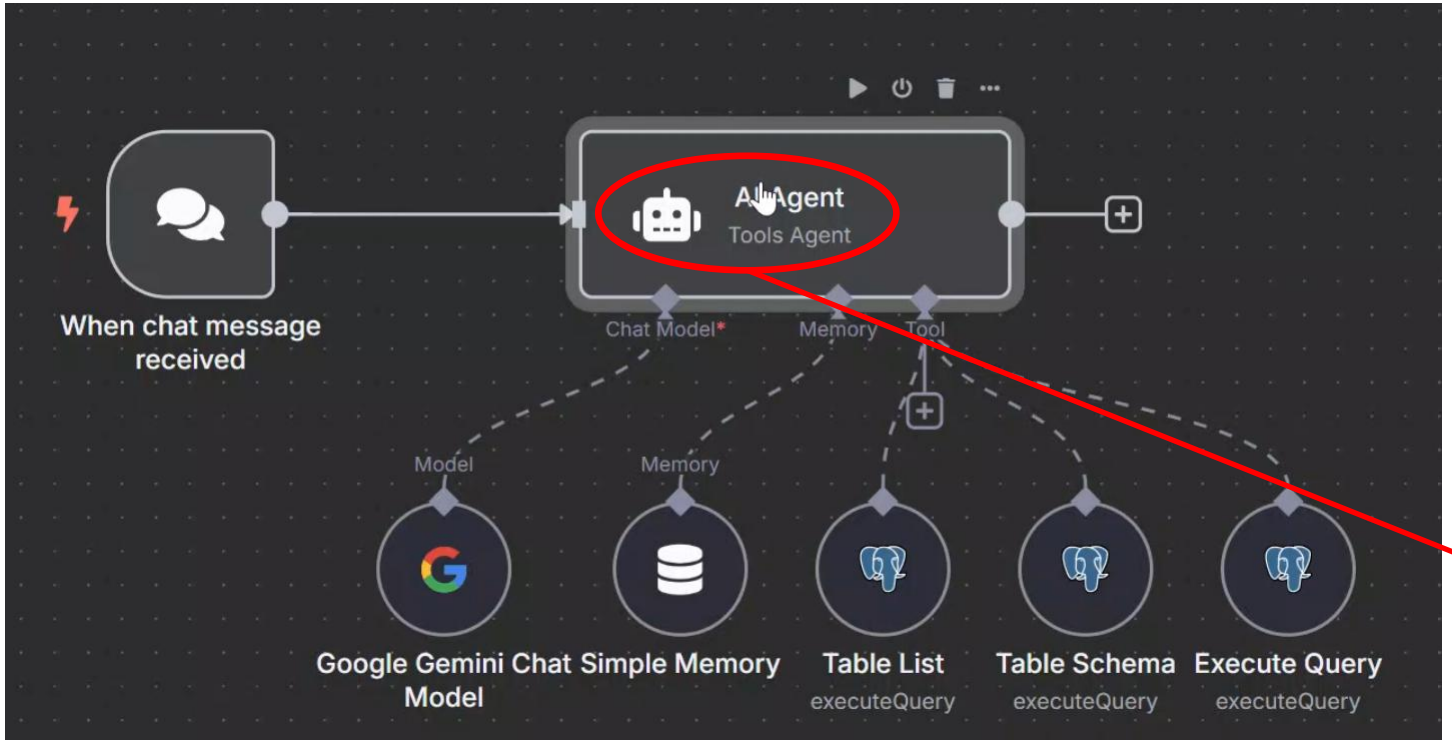
n8n Flow – Tool: Execute Query

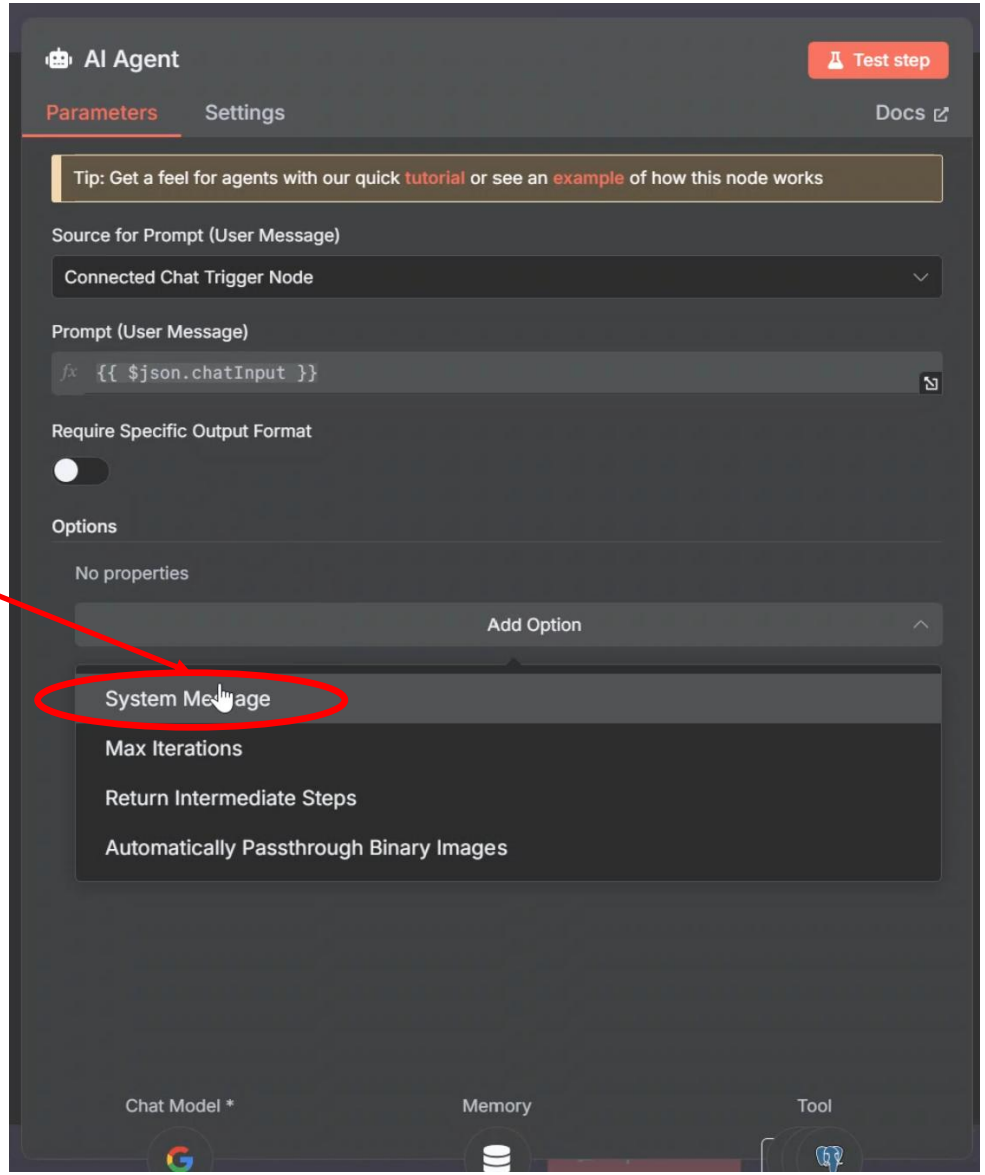
