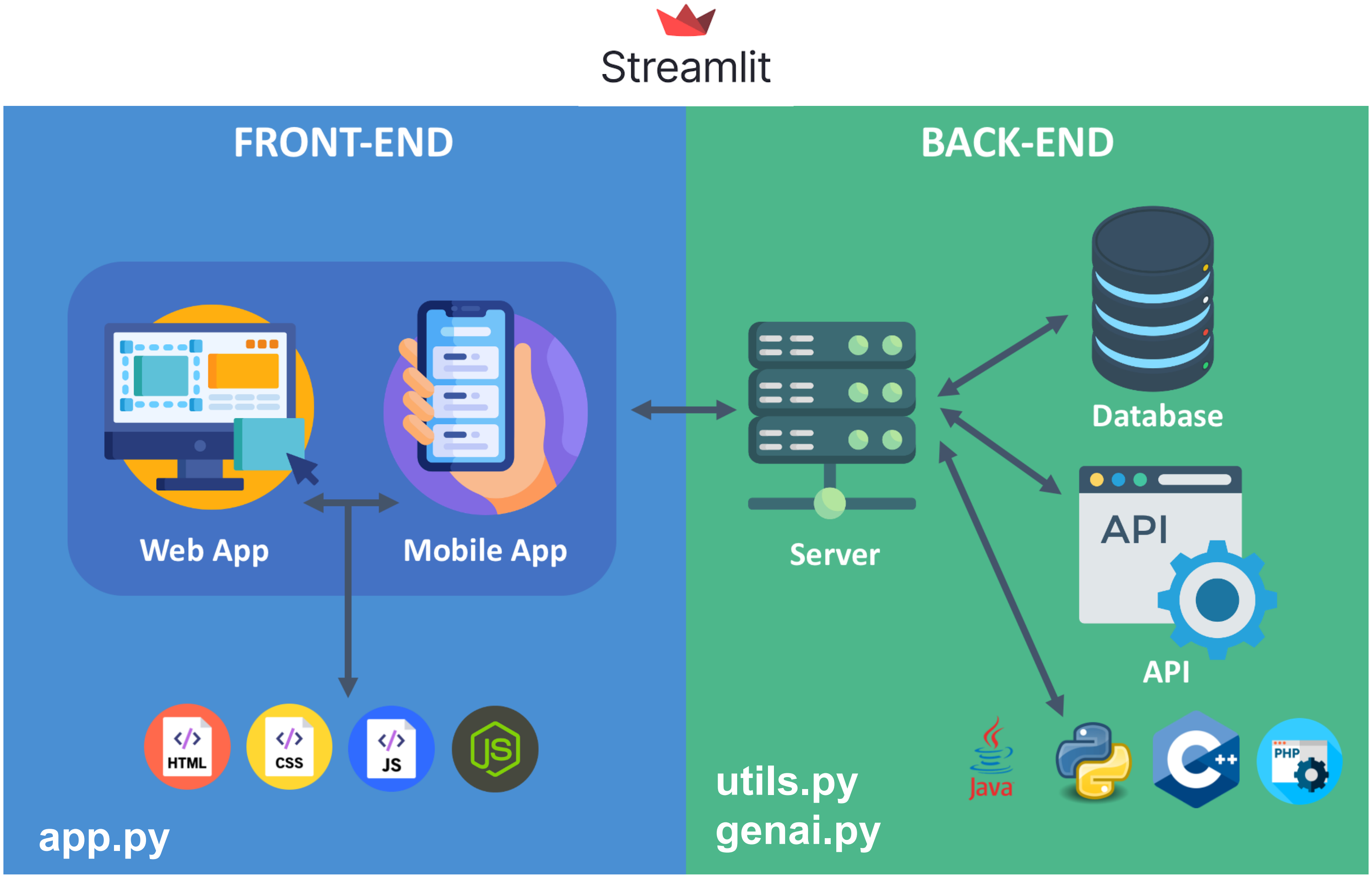
Advanced App Backend with n8n

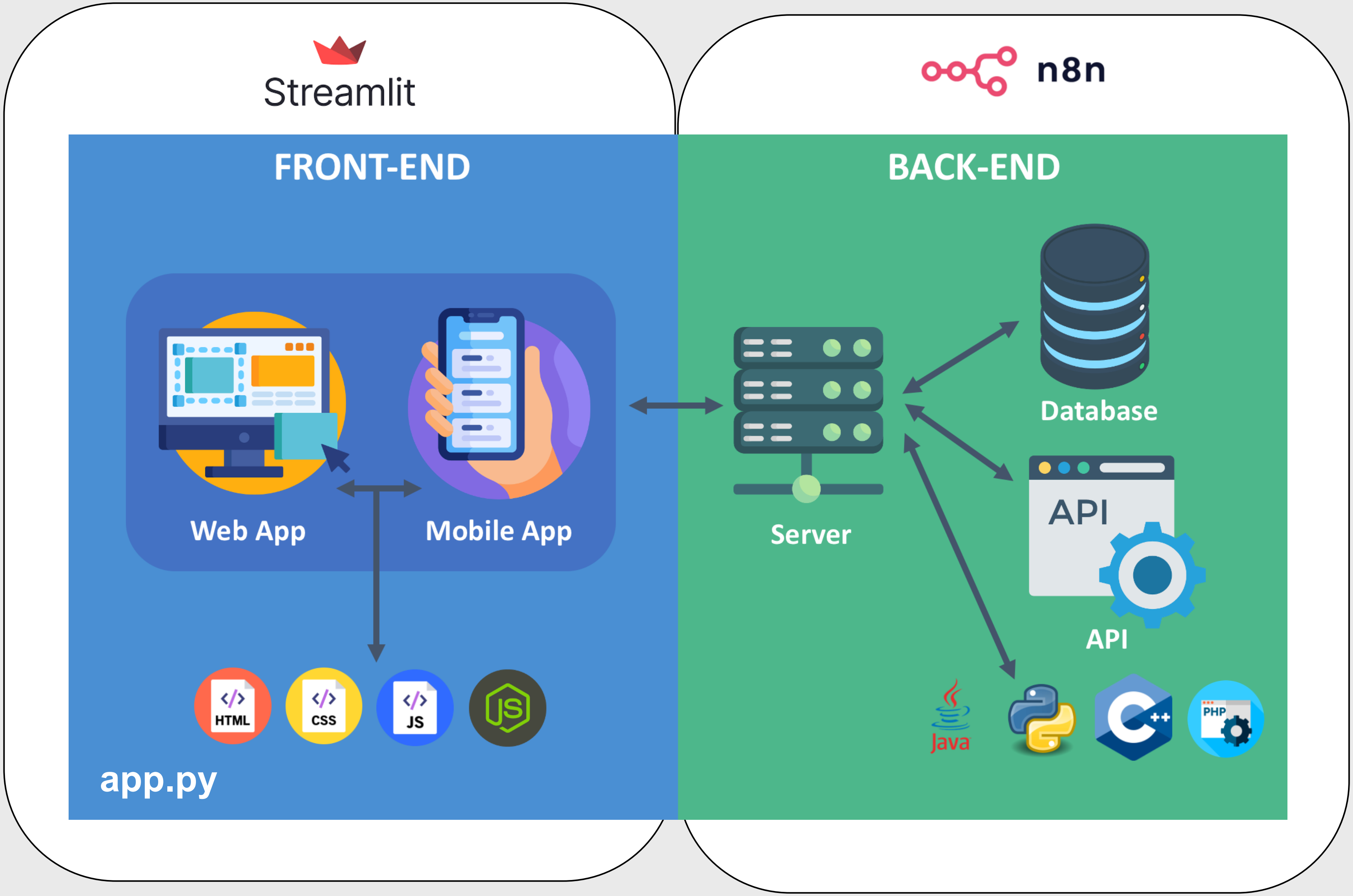
Front End vs Back End



app.py

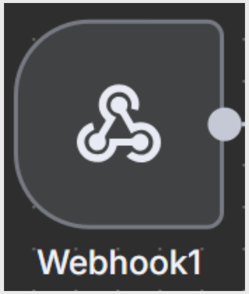
utils.py
genai.py

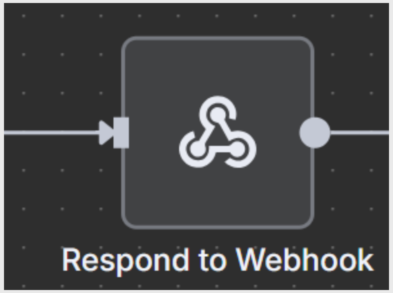
Front End vs Back End

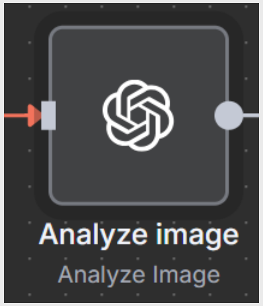


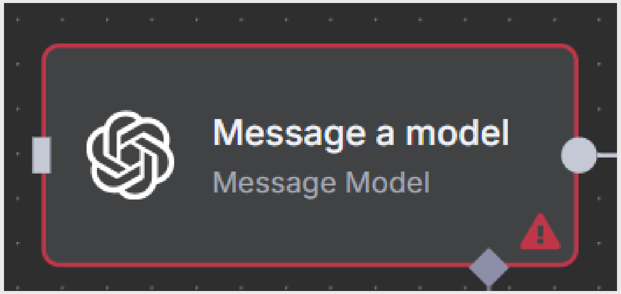
n8n

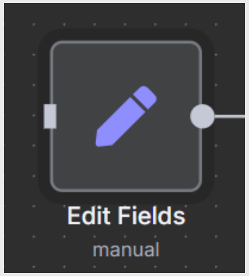
- We can build complex backend workflows using n8n
- The workflows are build graphically by connecting different nodes
- Main nodes we will use today

