

## Contents

A.	AI Agent--I .....	2
	Configure OpenAI with localAI .....	2
	Configuring AI Agent: .....	2
B.	System Message Template: .....	4
C.	Making chat public on a URL.....	5
D.	SMTP node-I.....	7
E.	SMTP node--II.....	10
F.	N8n memory error .....	13
G.	N8n on docker with PostgreSQL on machine .....	14
H.	AI agent and postgres .....	18
I.	.....	18
J.	.....	18
K.	Data transformation .....	18
L.	Sub-workflows in n8n .....	18
M.	Using webhook in n8n .....	18
N.	Slack .....	19
	What are Slack channels: .....	21
O.	Pinecone vector store: .....	22
	Metadata.....	22
P.	Simple RAG with n8n .....	25
Q.	RAG with n8n .....	27
	Scrapping web-pages and summarization .....	29
	Slack API.....	32

## A. AI Agent--I

Refer [this video](#)

Configure OpenAI with localAI

Our workflow:

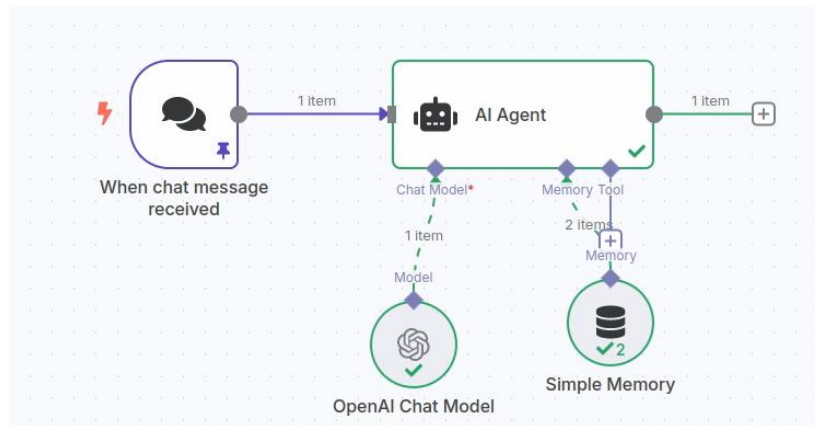


Figure 1: We will use LocalAI instead of OpenAI

Configuring AI Agent:

You also have to write a user prompt:

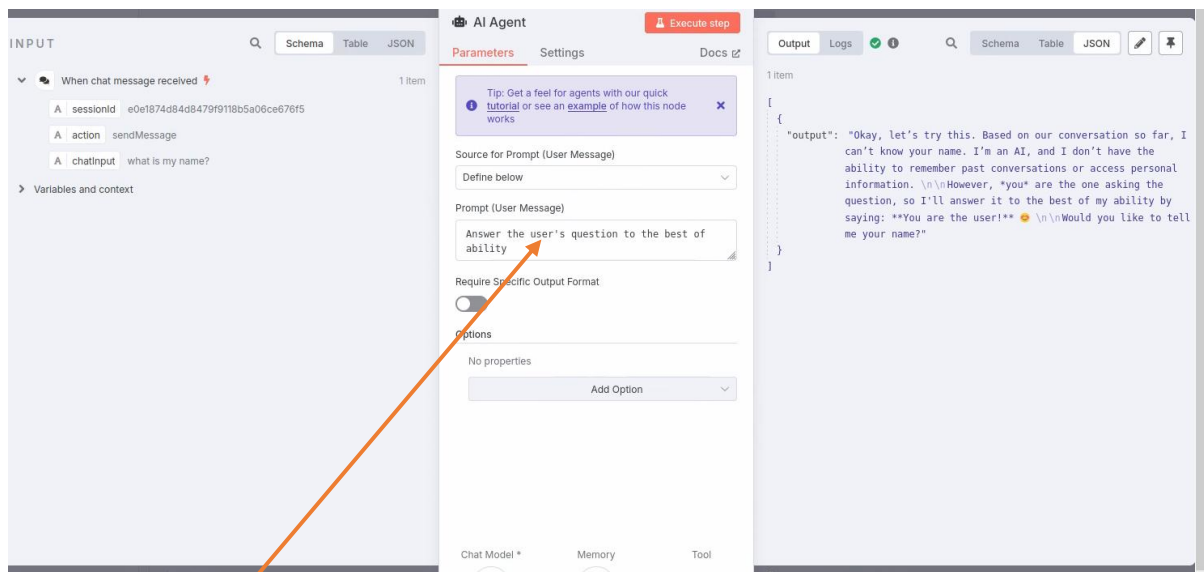


Figure 2: Write user prompt also

Here is an expanded view of AI Agent:

AI Agent

Execute step

Parameters Settings Docs

Tip: Get a feel for agents with our quick [tutorial](#) or see an [example](#) of how this node works

Source for Prompt (User Message)

Define below

Prompt (User Message) Fixed Expression

Answer the user's question to the best of ability

Require Specific Output Format

Parameter: "t"

Figure 3: A User prompt is required

This is OpenAI chat model:

OpenAI account

OpenAI

Connection

Sharing

Details

Connection tested successfully

Need help filling out these fields? [Open docs](#)

API Key \*

Organization ID (optional)

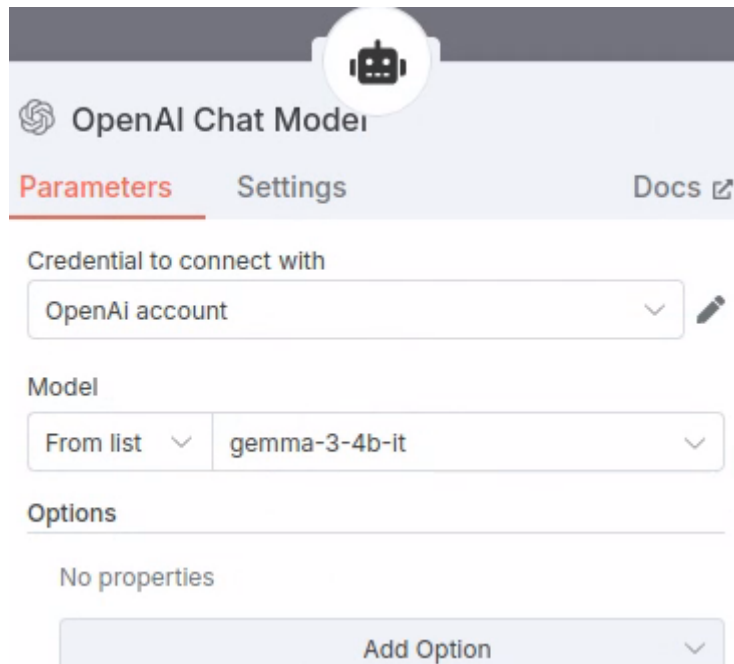
Only required if you belong to multiple organisations

Base URL

http://localhost:8080/v1

Enterprise plan users can pull in credentials from external vaults. [More info](#)

Figure 4: Base URL of localai is: `http://localhost:8080/v1`. Note it is NOT `https`



OpenAI Chat Model

Parameters Settings Docs

Credential to connect with

OpenAI account

Model

From list gemma-3-4b-it

Options

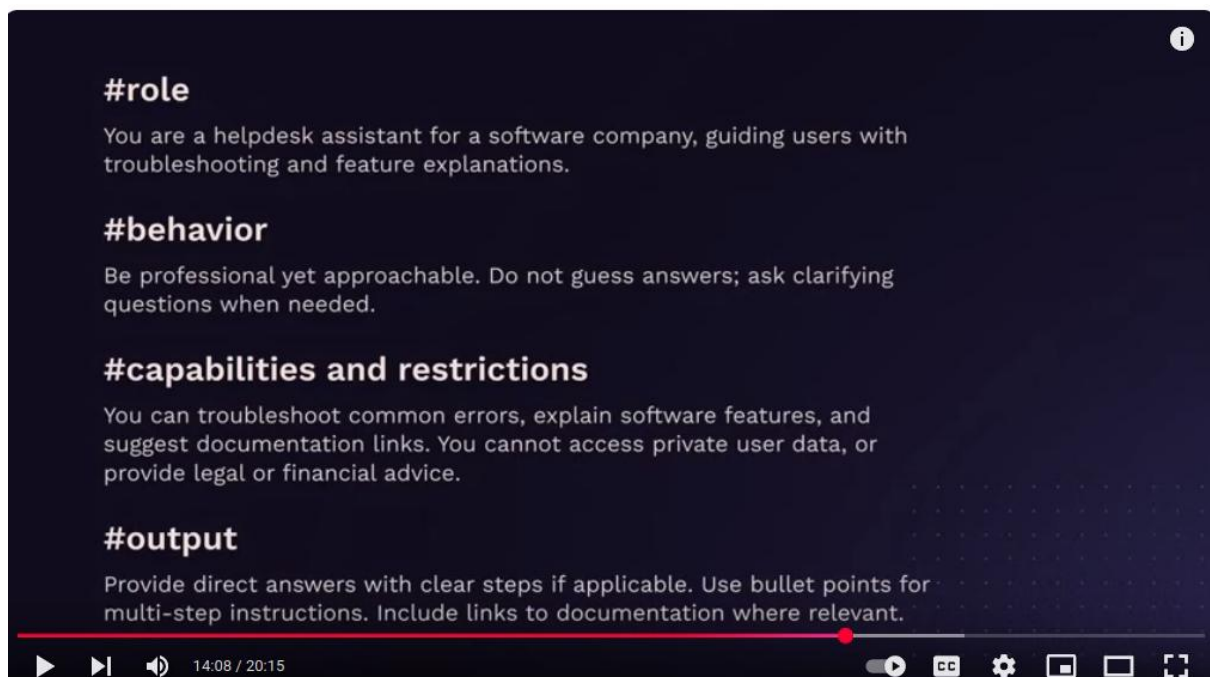
No properties

Add Option

Figure 5: On our machines gemma-3-4b-it **works well**. Under Add options, you can also write System Message (see below)

## B. System Message Template:

A recommended *System Message* template is below. See [this link](#) also.



**#role**

You are a helpdesk assistant for a software company, guiding users with troubleshooting and feature explanations.

**#behavior**

Be professional yet approachable. Do not guess answers; ask clarifying questions when needed.

**#capabilities and restrictions**

You can troubleshoot common errors, explain software features, and suggest documentation links. You cannot access private user data, or provide legal or financial advice.

**#output**

Provide direct answers with clear steps if applicable. Use bullet points for multi-step instructions. Include links to documentation where relevant.