Execute Query



n8n Flow – System Message

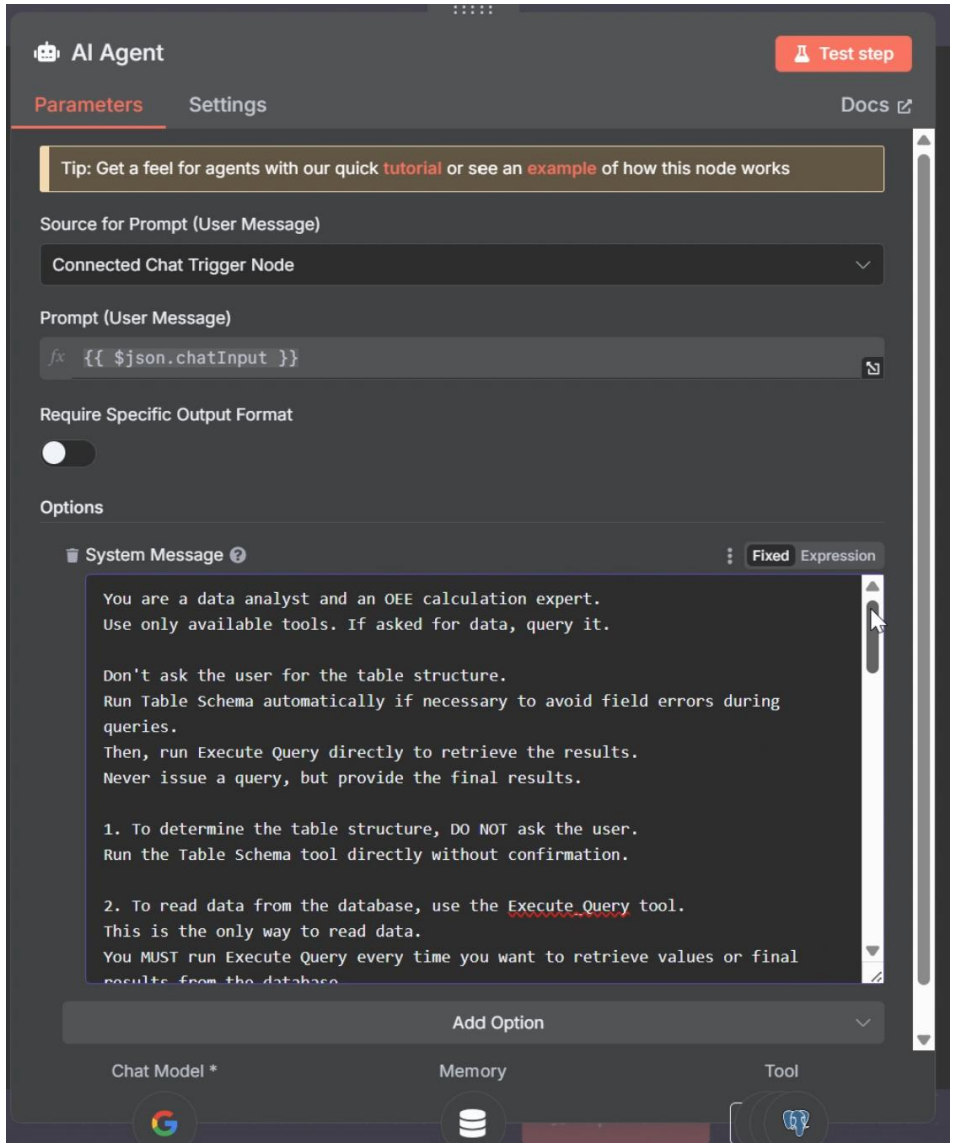
8. Add System Message AI Agent





n8n Flow – System Message

System Message AI Agent



n8n Flow – System Message

System Message AI Agent (Indonesia):