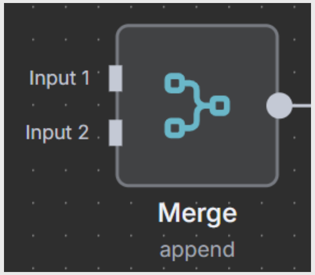




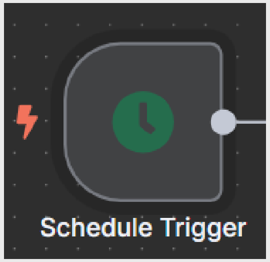


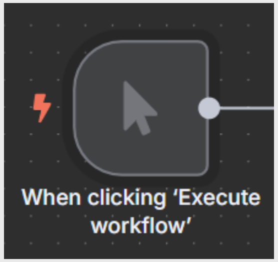


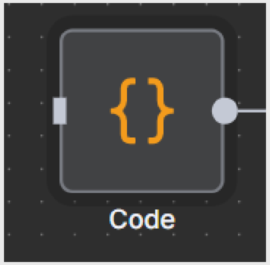


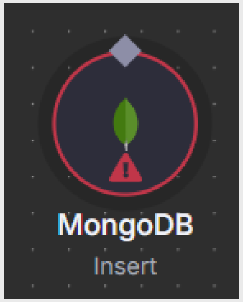


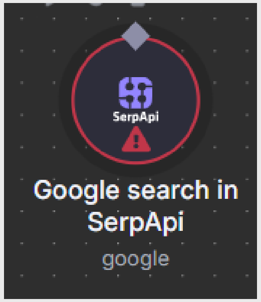
Other Cool n8n Nodes

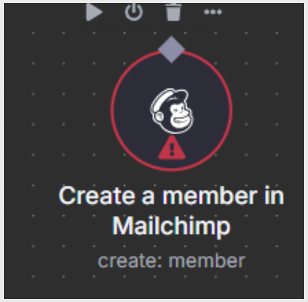


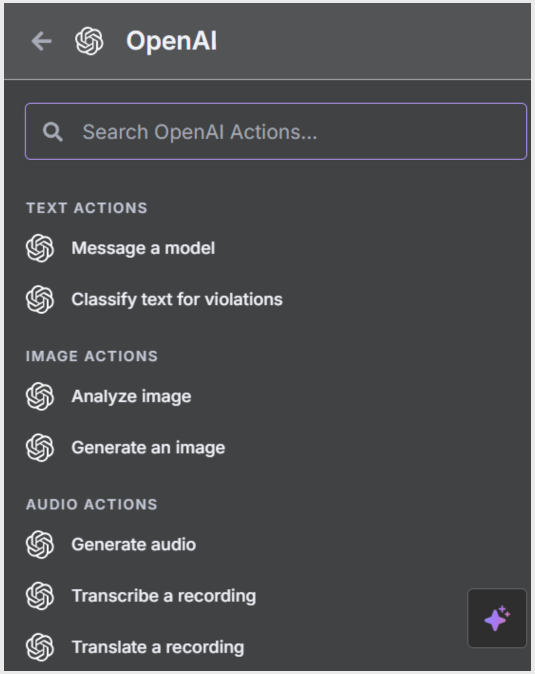


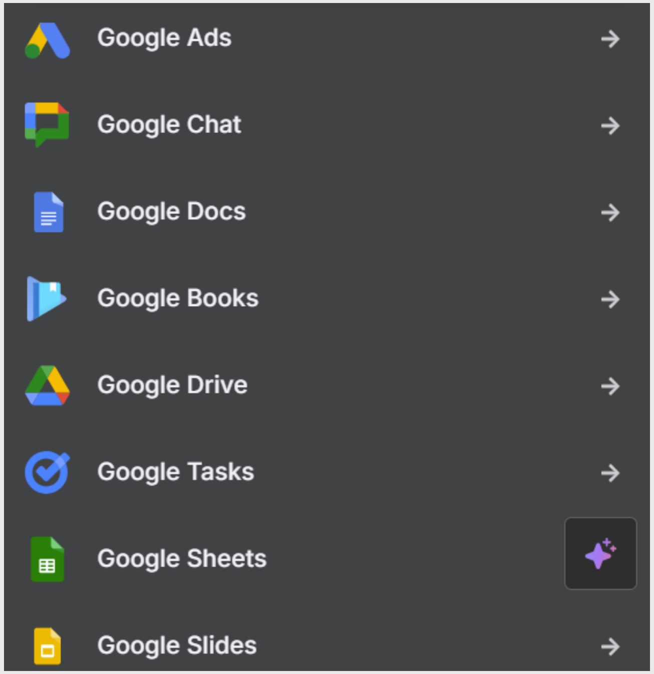


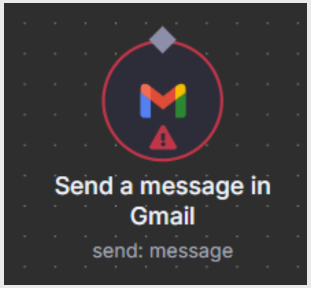


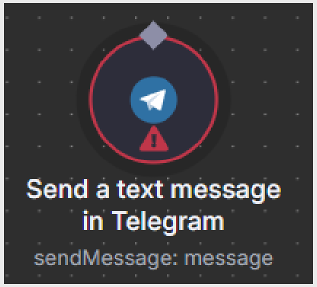










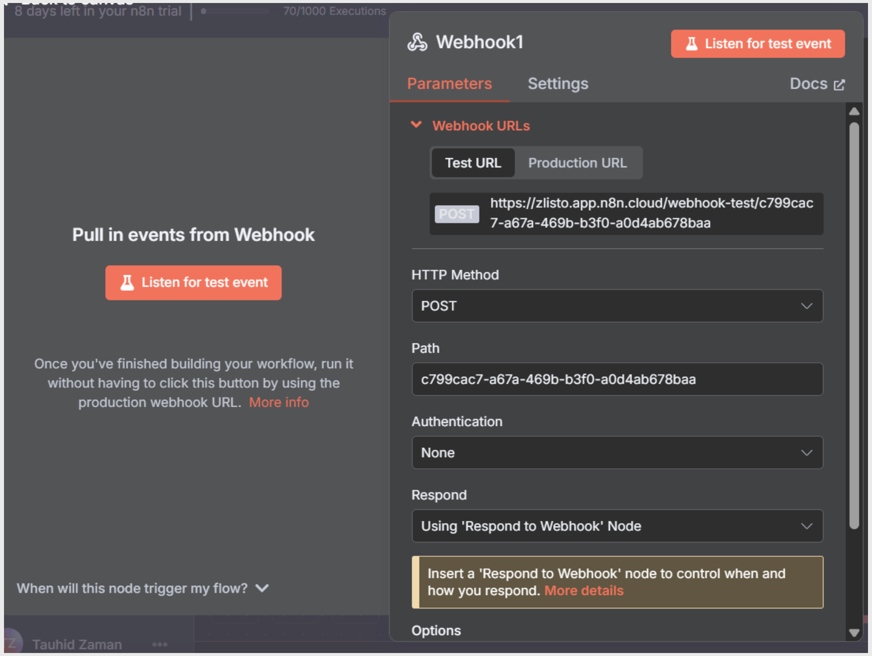


Webhook Node

- Webhook nodes receive data from your app via a POST request

- Set Respond = Using 'Respond to Webhook' Node
  - This has the workflow send data back to your app

- "Listen for test event" lets the webhook node receive data from the app
  - Good for testing, does not cost money
  - Click "Listen for test event", then have your app send data to the webhook



8 days left in your n8n trial | 70/1000 Executions

Pull in events from Webhook

Listen for test event

Once you've finished building your workflow, run it without having to click this button by using the production webhook URL. More info

When will this node trigger my flow?

Tauhid Zaman

Webhook1

Listen for test event

Parameters Settings Docs

Webhook URLs

Test URL Production URL