Figure 6: Broad System Message format

### C. Making chat public on a URL

See this diagram again and make workflow **Active**:

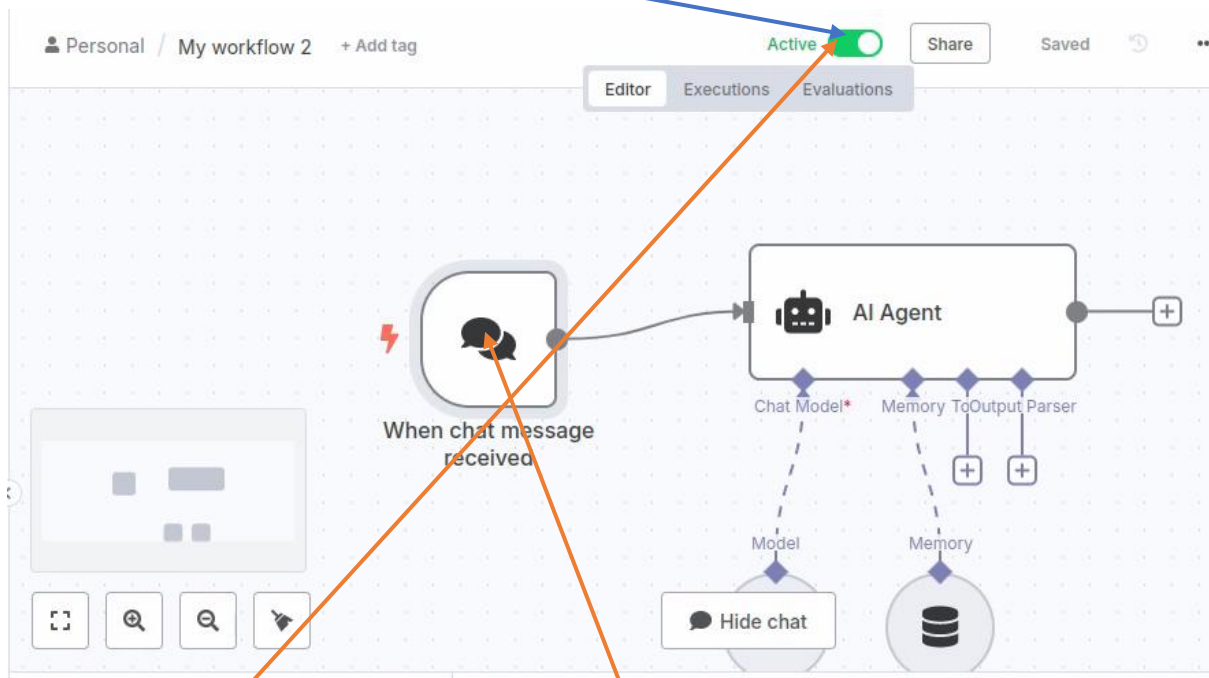


Figure 7: Make workflow **Active**. Then, double click to open the Chat message trigger and proceed to next diagram.

Double Click on the first node (*When chat message received*) to open it:

When chat messa... [Test chat](#)

**Parameters** Settings Docs

Chat URL

`http://localhost:5678/webhook/cb6159d4-8fd4-455b-bf04-438a720c33da/chat`

Make Chat Publicly Available

☒

Mode

Hosted Chat

Chat will be live at the URL above once you activate this workflow. Live executions will show up in the 'executions' tab

Authentication

None

Initial Message(s)

Hi there! 🌟  
My name is Nathan. How can I assist you today?

Figure 8: Click on **Make chat public** and then get the URL

And here is the web-page with the copied URL:

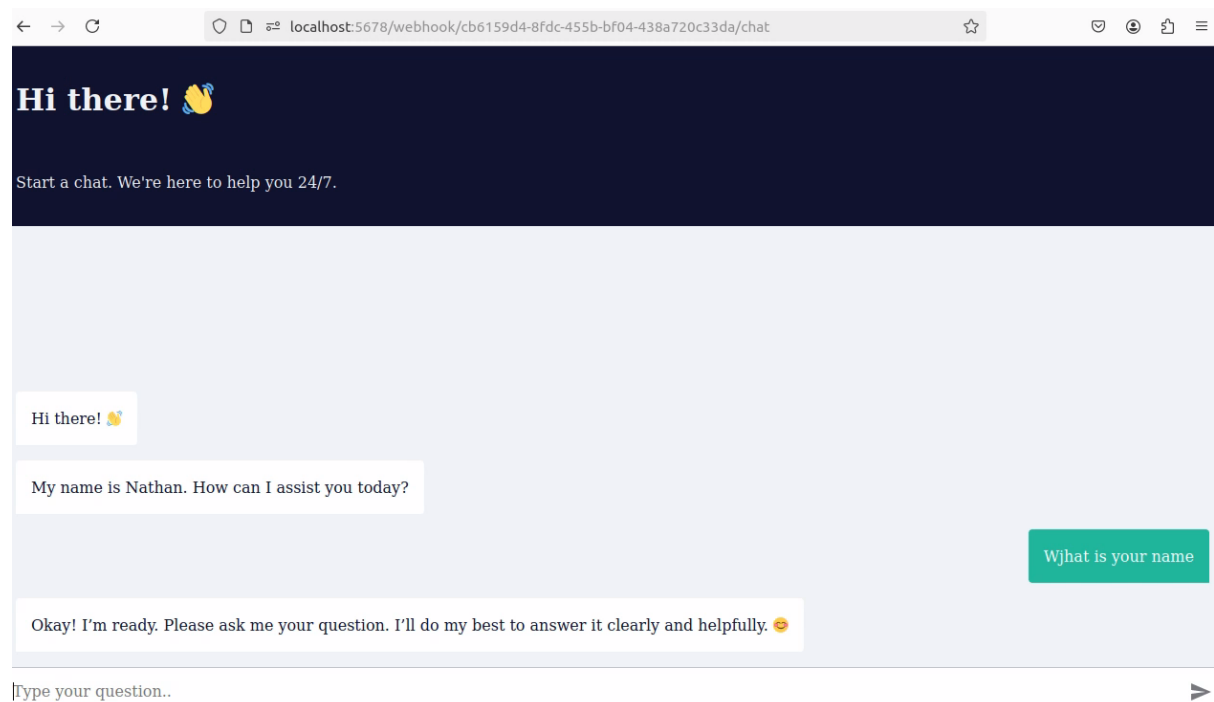


Figure 9: Chat message that triggers n8n workflow

#### D. SMTP node-I

Refer [here](#) and [here](#)

Follow these steps to send an email to your Gmail account:

- a. In your Gmail account, set-up two step verification. See [this link](#) as to how to set-up two-step verification account.
- b. To generate an app password:
  - a. In your Google account, go to [App passwords](#).
  - b. Enter an **App name** for your new app password, like 'n8n credential'.
  - c. Select **Create**.
  - d. Copy the generated app password. You'll use this in your n8n credential.
- c. Here is how you setup SMTP node:

Figure 10: Set up SMTP account as below. From email should correspond to your app-password. This message will be sent

Here is how you setup SMTP account credentials.

Figure 11: Setup SMTP credentials: User is your email address. Password is App-password. Host is always: **smtp.gmail.com**. Port is always: **465**. Client Host name is NULL.



**Send Email** Execute step

Parameters Settings Docs

Credential to connect with  
SMTP account

Operation  
send

From Email  
ashok@fsm.ac.in

To Email  
ashok@fsm.ac.in

Subject  
Some message

Email Format  
HTML

HTML  
My name is Joker. I live in ~~Amendabad~~

Options  
No properties

**OUTPUT**

accepted	rejected	ehlo	envelopeTime	messageT
0 : ashok@fsm.ac.in	[empty array]	0 : SIZE 36700W60 1 : 8BITMIME 2 : AUTH LOGIN PLAIN XOAUTH2 PLAIN-CLIENTTOKEN OAUTHBEARER XOAUTH 3 : ENHANCEDSTATUSCODES 4 : PIPELINING 5 : CHUNKING 6 : SMTPUTF8	914	928

Figure 12: On click Execute step an email will be sent to the send account. This email does not carry calculator output. It has fixed message. See below

Send calculator output:

**Send email** Execute step

**Parameters** Settings Docs

Credential to connect with  
SMTP account

Operation  
Send

From Email  
cdsht@fsm.ac.in

To Email  
ashok@fsm.ac.in

Subject  
easy task

Email Format  
Text

Text  
fx {{ \$json.output }}

The answer to 2 + 2 is 4.

Options  
No properties  
Add option

Figure 13: Use Text format. And drag the output to here from left panel. In [ashok@fsm.ac.in](mailto:ashok@fsm.ac.in) check All Mail as also Inbox

#### E. SMTP node--II

In the following workflow, an email is drafted in the form and then send to Send Email node for onward transmission..

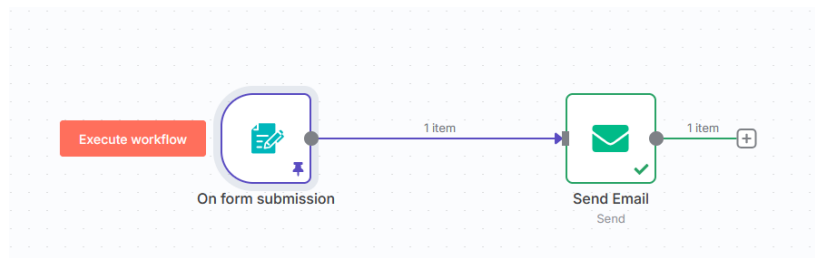


Figure 14: On form submission, the email is sent to desired address.

The form is titled 'Email draft' and is set against a light blue background. It contains three input fields: 'emailAddress \*' with the value 'ashok@fsm.ac.in', 'subject \*' with the value 'Test email', and 'body \*' with the value 'Testing if workflow works'. Below these fields is a red 'Submit' button. At the bottom of the form, it says 'Form automated with n8n'.

Figure 15: The form. Its elements are: email, text and text

These are the form elements:

Form Elements

Field Name

emailAddress

Element Type

Email

Placeholder

xyz@gmail.com

Required Field

☒

Field Name

subject

Element Type

Text

Placeholder

Write a subject here

Required Field

☒

Field Name

body

Element Type

Figure 16: Form fields

On form submission

Execute step

Parameters

Settings

Docs

Form URLs

Test URL

Production URL

http://localhost:5678/form-test/c6b5d811-a34e-4e04-bb64-a251efccda1

Authentication

None

Fixed Expression

Form Title

Email draft

Parameter: "authentication"

Form Description

e.g. We'll get back to you soon

Form Elements

Field Name

emailAddress

Element Type

Email

Placeholder

xyz@gmail.com

Required Field

☒

Field Name

subject

Element Type

OUTPUT

1 item

A emailAddress

ashok@form.ac.in

A subject

Test email

A body

This is the test email

A submittedAt

2025-07-13T22:48:59.634-04:00

A formMode

test

Figure 17: Form elements to be submitted to SMTP node--Pinned

Set up credentials of SMTP service as before. And fill up fields as below.