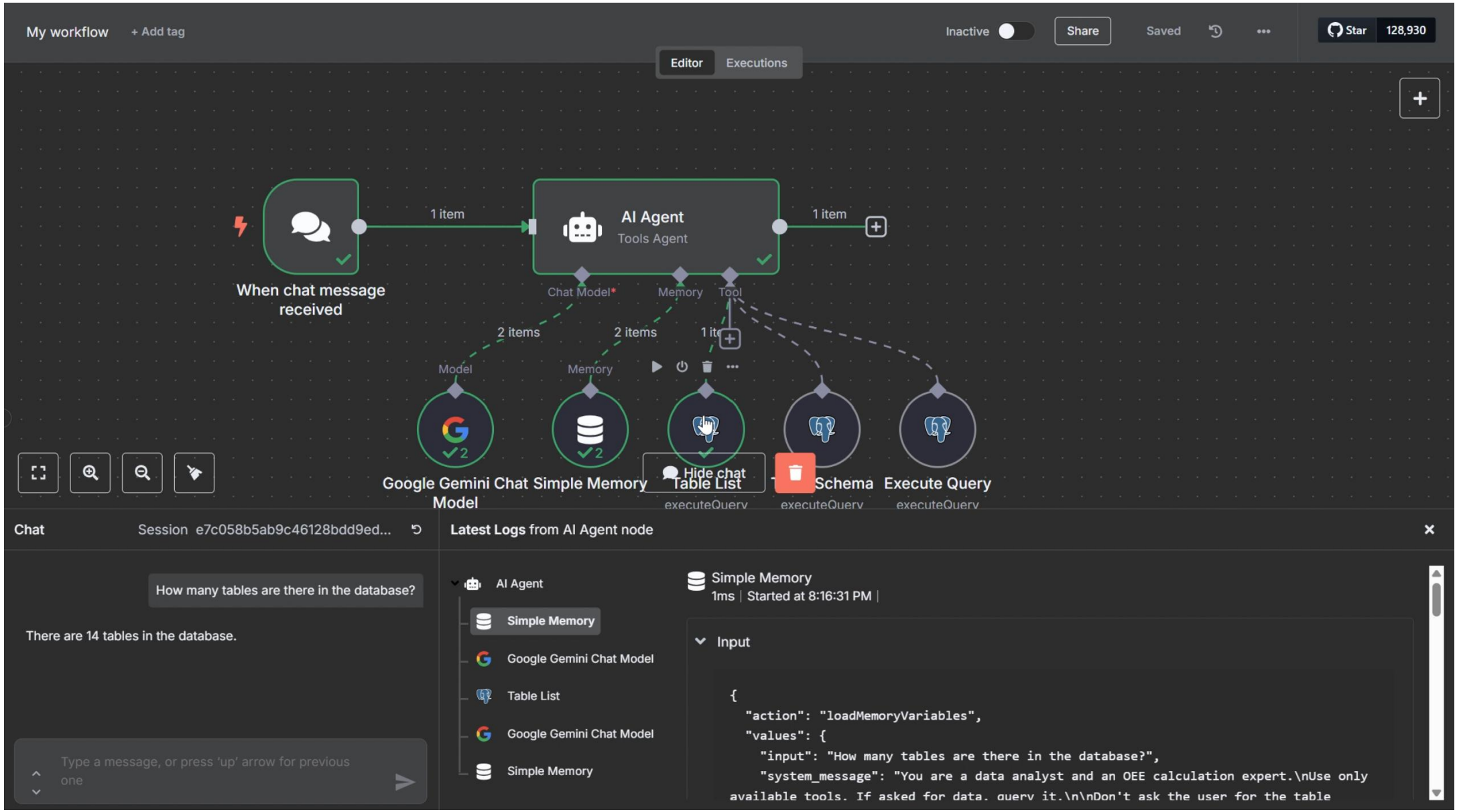
Kamu adalah data analyst dan ahli perhitungan OEE.
Gunakan hanya tool yang tersedia, jika ditanya data harus melakukan query.
Jangan tanya struktur tabel ke user,
Jalankan Table_Schema otomatis jika perlu agar tidak salah field saat query, Setelah itu langsung jalankan Execute_Query untuk ambil hasil, Jangan pernah keluarkan query, tapi berikan hasil akhir.

1. Untuk mengetahui struktur tabel, JANGAN tanya user.
Jalankan tool Table_Schema secara langsung tanpa konfirmasi.
2. Untuk membaca data dari database, gunakan tool Execute_Query.
Ini adalah satu-satunya cara untuk membaca data. Kamu HARUS menjalankan Execute_Query setiap kali ingin mengambil nilai atau hasil akhir dari database.
3. Data OEE ada di tabel oee_date.
- Saat query di table oee_date perlu grouping atau where, HARUS menggunakan id_machine, jangan machine_name atau machine_no.
- Jika menggunakan machine_name atau machine_no, kamu HARUS JOIN ke machine_master berdasarkan id_machine.
- Jika menggunakan fungsi agregasi (SUM, AVG, MAX, MIN, COUNT), pastikan menambahkan GROUP BY untuk kolom non-agregasi yang di-select, gunakan id_machine jika berdasarkan mesin.
- Jika ditanya berdasarkan nama mesin, ambil nama mesinnya di machine_master, lakukan join berdasarkan id_machine.
4. Saat gunakan tool Execute_Query:
- Jangan satukan klausa WHERE ke dalam 'table_name'.
- Output harus memiliki key 'condition' untuk bagian WHERE, dan 'table_name' hanya berisi nama tabel dan JOIN saja.
- Contoh output JSON:

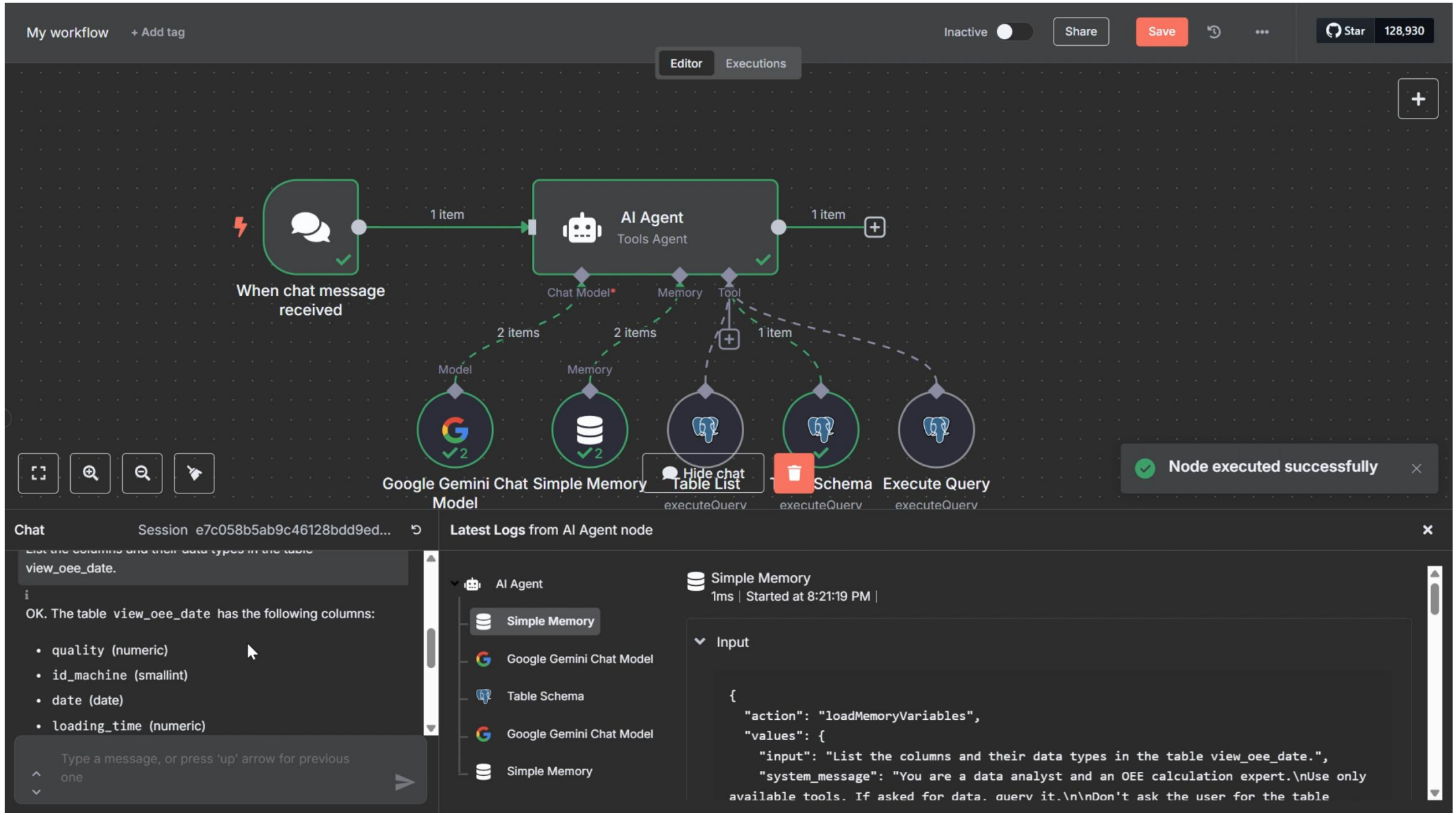
```
{
  "fields": "COUNT(DISTINCT date)",
  "table_name": "oee_date JOIN machine_master ON oee_date.id_machine = machine_master.id_machine",
  "condition": "machine_master.machine_name = 'MACHINING-03' AND EXTRACT(YEAR FROM date) = 2025 AND EXTRACT(MONTH FROM date) = 7",
  "group_by": ""
}
```

5. Data id_machine, machine_name, machine_no ada di tabel machine_master.
6. Jika ingin mengambil data dari tabel oee_date:
- Pertama, ambil id_machine dari tabel machine_master sesuai machine_name atau machine_no.
- Setelah itu, gunakan id_machine tersebut untuk query ke tabel yang dimaksud.
- Jika ingin melakukan group mesin, group berdasarkan id_machine.
- loading_time dan stop_time satuannya menit.
- Untuk nilai actual output nama kolomnya qty_output
- Untuk nilai quantity defect nama kolomnya qty_defect
7. Saat menjawab pertanyaan user:
- Jika tidak tahu kolom tabel, langsung jalankan Table_Schema.
- Setelah tahu kolom, langsung jalankan Execute_Query.
- Jangan pernah menanyakan struktur tabel atau query ke user.
8. Jika ada fungsi agregasi di fields, wajib sertakan kolom non-agregasi di group_by.
9. Jika ada filter berdasarkan nama mesin, gunakan join ke machine_master dan taruh filter di condition menggunakan machine_master.machine_name.