POST https://zlisto.app.n8n.cloud/webhook-test/c799cac7-a67a-469b-b3f0-a0d4ab678baa

HTTP Method: POST

Path: c799cac7-a67a-469b-b3f0-a0d4ab678baa

Authentication: None

Respond: Using 'Respond to Webhook' Node

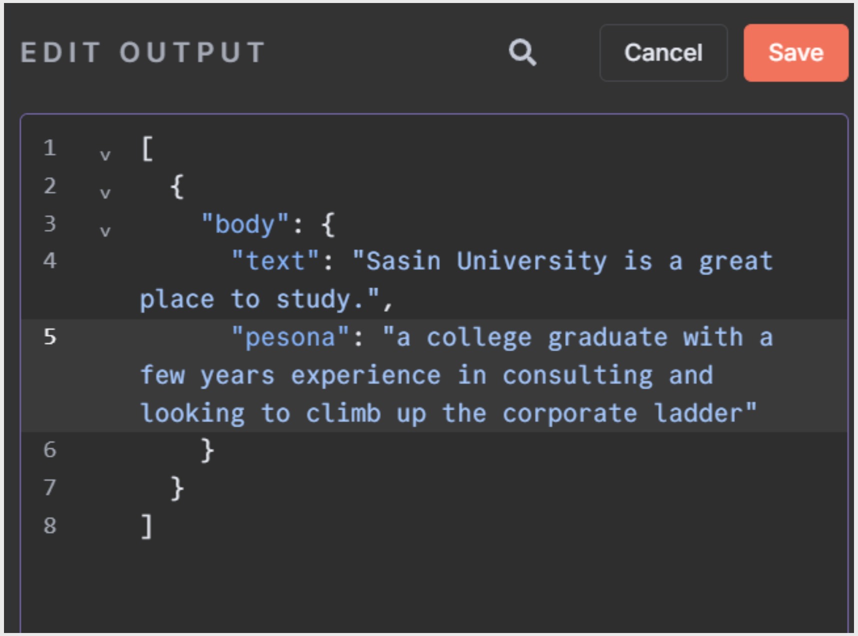
Insert a 'Respond to Webhook' node to control when and how you respond. More details

Options

Test Data for Webhook Node

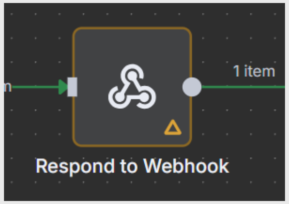
- If you want to test your workflow without having to run your app, you can manually type in data in JSON format

- POST requests have the text data in the “body field”
  - Inside “body” you can name your data and input any value for testing
- If you sent a file (like an image) it is in the “binary” field
  - No simple way to get a test file into n8n except for having your app send it



```
[
  {
    "body": {
      "text": "Sasin University is a great place to study.",
      "pesona": "a college graduate with a few years experience in consulting and looking to climb up the corporate ladder"
    }
  }
]
```

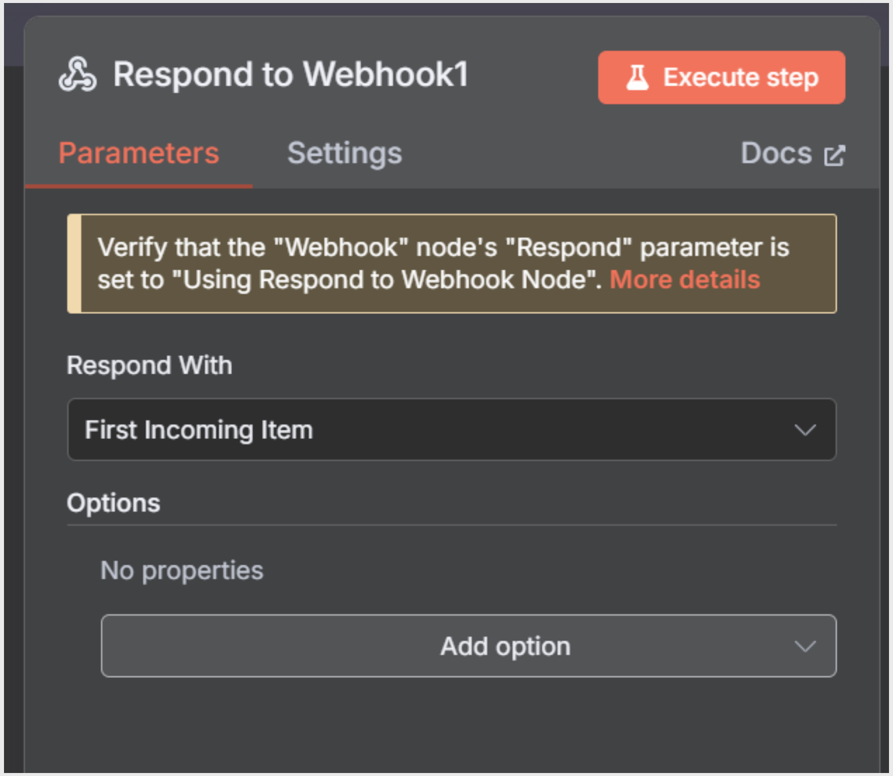
Respond to Webhook Node



- The Respond to Webhook node will send data back to your app

- Make sure the original Webhook Node has Respond = Using ‘Respond to Webhook’ Node

- Make sure the input is a JSON with all fields having the desired names (names in your app code)
  - These field names go back to your app