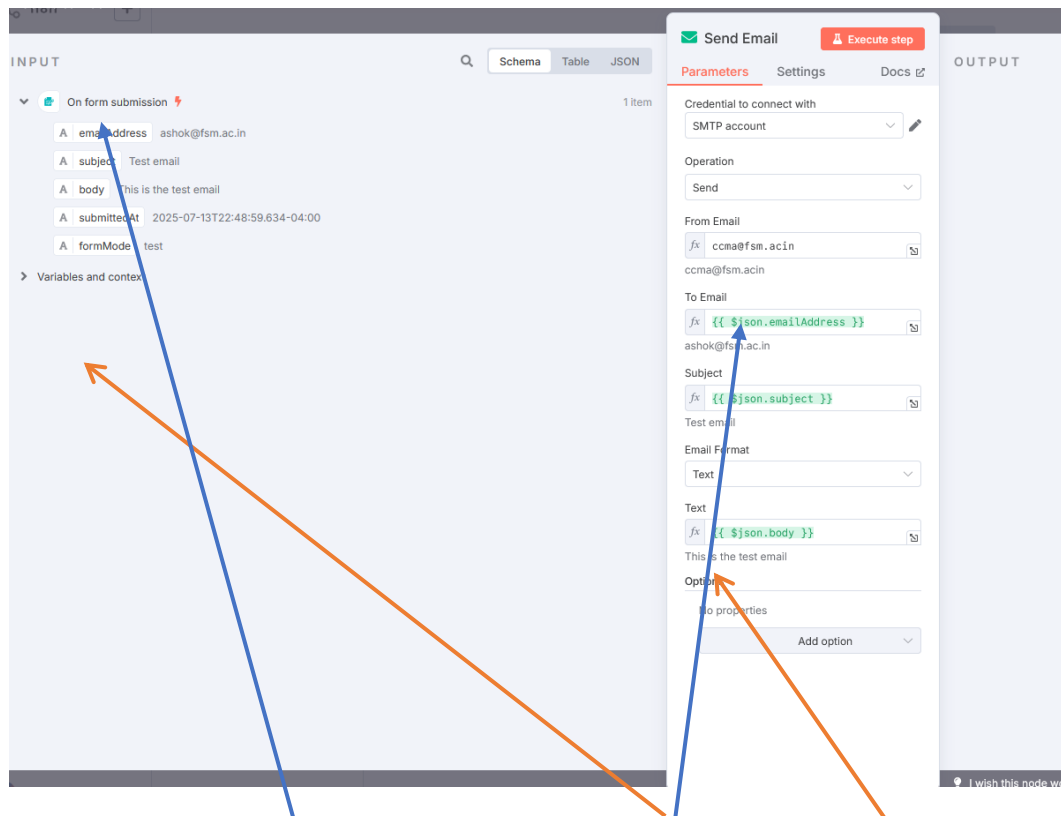


Figure 18: Left panel contains data submitted from **form**. Drag fields from left panel to the Central panel instead of writing json code. For example, drag **emailAddress** from left panel and drop it in **To:Email** field; similarly for **subject** and other fields.

On Execute workflow, an email goes to [ashok@fsm.ac.in](mailto:ashok@fsm.ac.in).

#### F. N8n memory error

n8n keeps data in memory while the workflows are running. Creating sub-workflows is a good idea as after a sub-workflow is executed, its memory is released. At times n8n breaks and gives memory error. Error message is about JavaScript heap memory being exceeded. Memory needs to be increased. See [this link](#) and [this link](#).

One can assign more memory by changing the environment variable `--max-old-space-size`. This can be done while starting docker, as:

```
docker run -d --name n8n -p 5678:5678 -e NODE_OPTIONS="--max-old-space-size=8000"
docker.n8n.io/n8nio/n8n
```

And, if n8n is directly installed, run n8n as:

```
NODE_OPTIONS="--max-old-space-size=8000" npx n8n
```

To check memory usage, issue top command. Specifically for user ashok, issue top -u ashok :

```
top - 09:33:57 up 21 min, 1 user, load average: 0.11, 0.08, 0.02
Tasks: 52 total, 1 running, 51 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.5 us, 0.1 sy, 0.0 ni, 99.4 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1486	ashok	20	0	38.6g	6.9g	56640	S	14.0	22.9	1:46.01	node
1605	ashok	20	0	7800	3680	3040	S	0.3	0.0	0:00.31	top
1	root	20	0	167152	11356	7836	S	0.0	0.0	0:00.81	systemd
2	root	20	0	3060	1760	1760	S	0.0	0.0	0:00.00	init-systemd(Ub
6	root	20	0	3076	1820	1760	S	0.0	0.0	0:00.00	init
61	root	19	-1	47804	14080	13280	S	0.0	0.0	0:00.11	systemd-journal
90	root	20	0	23028	5888	4608	S	0.0	0.0	0:00.10	systemd-udev
127	systemd+	20	0	26200	14240	9120	S	0.0	0.0	0:00.05	systemd-resolve
128	systemd+	20	0	89364	7040	6240	S	0.0	0.0	0:00.05	systemd-timesyn
209	root	20	0	4308	2560	2400	S	0.0	0.0	0:00.00	cron
211	message+	20	0	8588	4000	3680	S	0.0	0.0	0:00.13	dbus-daemon
223	root	20	0	30888	18400	9920	S	0.0	0.1	0:00.08	networkd-dispat
226	syslog	20	0	222404	4800	4160	S	0.0	0.0	0:00.02	rsyslogd
232	root	20	0	15336	6880	6240	S	0.0	0.0	0:00.08	systemd-logind
253	root	20	0	3240	2080	2080	S	0.0	0.0	0:00.00	agetty
257	root	20	0	3196	1920	1920	S	0.0	0.0	0:00.00	agetty
258	root	20	0	15436	9120	7520	S	0.0	0.0	0:00.00	sshd
322	root	20	0	107164	20960	13120	S	0.0	0.1	0:00.07	unattended-upgr
359	postgres	20	0	215808	29600	27040	S	0.0	0.1	0:00.05	postgres
441	postgres	20	0	215808	7448	4800	S	0.0	0.0	0:00.00	postgres
442	postgres	20	0	215808	8568	5920	S	0.0	0.0	0:00.04	postgres
443	postgres	20	0	215808	11448	8800	S	0.0	0.0	0:00.01	postgres
444	postgres	20	0	216376	10168	7200	S	0.0	0.0	0:00.00	postgres

Figure 19: `top` command output. `RES` shows total memory usage by user 'ashok' and the process is `node` (ie `nodejs`).

```
top - 09:36:41 up 24 min, 1 user, load average: 0.02, 0.05, 0.02
Tasks: 52 total, 1 running, 51 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.1 us, 0.0 sy, 0.0 ni, 99.9 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 30935.2 total, 22917.0 free, 7765.6 used, 252.6 buff/cache
MiB Swap: 8192.0 total, 8192.0 free, 0.0 used, 22840.6 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1486	ashok	20	0	38.7g	6.9g	56640	S	2.0	23.0	1:48.97	node
509	ashok	20	0	6344	5120	3360	S	0.0	0.0	0:00.05	bash
604	ashok	20	0	17096	9440	7840	S	0.0	0.0	0:00.03	systemd
605	ashok	20	0	168892	5040	1600	S	0.0	0.0	0:00.00	(sd-pam)
613	ashok	20	0	6236	4800	3200	S	0.0	0.0	0:00.01	bash
1473	ashok	20	0	4784	3200	3040	S	0.0	0.0	0:00.00	start_n8n.sh
1474	ashok	20	0	1099932	64860	44320	S	0.2	0.0	0:00.43	npm exec n8n
1485	ashok	20	0	2896	1600	1600	S	0.0	0.0	0:00.00	sh
1504	ashok	20	0	6176	5120	3360	S	0.0	0.0	0:00.01	bash
1524	ashok	20	0	7800	3680	3040	S	0.0	0.0	0:00.04	top
1535	ashok	20	0	6176	5120	3360	S	0.0	0.0	0:00.01	bash
1552	ashok	20	0	5928	4000	2720	S	0.0	0.0	0:00.03	man
1561	ashok	20	0	3736	2400	2080	S	0.0	0.0	0:00.00	pager
1587	ashok	20	0	6176	5120	3360	S	0.0	0.0	0:00.01	bash
1605	ashok	20	0	7800	3680	3040	R	0.0	0.0	0:00.41	top

Figure 20: Output of command: `top -u ashok`. You can also see total memory as also free memory

## G. N8n on docker with PostgreSQL on machine

Steps:

### a. Reconfigure PostgreSQL security:

- Configure `/etc/postgresql/postgresql.conf`. Modify the `listen_addresses` parameter to allow connections from external interfaces. To allow connections from all interfaces, set it to `'*'`.

```
listen_addresses = '*'
```

- Configure `/etc/postgresql/pg_hba.conf`. For broader access (e.g., from a specific IP range), you can use a CIDR notation. In google you can raise a query: 'how to write 172.30.109.200 with netmask of 255.255.240.0 in cidr notation'. Or see [this link](#) for calculation:

```
host all all 172.30.96.0/20 md5
```

- Restart postgresql

```
sudo systemctl restart postgresql
```

- Create a user, say kumar, and assign him necessary privileges:

```
sudo useradd -m kumar
```

```

sudo passwd kumar
sudo -u postgres psql -c 'create database kumar;'
sudo -u postgres psql -c 'create user kumar;'
sudo -u postgres psql -c 'grant all privileges on database kumar
to kumar;' -d kumar
sudo -u postgres psql -c "alter user kumar with encrypted
password 'kumar';"
sudo -u postgres psql -c " GRANT ALL ON SCHEMA public TO kumar;"
-d kumar
sudo -u postgres psql -c " CREATE EXTENSION vector;" -d kumar

# Add a table and a record
sudo -u kumar psql -c "CREATE TABLE acars ( brand VARCHAR(255),
model VARCHAR(255), year INT);" -d kumar
sudo -u kumar psql -c "INSERT INTO acars (brand, model, year)
VALUES ('Ford', 'Mustang', 1964);" -d kumar