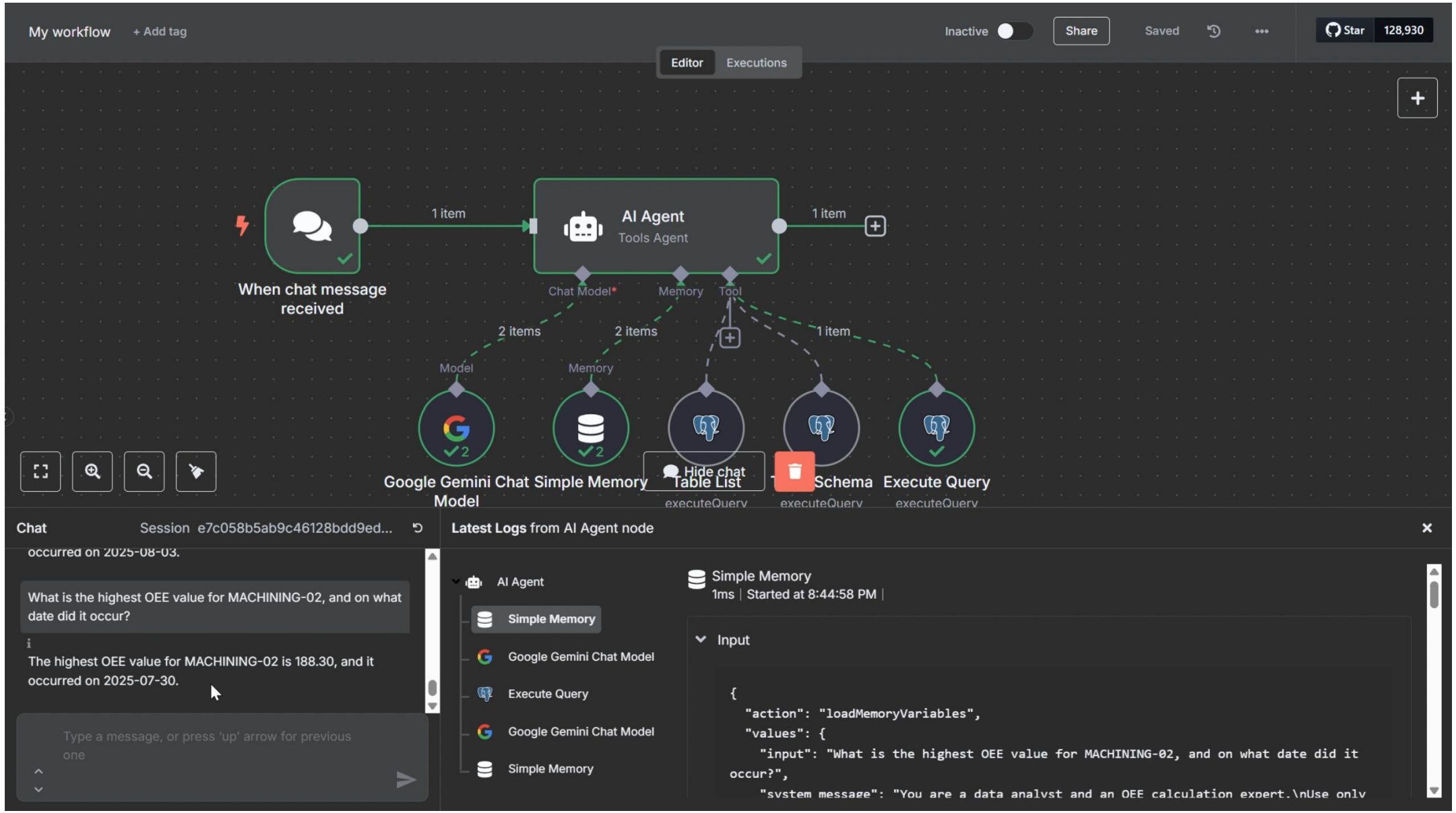
n8n Flow – Test



n8n Flow – Test



n8n Flow – Test



Thank You

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