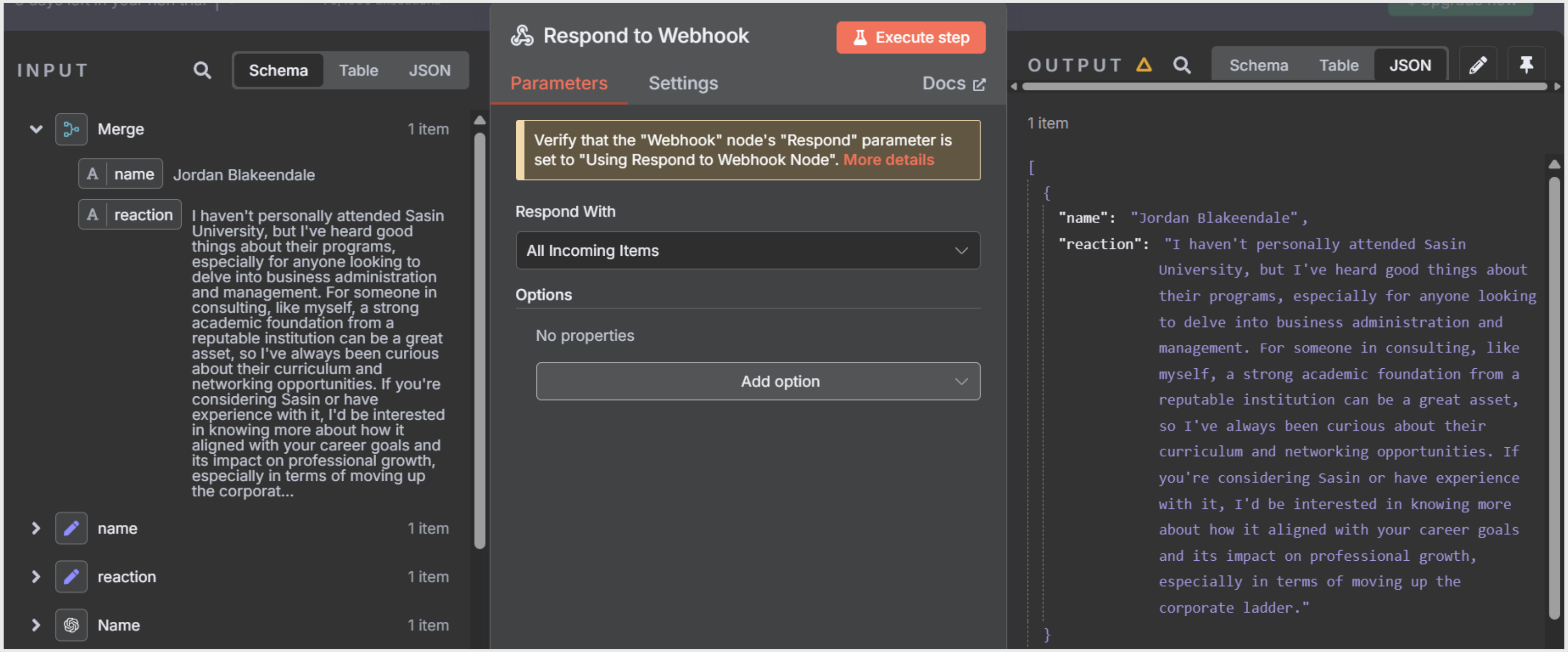
Verify that the "Webhook" node's "Respond" parameter is set to "Using Respond to Webhook Node". More details

Respond With: First Incoming Item

Options

No properties

Respond to Webhook Node



name: Jordan Blakeendale

reaction: I haven't personally attended Sasin University, but I've heard good things about their programs, especially for anyone looking to delve into business administration and management. For someone in consulting, like myself, a strong academic foundation from a reputable institution can be a great asset, so I've always been curious about their curriculum and networking opportunities. If you're considering Sasin or have experience with it, I'd be interested in knowing more about how it aligned with your career goals and its impact on professional growth, especially in terms of moving up the corporat...

Verify that the "Webhook" node's "Respond" parameter is set to "Using Respond to Webhook Node". More details

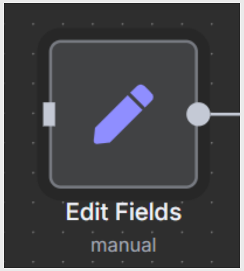
Respond With: All Incoming Items

Options

No properties

```
[
  {
    "name": "Jordan Blakeendale",
    "reaction": "I haven't personally attended Sasin
               University, but I've heard good things about
               their programs, especially for anyone looking
               to delve into business administration and
               management. For someone in consulting, like
               myself, a strong academic foundation from a
               reputable institution can be a great asset,
               so I've always been curious about their
               curriculum and networking opportunities. If
               you're considering Sasin or have experience
               with it, I'd be interested in knowing more
               about how it aligned with your career goals
               and its impact on professional growth,
               especially in terms of moving up the
               corporate ladder."
  }
```