```

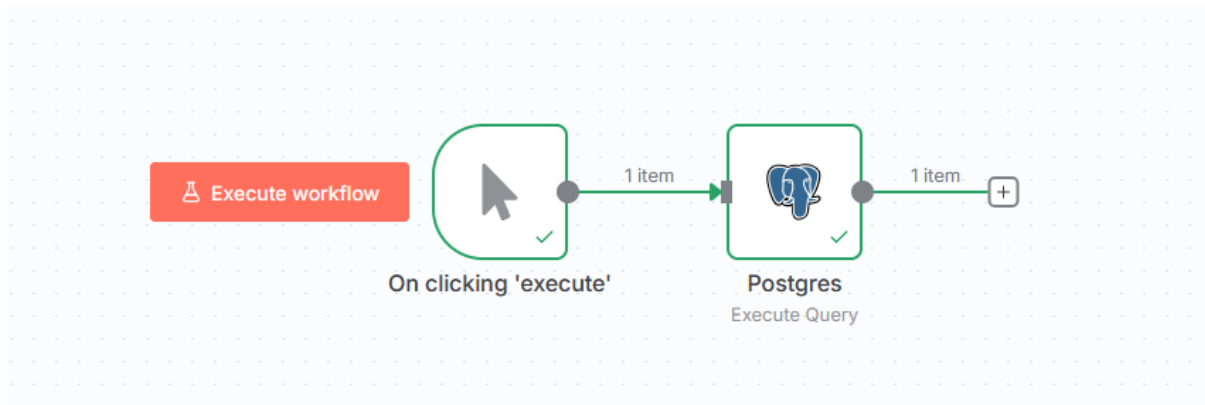
- OR as: Create a table in database *kumar*, as:

```

$sudo su kumar
$psql kumar
kumar=> \c kumar
You are now connected to database "kumar" as user "kumar".
kumar=> CREATE TABLE acars ( brand VARCHAR(255), model VARCHAR(255),year INT);
kumar=> INSERT INTO acars (brand, model, year) VALUES ('Ford','Mustang', 1964);
kumar=> select * from acars ;

```

- In n8n create the following very simple network:



## Create PostgreSQL credentials, as:

Postgres account

Connection

Sharing

Details

Connection tested successfully [Retry](#)

Need help filling out these fields? [Open docs](#)

Host [Fixed](#) [Expression](#)

localhost

Database

kumar

User

kumar

Password

Maximum Number of Connections

100

Figure 21: User: kumar; password: kumar; database: kumar

Back to canvas

INPUT

On clicking 'execute'

No fields - item(s) exist, but they're empty

Variables and context

Schema Table JSON

1 Item

Postgres

Parameters Settings Docs

Execute step

Credential to connect with

Postgres account

New node version available: get the latest version with added features from the nodes panel.

Operation

Execute Query

Query

1 SELECT \* from acars ;

Additional Fields

No properties

Add Field

OUTPUT

1 Item

```
{
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
```

Figure 22: Query: select \* from acars; The result is on the right.



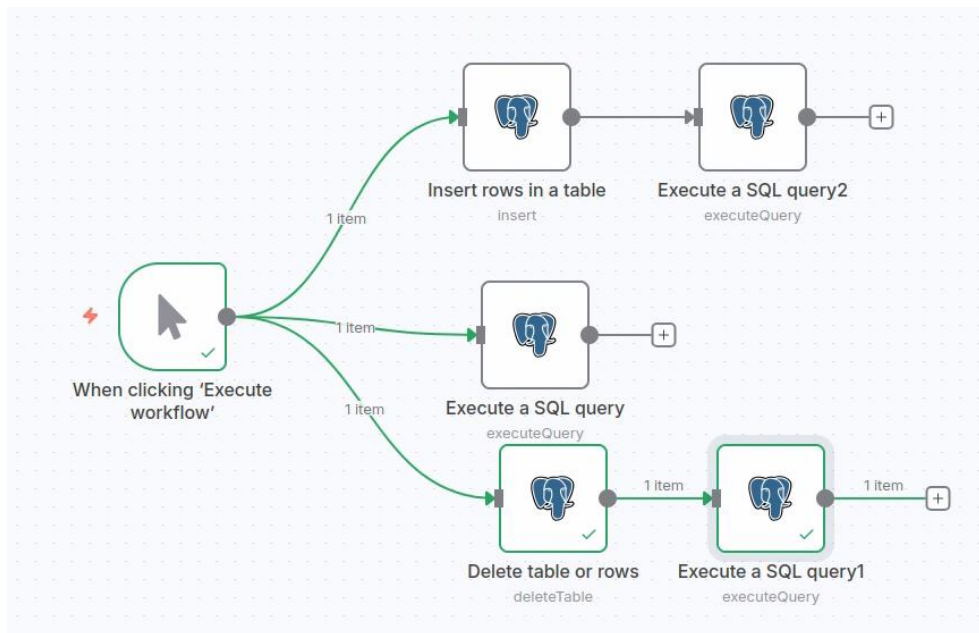


Figure 23; Workflow using different postgres nodes

**Delete table or rows**
Execute step

Parameters
Settings
Docs

Credential to connect with

gandhi

Operation

Delete

Schema

From list

public

Table

From list

acars

Command

Delete

Select Rows

Column

year

Operator

Equal

Value

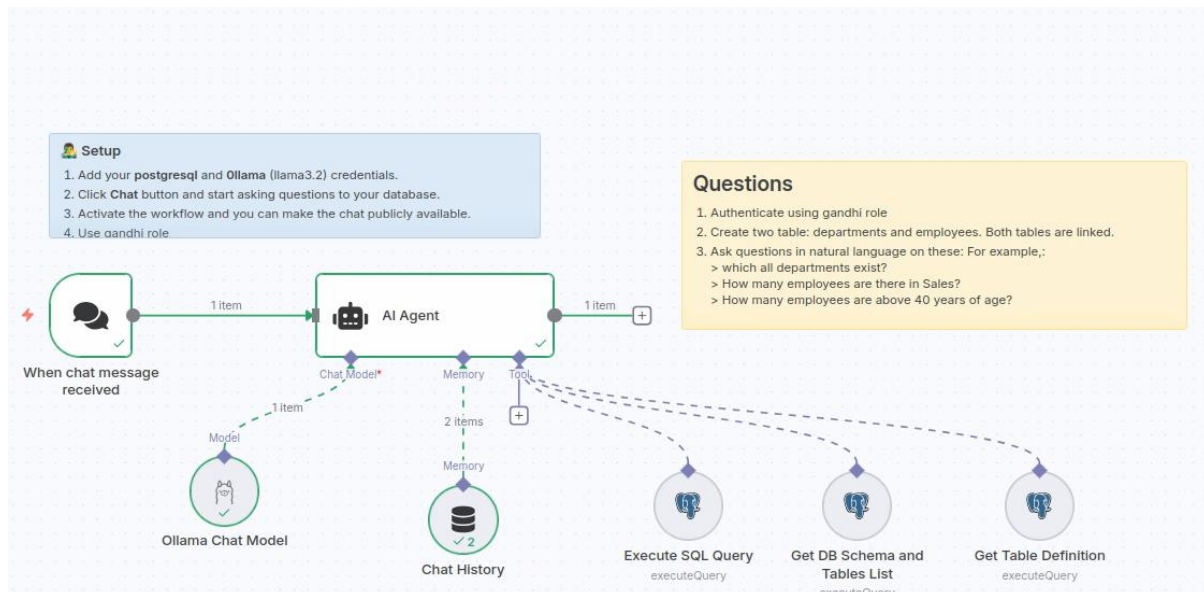
1971

Figure 24: Delete table rows settings

## H. AI agent and postgres

Postgres with ai agent

<https://n8n.io/workflows/1954-ai-agent-chat/>



System prompt of AI agent:

You are DB assistant. You need to run queries in DB aligned with user requests.

Run custom SQL query to aggregate data and response to user. Make sure every table has schema prefix to it in sql query which you can get from 'Get DB Schema and Tables List' tool.

Fetch all data to analyse it for response if needed.

### ## Tools

- Execute SQL query- Executes any sql query generated by AI
- Get DB Schema and Tables List - Lists all the tables in database with its schema name
- Get Table Definition - Gets the table definition from db using table name and schema name"

I.

J.

K. Data transformation

L. Sub-workflows in n8n

M. Using webhook in n8n

## N. Slack

How to get slack api or token from slack. Here are the steps:

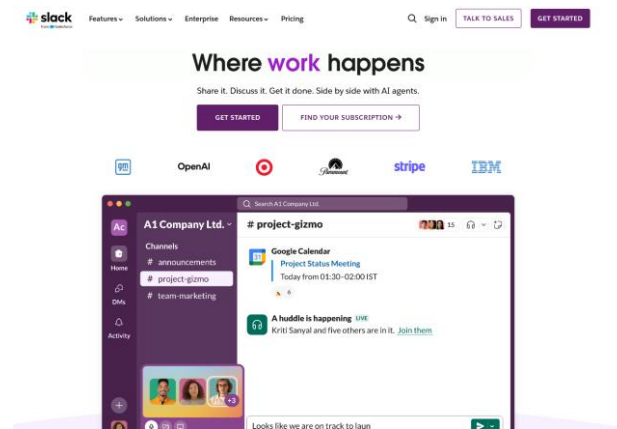


Figure 25: Sign in using your email.

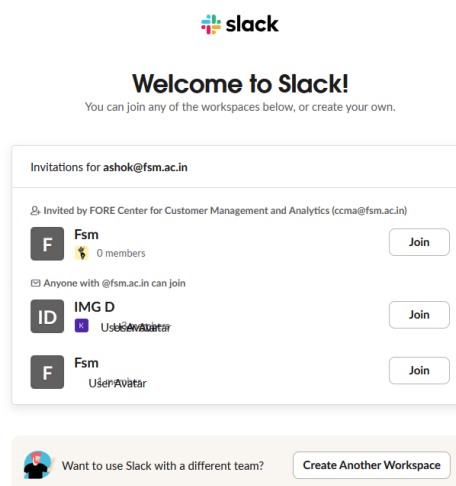


Figure 26: Create a new Workspace of your own where your team will work

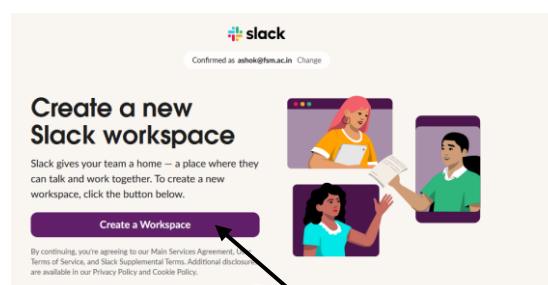


Figure 27: Create a Workspace

Step 1 of 4

## What's the name of your company or team?

This will be the name of your Slack workspace -- choose something that your team will recognize.