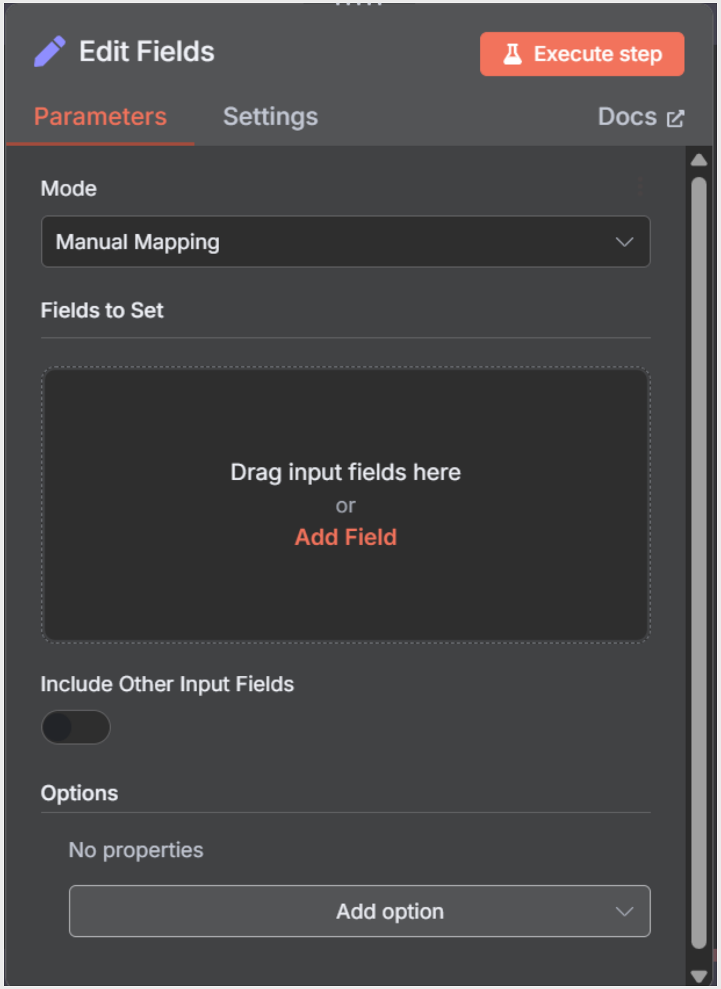
Set Node



- Use a Set node to clean up your output so it has a better name

- Drag and drop the field you want into the "Fields to Set" box,

- Give the field a name in the parameter box



Edit Fields

Mode

Manual Mapping

Fields to Set

Drag input fields here
or
Add Field

Include Other Input Fields

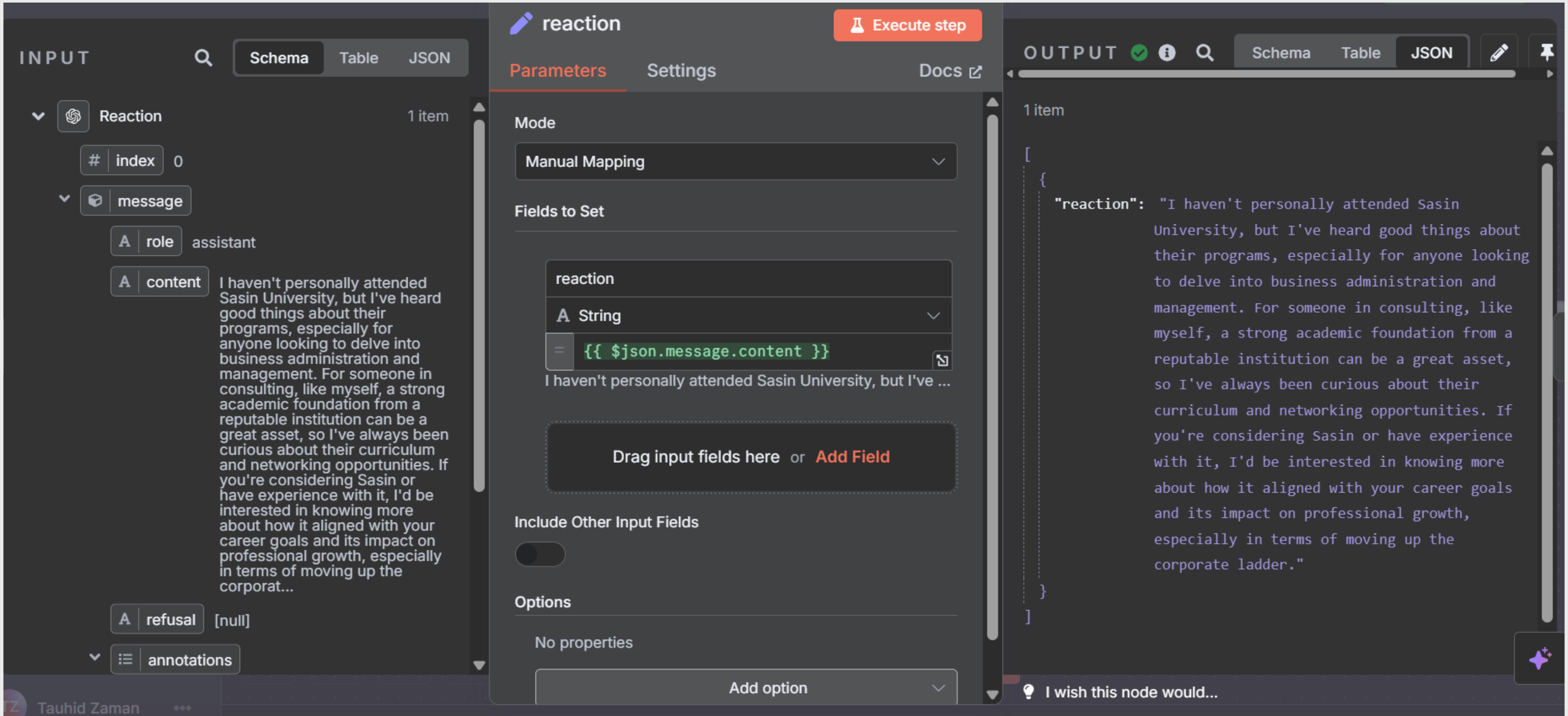
Options

No properties

Add option

Rename Output with Set Node

- This Set node changes the message.content field to the reaction field



Reaction 1 item

index 0

message

role assistant

content I haven't personally attended Sasin University, but I've heard good things about their programs, especially for anyone looking to delve into business administration and management. For someone in consulting, like myself, a strong academic foundation from a reputable institution can be a great asset, so I've always been curious about their curriculum and networking opportunities. If you're considering Sasin or have experience with it, I'd be interested in knowing more about how it aligned with your career goals and its impact on professional growth, especially in terms of moving up the corporat...

refusal [null]

annotations

Mode: Manual Mapping

Fields to Set

reaction

String

`{{ $json.message.content }}`

I haven't personally attended Sasin University, but I've ...

Include Other Input Fields

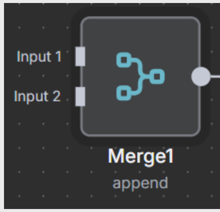
Options

No properties

1 item

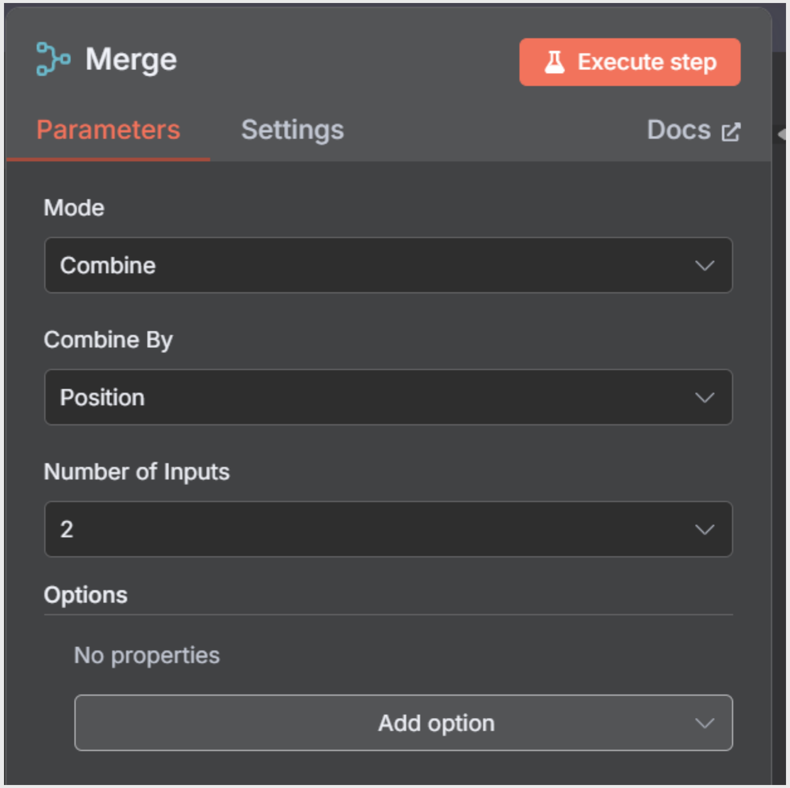
```
[
  {
    "reaction":  "I haven't personally attended Sasin
                 University, but I've heard good things about
                 their programs, especially for anyone looking
                 to delve into business administration and
                 management. For someone in consulting, like
                 myself, a strong academic foundation from a
                 reputable institution can be a great asset,
                 so I've always been curious about their
                 curriculum and networking opportunities. If
                 you're considering Sasin or have experience
                 with it, I'd be interested in knowing more
                 about how it aligned with your career goals
                 and its impact on professional growth,
                 especially in terms of moving up the
                 corporate ladder."
  }
]
```

Merge Node



- You can combine multiple inputs into a single JSON output using a merge node

- Make sure each input is a single item JSON (use a Set Node for this)
  - Set "Mode" to Combine
  - Set "Combine By" to Position



Mode: Combine

Combine By: Position

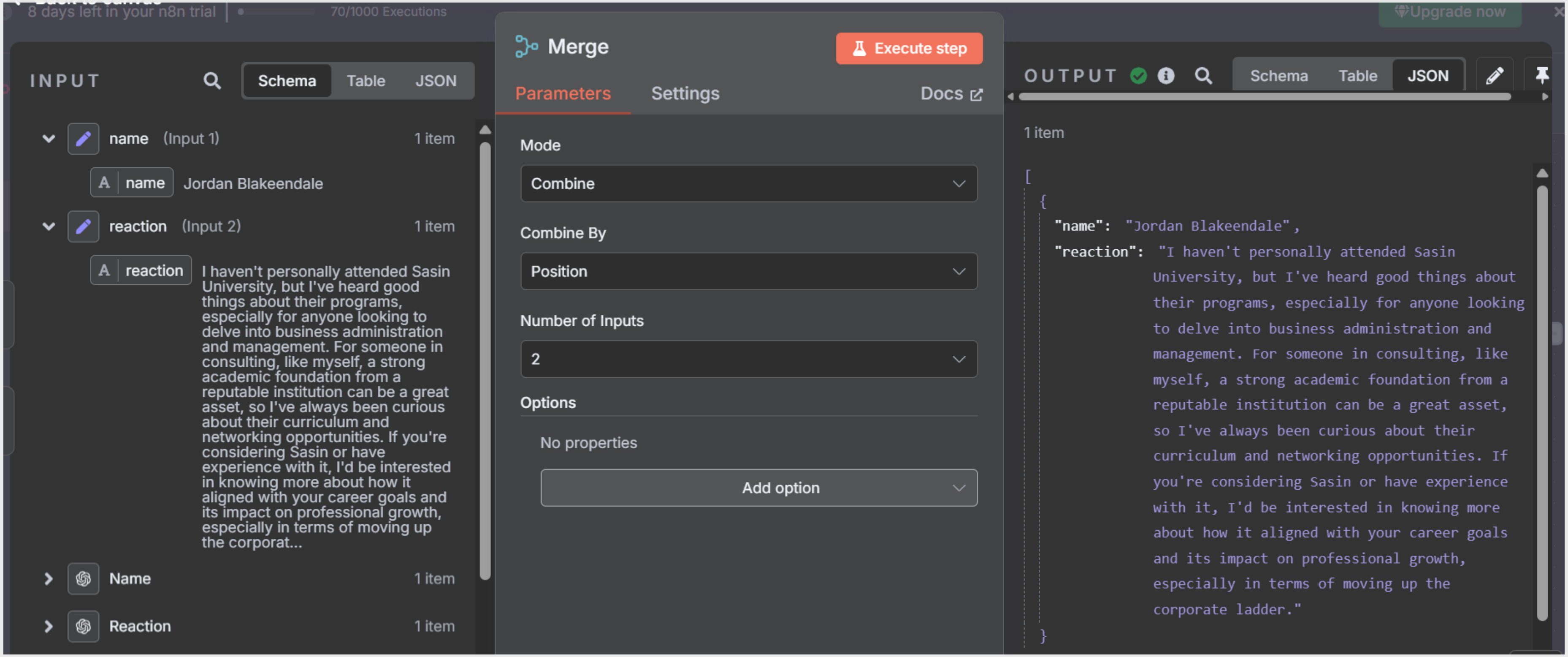
Number of Inputs: 2

Options

No properties

Merge Inputs to Single JSON

- This Merge node returns a JSON object with fields “name” and “reaction”



name (Input 1) 1 item

A name Jordan Blakeendale

reaction (Input 2) 1 item

A reaction I haven't personally attended Sasin University, but I've heard good things about their programs, especially for anyone looking to delve into business administration and management. For someone in consulting, like myself, a strong academic foundation from a reputable institution can be a great asset, so I've always been curious about their curriculum and networking opportunities. If you're considering Sasin or have experience with it, I'd be interested in knowing more about how it aligned with your career goals and its impact on professional growth, especially in terms of moving up the corporat...

Name 1 item

Reaction 1 item

Mode: Combine

Combine By: Position

Number of Inputs: 2

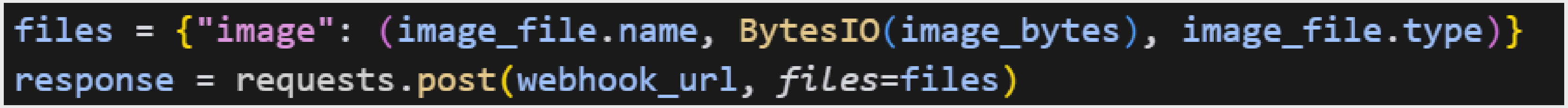
Options: No properties

1 item

```
[
  {
    "name": "Jordan Blakeendale",
    "reaction": "I haven't personally attended Sasin
                 University, but I've heard good things about
                 their programs, especially for anyone looking
                 to delve into business administration and
                 management. For someone in consulting, like
                 myself, a strong academic foundation from a
                 reputable institution can be a great asset,
                 so I've always been curious about their
                 curriculum and networking opportunities. If
                 you're considering Sasin or have experience
                 with it, I'd be interested in knowing more
                 about how it aligned with your career goals
                 and its impact on professional growth,
                 especially in terms of moving up the
                 corporate ladder."
  }
```

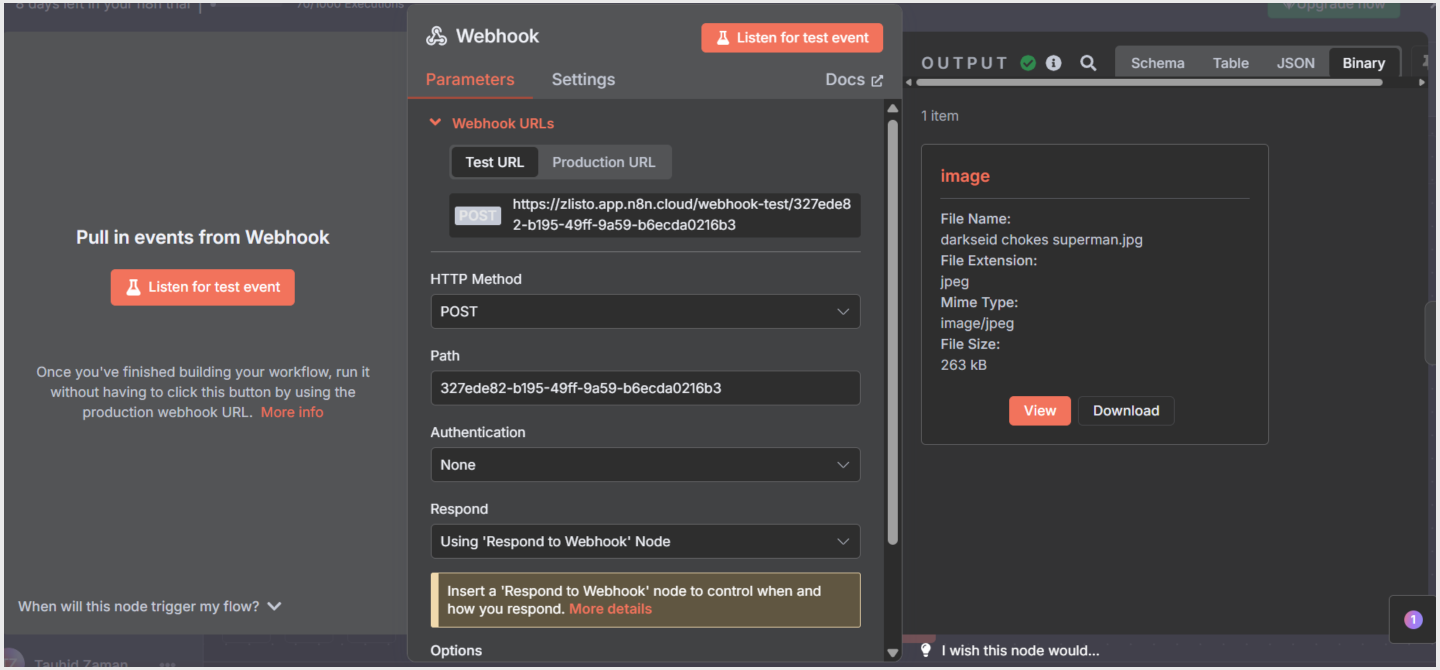
Passing Files in n8n

- In your app, you can send files to your n8n webhook
  - Make sure you send the file as a binary



```
files = {"image": (image_file.name, BytesIO(image_bytes), image_file.type)}
response = requests.post(webhook_url, files=files)
```

- The webhook will see the file in its “binary” field



Pull in events from Webhook

Listen for test event

Once you've finished building your workflow, run it without having to click this button by using the production webhook URL. More info

When will this node trigger my flow?