FORE School 39

☒ Let anyone with an @fsm.ac.in email join this workspace.

Next

Figure 28: Fill in some details about your workspace. Name your team and click Next

Step 3 of 4

## Who else is on the FORE School team?

Add coworker by email

Add from Google Contacts

ccma@fsm.ac.in X

Keep in mind that invitations expire in 30 days. You can always extend that deadline.

Next

Copy Invite Link

Skip this step

Figure 29: Add team members

Your workspace is ready to go! 🎉

## Start with Slack Pro

### ✓ Unlimited message history

Search and view all of your team's public messages and files, which are stored indefinitely on a paid plan.

▶ Group meetings with AI notes

▶ Work with people at other organizations

▶ AI conversation summaries

+ Compare plans



55% off\*

₹294.75 per person/month

Start with Pro

\*Limited-time offer subject to change at Slack's discretion.

Start with the Limited Free Version

Figure 30: No. Start with a limited free version

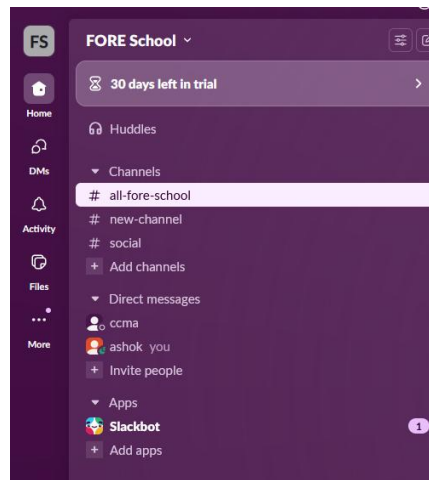


Figure 31: Three channels, one app

### What are Slack channels:

A Slack channel is a dedicated space within a Slack workspace where teams can collaborate, communicate, and share information related to a specific topic, project, or team. Channels can be public, allowing anyone in the workspace to join, or private, requiring explicit invitation. Key features of channels are:

**Collaboration:** Channels facilitate communication, file sharing, and even video/audio calls.

**Searchability:** Messages and files within a channel are searchable, making it easy to find past conversations and information.

**Customization:** Channels can be created for various purposes, such as project updates, team discussions, or specific topics.

A company might have a public channel for general announcements (#general), a private channel for sensitive HR matters (#hr-private), and a project-specific channel for a new product launch (#product-launch).

### What is an app

Apps connect other software that you use (such as Google Calendar, OneDrive or one of your company's internal tools) to Slack. With all your tools in one place, you can streamline work and help people in your workspace collaborate more effectively.

### What you need to know

- There are a few different types of apps that you may see in Slack – built by Slack, third parties or your own team. How an app was built determines how it can be installed and managed in a workspace, as well as where and how you'll be able to interact with it.
- By default, any workspace member can [install apps](#), but owners and admins can choose to [restrict this permission](#). Once an app is installed to a workspace, any member can connect their account to use it.
- Before installing an app from the Slack Marketplace, you can review its privacy policy and security and compliance information (if submitted by the app's developer) from the app page. We recommend only choosing services that you trust when installing apps to Slack.

## O. Pinecone vector store:

1. Create a free account (say, using google)
2. Create an API key
3. Create a (vector) index

### Understanding Pinecone indexes:

In Pinecone, an index is the primary organizational unit for storing and querying vector data. Think of it as a table in a database, but specifically designed for efficient similarity searches on vectors. Indexes can accept, store, and serve queries on vectors, as well as perform other vector operations. Here's a more detailed breakdown:

#### **Storage and Organization:**

Indexes hold the vector embeddings of your data, allowing you to store and manage them in a structured way.

#### **Key Parameters dimension etc:**

When creating an index, you'll need to define its name, the dimensionality of the vectors it will store, and the similarity metric (e.g., cosine, Euclidean).

#### **Types of Indexes for scaling out:**

Pinecone offers [serverless](#) and [pod-based](#) indexes, with different options for scaling and performance.

#### **Namespaces:**

Within an index, you can further organize data using namespaces, allowing you to isolate queries to specific subsets of your data.

#### **Similarity Search:**

Pinecone indexes are built for efficient similarity searches, meaning you can quickly find vectors that are similar to a given query vector.

#### **Highest Level:**

It's the top-level container for your vector data within Pinecone, similar to a table in a relational database.

#### **Creation and Management:**

Indexes can be created via the Pinecone UI or programmatically using their API.

#### **Metadata:**

Pinecone indexes can store associated metadata with each vector, enabling filtering and more complex search conditions.

### Metadata

Every [record](#) in an index must contain an ID and a vector. In addition, you can include metadata key-value pairs to store additional information or context. When you query the index, you can then include a [metadata filter](#) to limit the search to records matching a filter expression. Searches without metadata filters do not consider metadata and search the entire namespace.

See [LlamaIndex example](#) for Chromadb as to how metadata filter works.

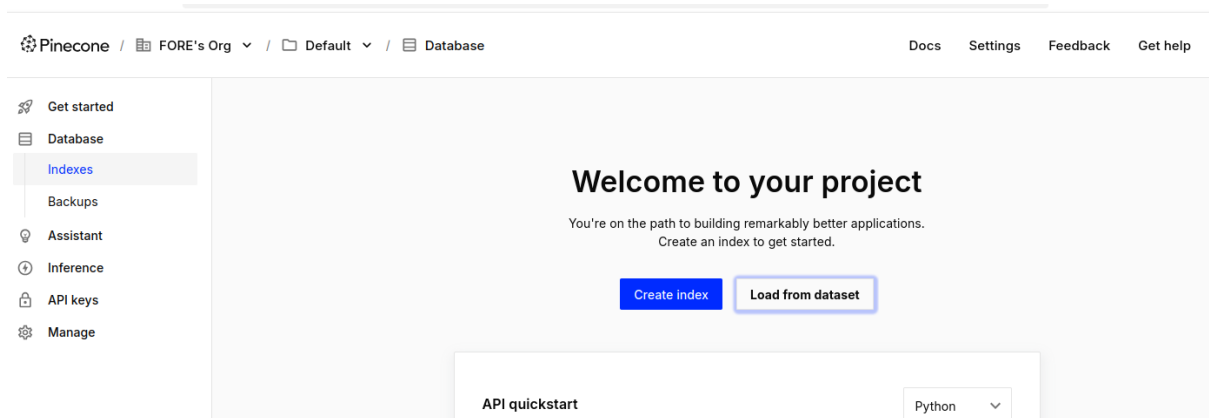


Figure 32: Click Create Index to begin creating an index

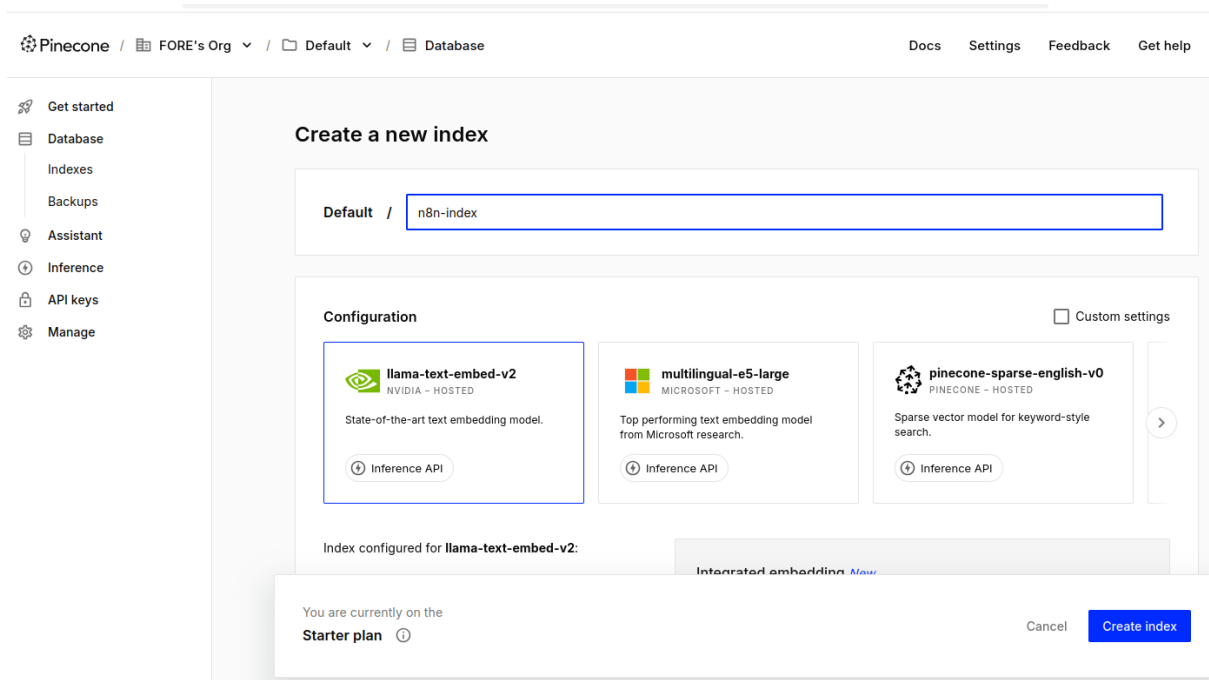

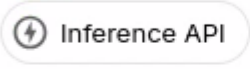


Figure 33: Select an index and select a Configuration for index (such as Vector Dimension: 768, 1024 etc). See figure below

## Configuration

**llama-text-embed-v2**  
NVIDIA – HOSTED

State-of-the-art text embedding model.