Webhook

Listen for test event

Parameters Settings Docs

Webhook URLs

Test URL Production URL

POST https://zlisto.app.n8n.cloud/webhook-test/327ede82-b195-49ff-9a59-b6ecda0216b3

HTTP Method: POST

Path: 327ede82-b195-49ff-9a59-b6ecda0216b3

Authentication: None

Respond: Using 'Respond to Webhook' Node

Insert a 'Respond to Webhook' node to control when and how you respond. More details

Options

OUTPUT Schema Table JSON Binary

1 item

image

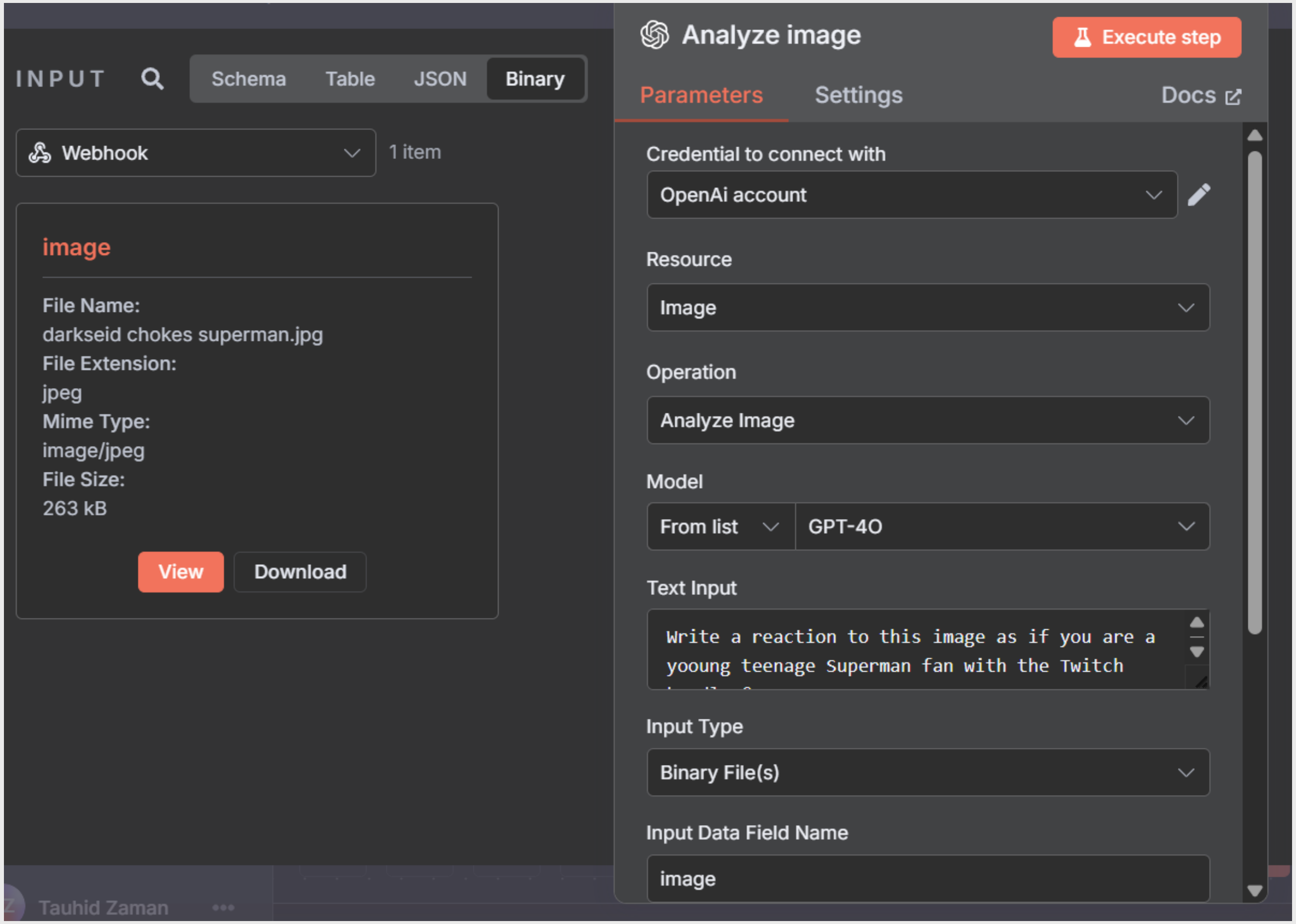
File Name:
darkseid chokes superman.jpg
File Extension:
jpeg
Mime Type:
image/jpeg
File Size:
263 kB

View Download

I wish this node would...

Passing Files in n8n

- To pass the file to other nodes, you can refer to it by its name



image

File Name:
darkseid chokes superman.jpg
File Extension:
jpeg
Mime Type:
image/jpeg
File Size:
263 kB

Credential to connect with: OpenAi account

Resource: Image

Operation: Analyze Image

Model: From list GPT-4O

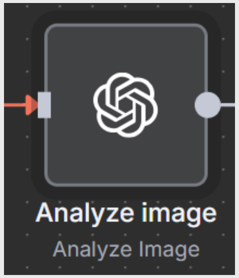
Text Input:

```
Write a reaction to this image as if you are a
yooung teenage Superman fan with the Twitch
```

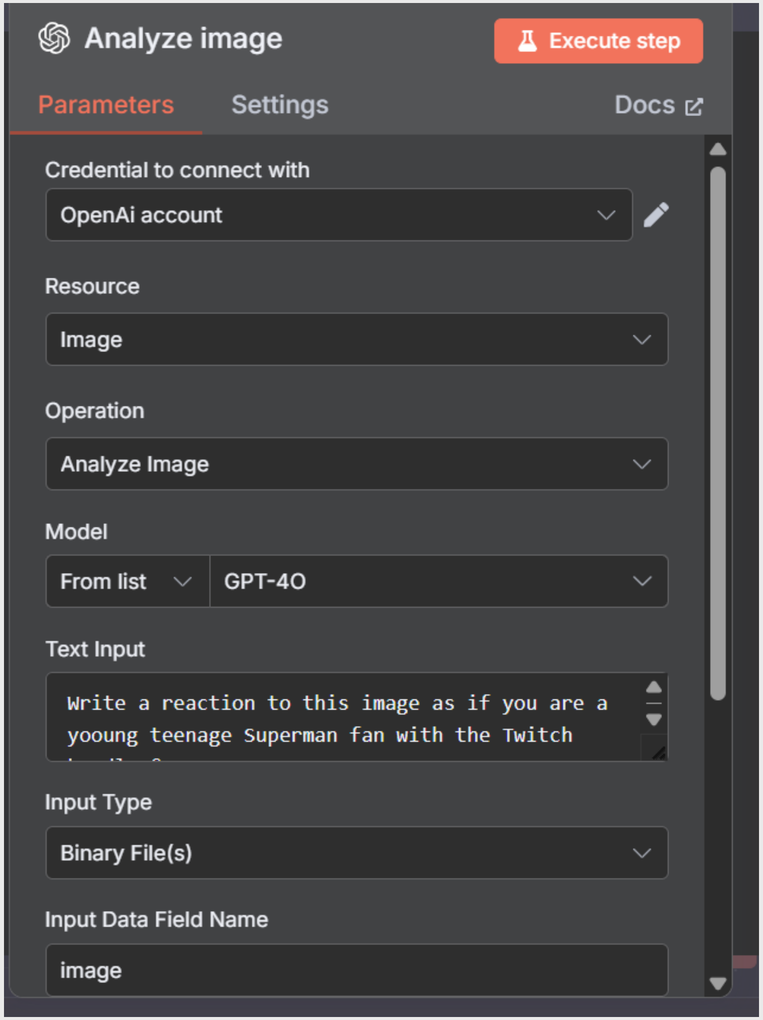
Input Type: Binary File(s)

Input Data Field Name: image

Analyze Image Node



- Passing an image to an Analyze Image Node
  - Resource = Image
  - Operation = Analyze Image
  - Model = GPT-4O
  - Text Input = instructions for AI
  - Input Type = Binary File(s)
  - Input Data Field Name = name of the file in the binary field