 Inference API

Index configured for **llama-text-embed-v2**:


Modality	Text
Vector type	Dense
Max input	2,048 tokens
Starter limits	5M tokens
Dimension	1024 
Metric	cosine

Figure 34: Set vector Dimension as per your embedder (click Down-arrow). For example, nomic-embed-text has a vector dimension of 768 AND NOT of 1024. We have used 768



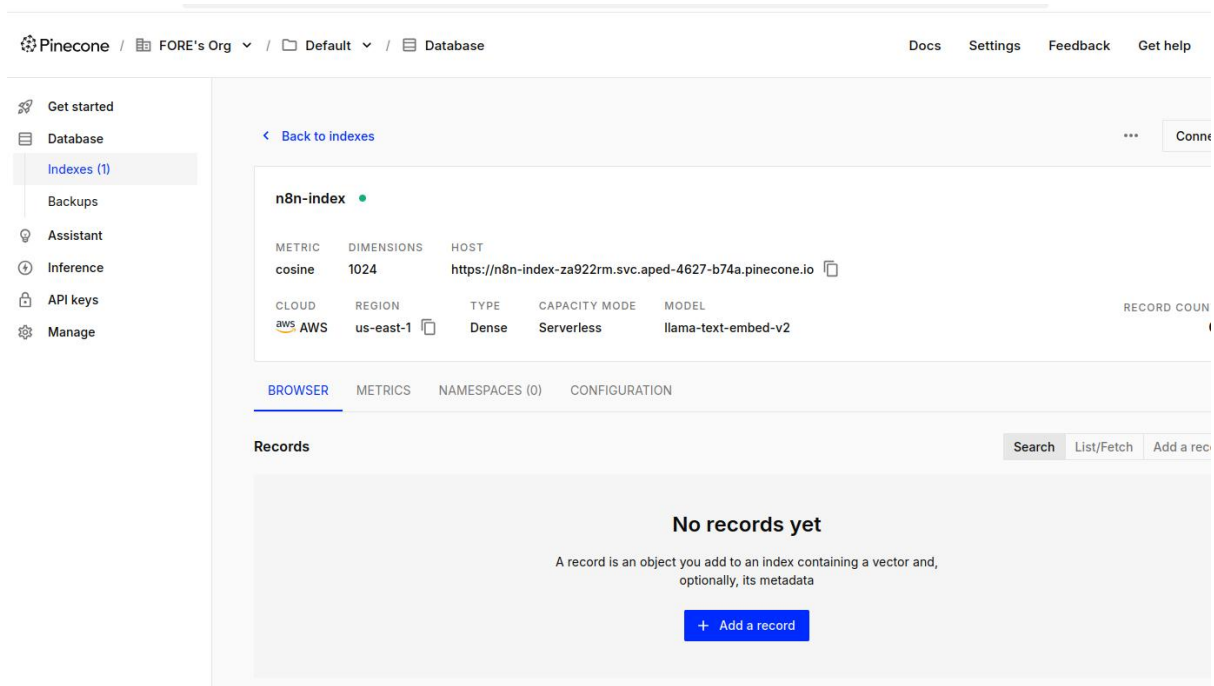


Figure 35: Create index. Records will come from n8n workflow

Note that selected embedder will also decide max input tokens. The character splitter chunk size will affect the amount of **input tokens** you're trying to get. For the embedding model of *mxlbai-embed-large*, max input token limit is 512.

Our dataset is *students.json* on GitHub, at site: [LLMs/install ai tools/mongodb/datasets/](https://llms/install_ai_tools/mongodb/datasets/)

```
{ "_id":0,"name":"aimee Zank","scores":[{"score":1.463179736705023,"type":"exam"}, {"score":11.78273309957772,"type":"quiz"}, {"score":35.8740349954354,"type":"homework"}]}
{"_id":1,"name":"Aurelia Menendez","scores":[{"score":60.06045071030959,"type":"exam"}, {"score":52.79790691903873,"type":"quiz"}, {"score":71.76133439165544,"type":"homework"}]}
{"_id":2,"name":"Corliss Zuk","scores":[{"score":67.03077096065002,"type":"exam"}, {"score":6.301851677835235,"type":"quiz"}, {"score":66.28344683278382,"type":"homework"}]}
{"_id":3,"name":"Bao Ziglar","scores":[{"score":71.64343899778332,"type":"exam"}, {"score":24.80221293650313,"type":"quiz"}, {"score":42.26147058804812,"type":"homework"}]}
{"_id":4,"name":"Zachary Langlais","scores":[{"score":78.68385091304332,"type":"exam"}, {"score":90.2963101368042,"type":"quiz"}, {"score":34.41620148042529,"type":"homework"}]}
{"_id":5,"name":"Wilburn Spiess","scores":[{"score":44.87186330181261,"type":"exam"}, {"score":25.72395114668016,"type":"quiz"}, {"score":63.42288310628662,"type":"homework"}]}
{"_id":6,"name":"Jenette Flanders","scores":[{"score":37.32285459166097,"type":"exam"}, {"score":28.32634976913737,"type":"quiz"}, {"score":81.57115318686338,"type":"homework"}]}
{"_id":7,"name":"Salena Olmos","scores":[{"score":90.37826509157176,"type":"exam"}, {"score":42.48780666956811,"type":"quiz"}, {"score":96.52986171633331,"type":"homework"}]}
{"_id":8,"name":"Daphne Zheng","scores":[{"score":22.13583712862635,"type":"exam"}, {"score":14.63969941335069,"type":"quiz"}, {"score":75.94123677556644,"type":"homework"}]}
```

Figure 36: Extract from file *students.json*

Here are two rows from the data:

```
{ "_id":0,"name":"aimee Zank","scores":[{"score":1.463179736705023,"type":"exam"}, {"score":11.78273309957772,"type":"quiz"}, {"score":35.8740349954354,"type":"homework"}]}
{"_id":1,"name":"Aurelia Menendez","scores":[{"score":60.06045071030959,"type":"exam"}, {"score":52.79790691903873,"type":"quiz"}, {"score":71.76133439165544,"type":"homework"}]}
```

## P. Simple RAG with n8n

File: 'Simple RAG flow.json'

We use '*n8n Form trigger*' node as file uploader. The vector store is in-memory vector store: Simple Vector Store.

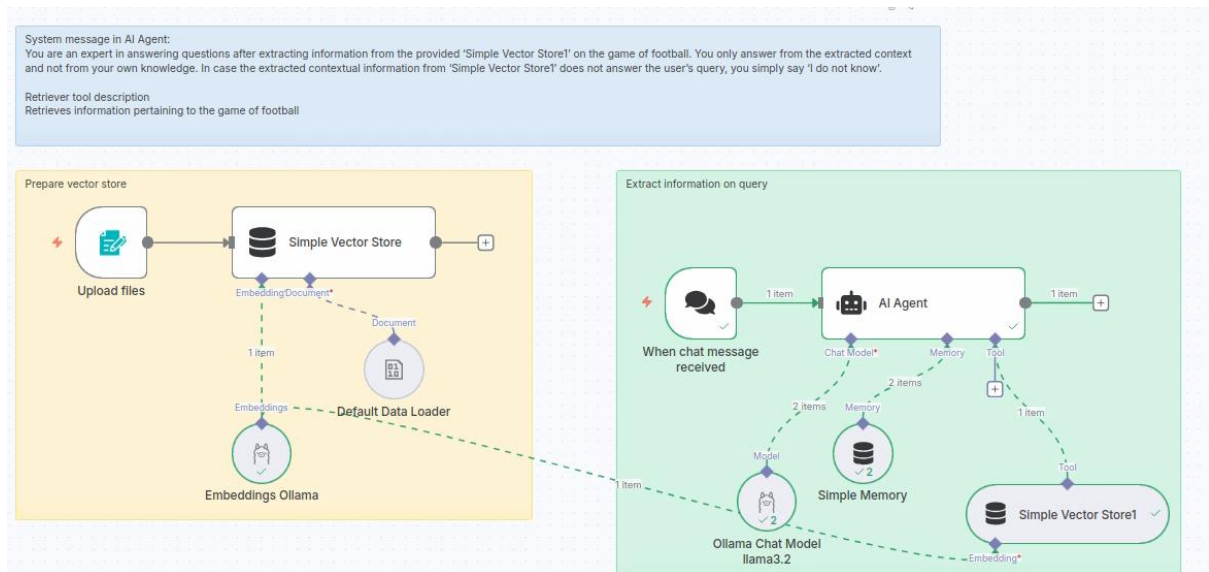


Figure 37: Full workflow

Its two sub-workflows are as follows:

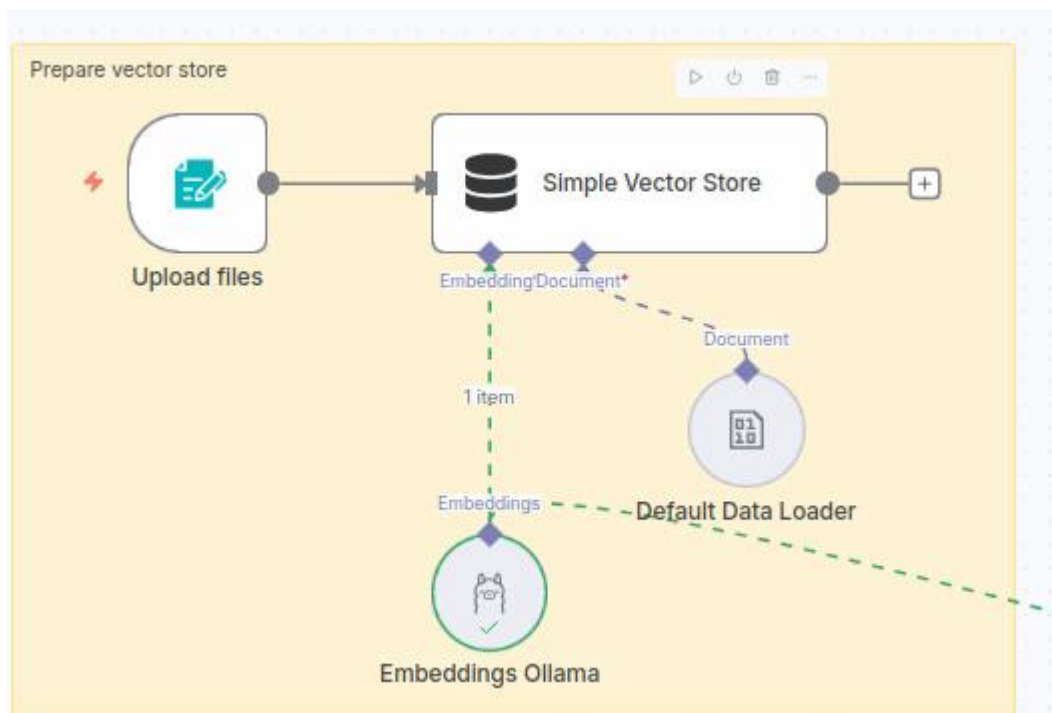


Figure 38: Creating a vector store

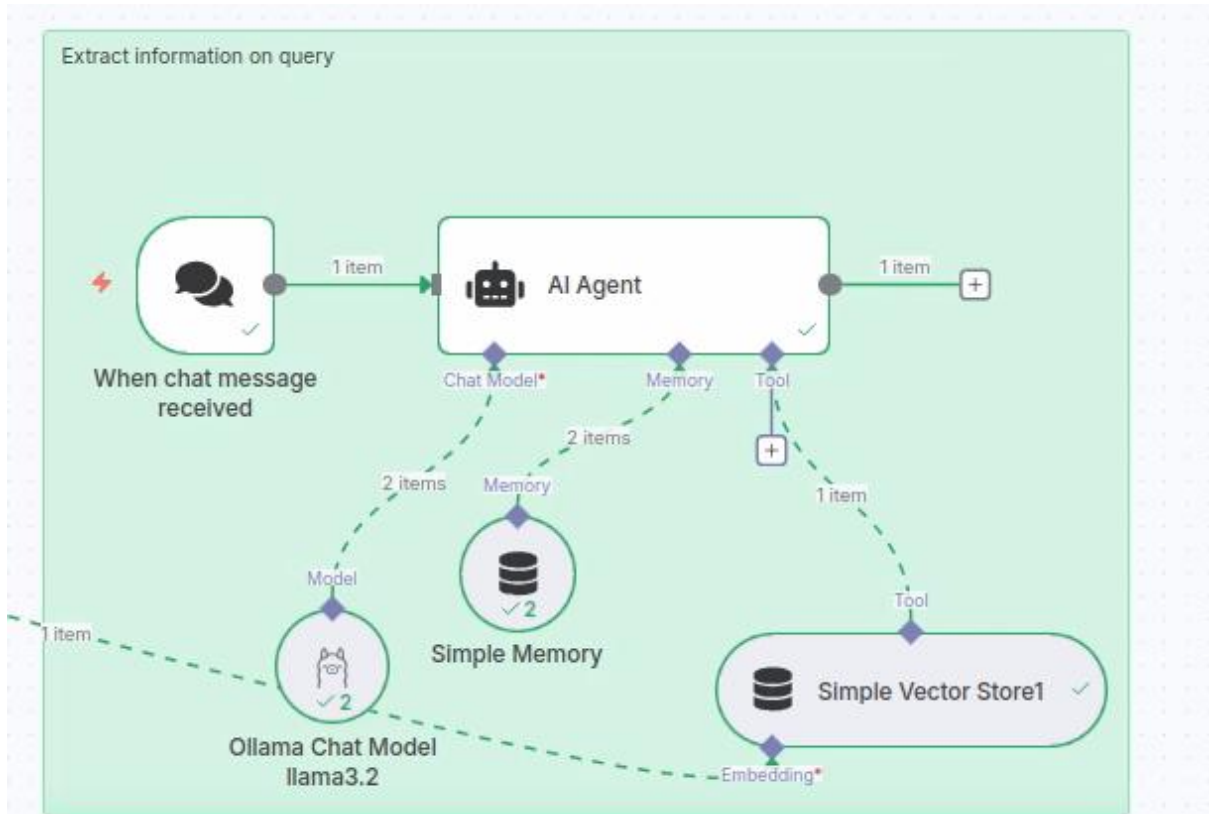


Figure 39: Querying a vector store

System message of AI Agent and vector tool description are as follows:

System message in AI Agent:

You are an expert in answering questions after extracting information from the provided 'Simple Vector Store1' on the game of football. You only answer from the extracted context and not from your own knowledge. In case the extracted contextual information from 'Simple Vector Store1' does not answer the user's query, you simply say 'I do not know'.

Retriever tool description

Retrieves information pertaining to the game of football

## Q. RAG with n8n

Files: n8n/2025/Rag Flow-I.json and Rag Flow-II.json

See [this link](#) for the detailed blog. Vectorization may take a very long time depending upon the input size.

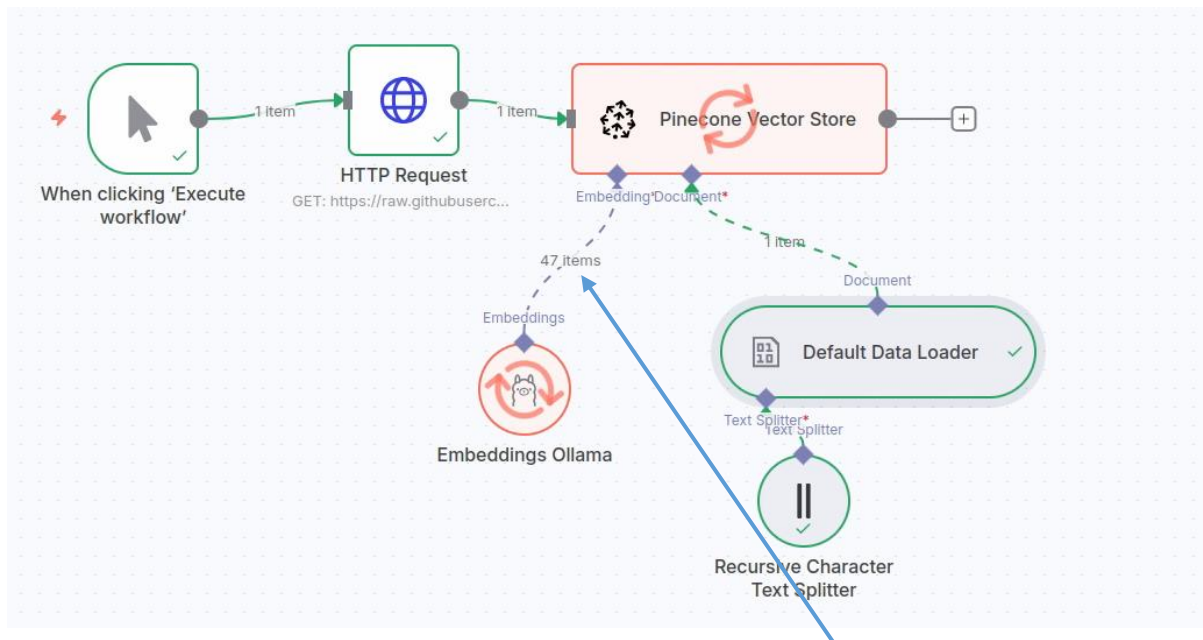


Figure 40: Our workflow to save data to vector store. 47 items possibly means that 47 chunks were processed till now. Chunk size for Recursive text splitter is 512 as selected embedder is:

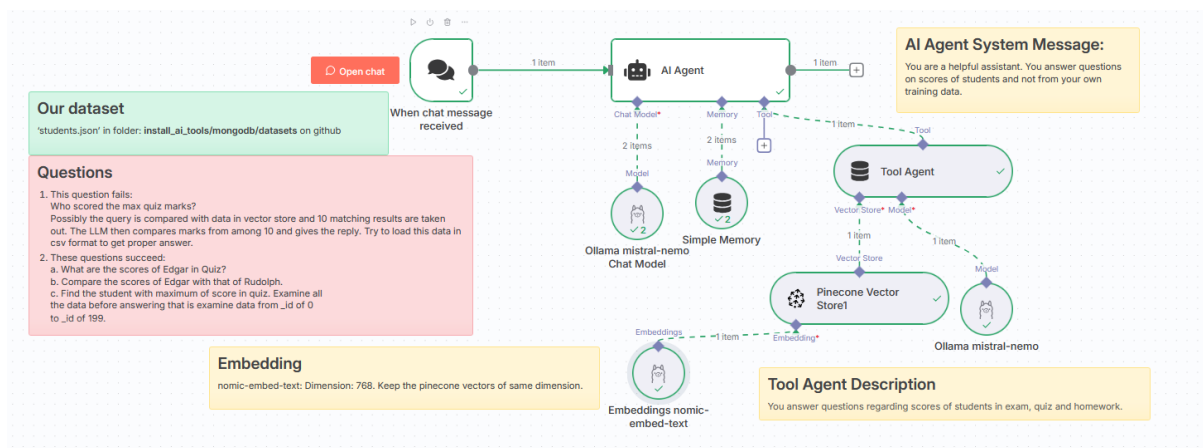


Figure 41: Reading vector data from Pinecone vector store

a. Here are the models used:

Embedding: nomic-embed-text (ollama)

Chat ollama: mistral-nemo (ollama)

b. Questions asked:

## Questions

1. This question fails:

Who scored the max quiz marks?

Possibly the query is compared with data in vector store and 10 matching results are taken out. The LLM then compares marks from among 10 and gives the reply. Try to load this data in csv format to get proper answer.

2. These questions succeed:

a. What are the scores of Edgar in Quiz?

b. Compare the scores of Edgar with that of Rudolph.

c. Find the student with maximum of score in quiz. Examine all the data before answering that is examine data from \_id of 0 to \_id of 199.

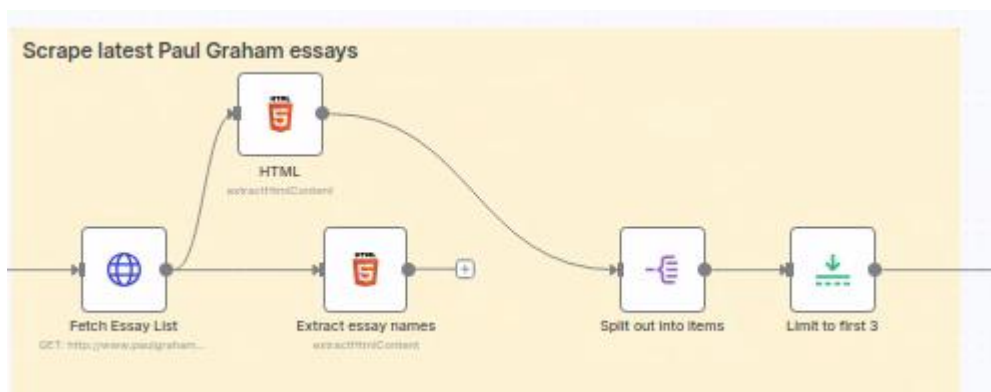
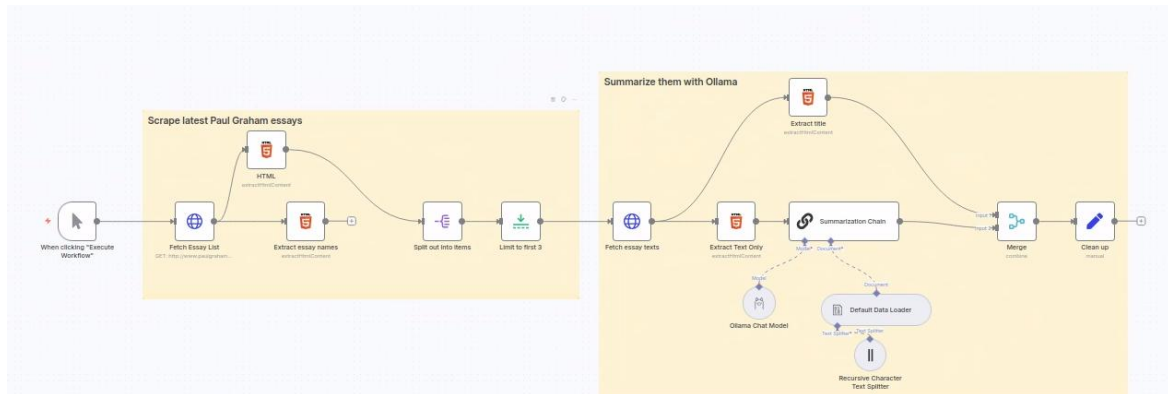
c. AI Agent System message:

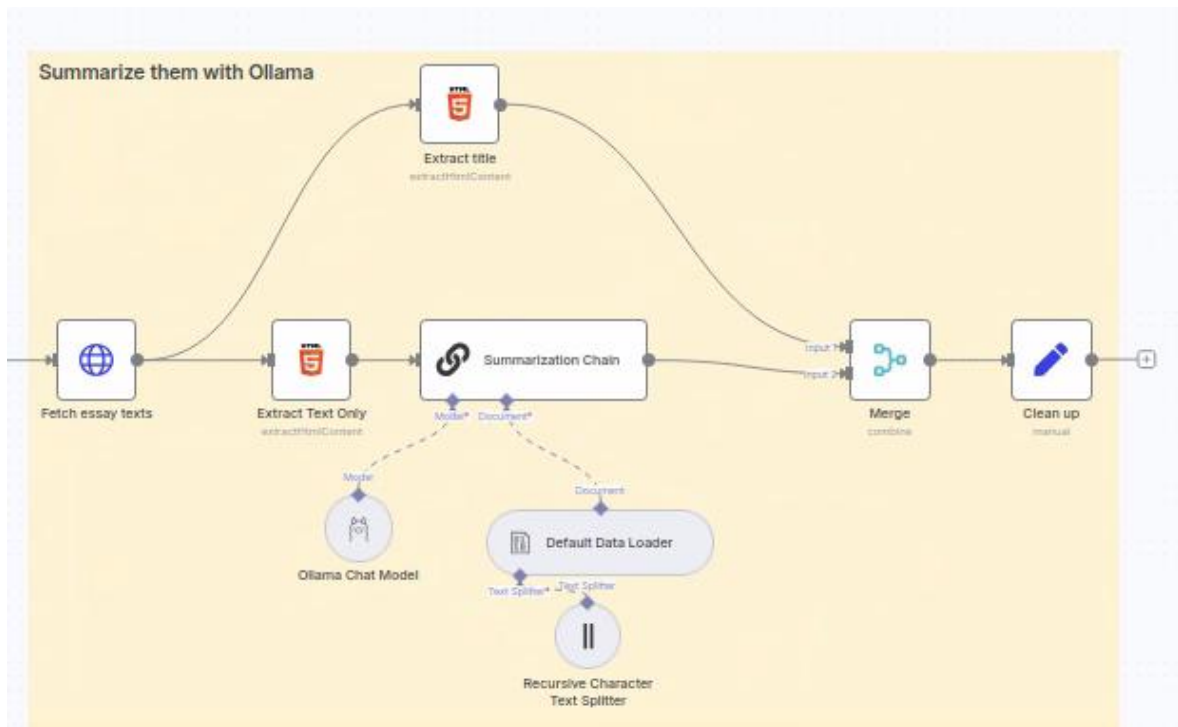
You are a helpful assistant. You answer questions on scores of students and not from your own training data.

d. Tool Agent Description

You answer questions regarding scores of students in exam, quiz and homework.

### Scraping web-pages and summarization





### Fetch Essay List

Parameters Settings Docs

Import cURL

Method: GET

URL: `http://www.paulgraham.com/articles.html`

Authentication: None

Send Query Parameters: ☐

Send Headers: ☐

Send Body: ☐

Options: No properties

Add option

You can view the raw requests this node makes in your browser's developer console

### HTML

Parameters Settings

Operation: Extract HTML Content

Source Data: JSON

JSON Property: data

Extraction Values:

Key	Value
essay	

CSS Selector: `table tbody tr td table tbody tr td font a`

Return Value: Attribute

Attribute: href

Return Array: ☒

Add Value

Split out into items
Execute step

Parameters
Settings
Docs

Fields To Split Out

essay

Include

No Other Fields

Options

No properties

Add Field

Limit to first 3
Execute step

Parameters
Settings
Docs

Max Items

3

Keep

First Items

n8n how to decide css selector in html node

Thinking

Kicking off 7 searches

Looking at 105 sites

Putting it all together

Deciding on the correct CSS selector in n8n's HTML node (formerly HTML Extract node) is crucial for accurately extracting the data you need from a web page. Here's a breakdown of how to approach this, including recommended practices and tools:

#### 1. Using Browser Developer Tools (Inspect Element)

The easiest and most common way to identify the correct CSS selector is by using your web browser's developer tools.

- **Navigate to the web page:** Open the web page containing the data you want to scrape in your browser.
- **Inspect the element:** Right-click on the specific element (text, image, link, etc.) you want to extract and select "Inspect" or "Inspect Element". This will open the browser's developer tools and highlight the element's HTML code.
- **Copy the CSS Selector/Path:** In the developer tools (usually under the "Elements" tab), right-click on the highlighted HTML element and choose "Copy" > "Selector". This will copy the CSS selector to your clipboard

Using the CSS selector in the n8n HTML node

- **Add an HTML node to your workflow:** According to n8n Docs and, the node is called "HTML" (it replaced the older "HTML Extract" node).
- **Set Source Data:** Choose "JSON" if the HTML content is in the JSON output of a previous node (like an HTTP Request node), or "Binary" if the HTML is in a binary file.
- **Specify JSON Property (if applicable):** Enter the name of the JSON property containing the HTML.
- **Add Extraction Value:** Click "Add Value" to define what you want to extract.
- **Key:** Enter a name for the extracted value (e.g., "title", "price").
- **CSS Selector:** Paste the CSS selector you identified in the previous steps.



- **Return Value:** Choose the type of data to return: "Attribute" (e.g., "href" for links), "HTML", "Text", or "Value" (for input elements).
- **Return Array (if applicable):** If you expect multiple elements to match the selector, enable "Return Array" to get an array of values.

Example:

If you want to extract the text "Medium" from a `<span>` element within a table, the copied CSS selector might look like:

`body > table:nth-child(2) > tbody:nth-child(1) > tr:nth-child(1) > td:nth-child(2) > span:nth-child(1)`

### Understanding CSS Selector Syntax:

Familiarize yourself with basic CSS selector syntax (e.g., `.` for classes, `#` for IDs, `>` for direct children, `nth-child()` for selecting elements based on their position) to create or modify selectors manually if needed.

### Slack API

To work with Slack API, click [on this link](#) or in Google, search for Slack API. [Click here](#) OR [here](#).

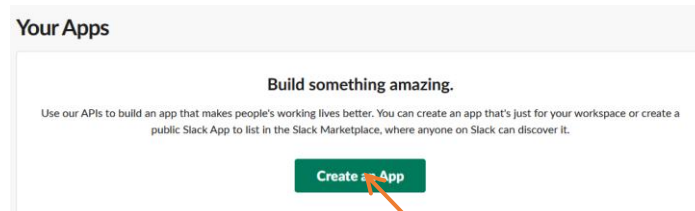


Figure 42: Click on Create an App

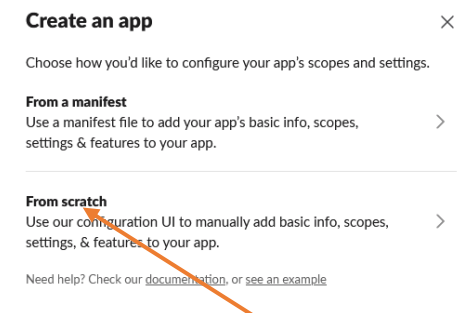


Figure 43: Click From Scratch



Figure 44: Fill it up and click Create App

Figure 45: Not sure if to note down these or not.

Figure 46: Click Install Apps

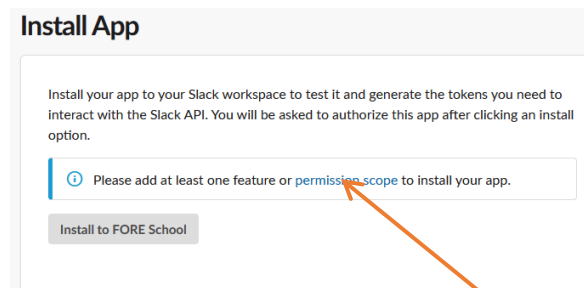


Figure 47: Click Install to FORE School. But first Give permissions

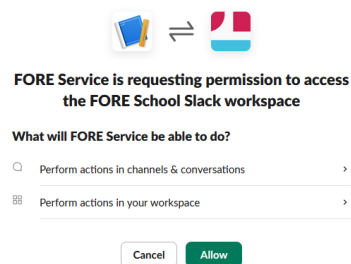


Figure 48: Allow your App permissions on your Workspace

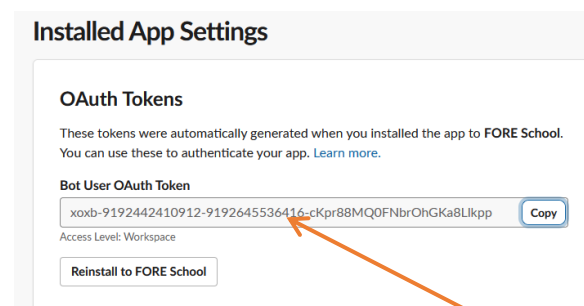


Figure 49: A token will be generated. Note this down. This token is important.

xoxb-9192442410912-9192645536416-cKpr88MQ0FNbrOhGKa8Llkpp

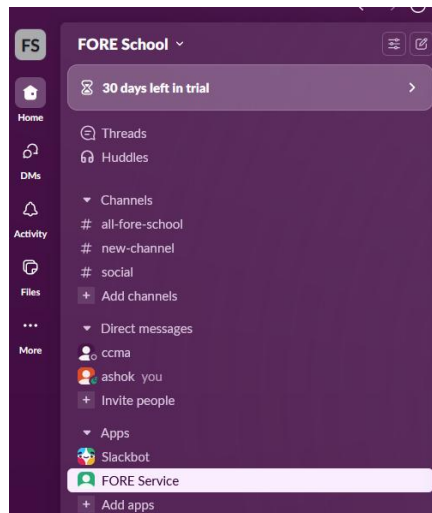


Figure 50: An App FORE Service is now visible

[YouTube video](#)