Credential to connect with: OpenAi account

Resource: Image

Operation: Analyze Image

Model: From list — GPT-4O

Text Input:

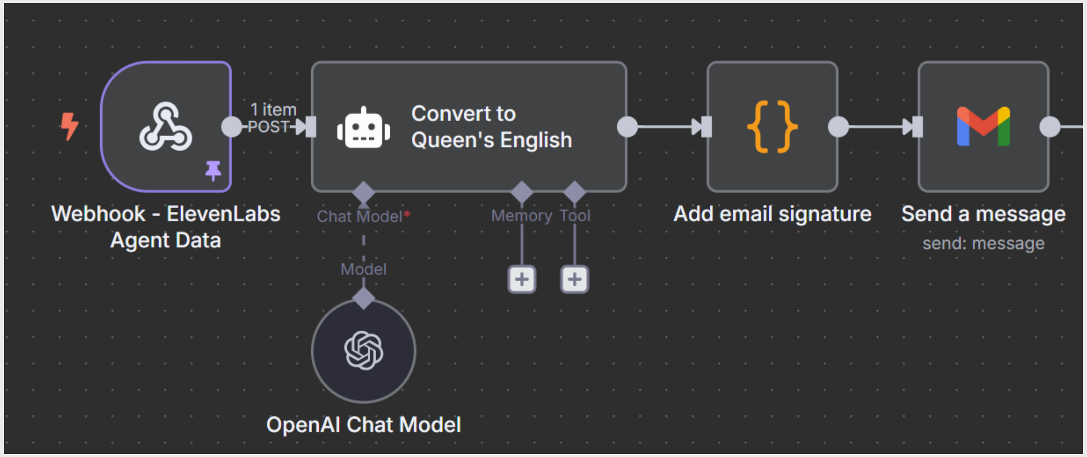
```
Write a reaction to this image as if you are a
yooung teenage Superman fan with the Twitch
```

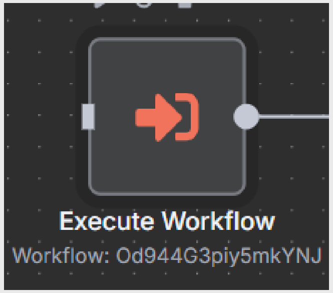
Input Type: Binary File(s)

Input Data Field Name: image

Execute Workflow Node

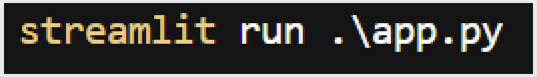
- “Execute Workflow” Node - Your existing workflows can become nodes for other workflows
- Make sure you know what the inputs and outputs are





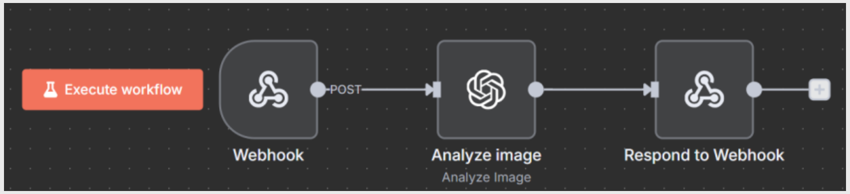
Testing Your App with n8n Backend

1. Run your Streamlit app from the terminal

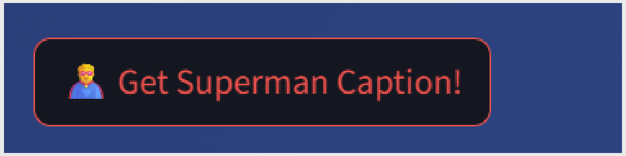


```
streamlit run .\app.py
```

2. On n8n click “Execute workflow” (make sure you are using the test URL)

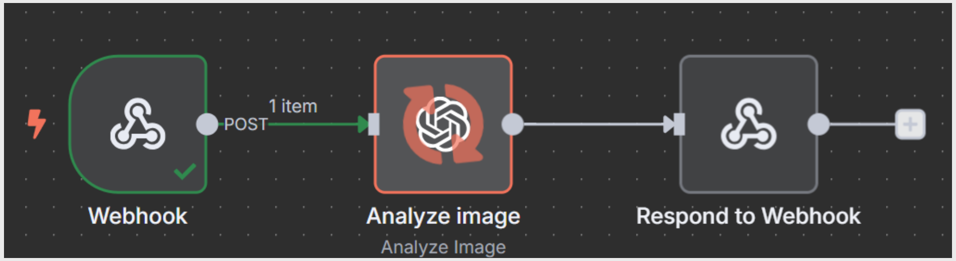


3. Send data from your app to n8n

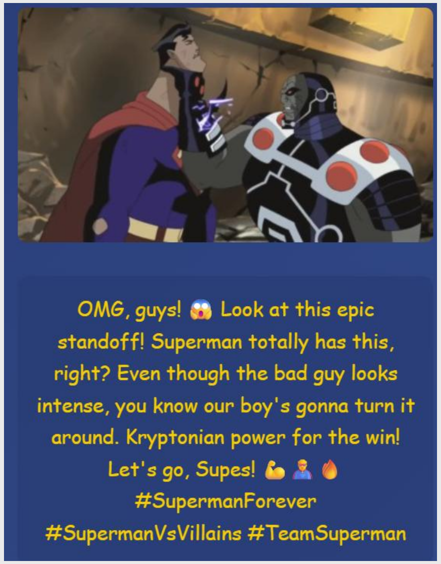


Testing Your App with n8n Backend

4. Watch it run in n8n



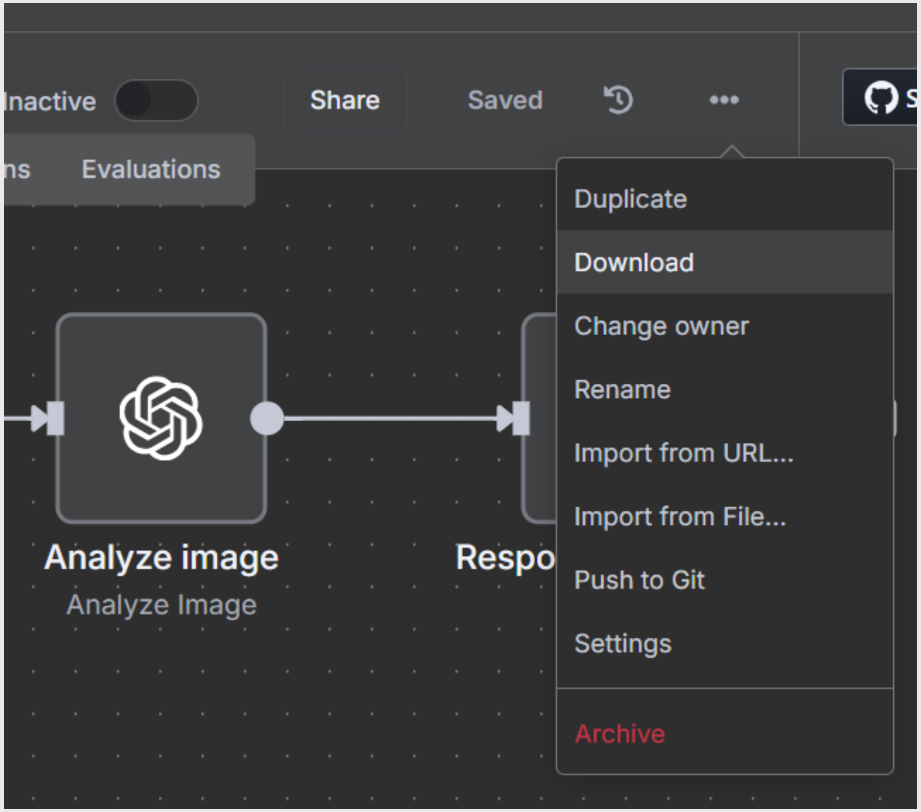
5. Look at the results in your app

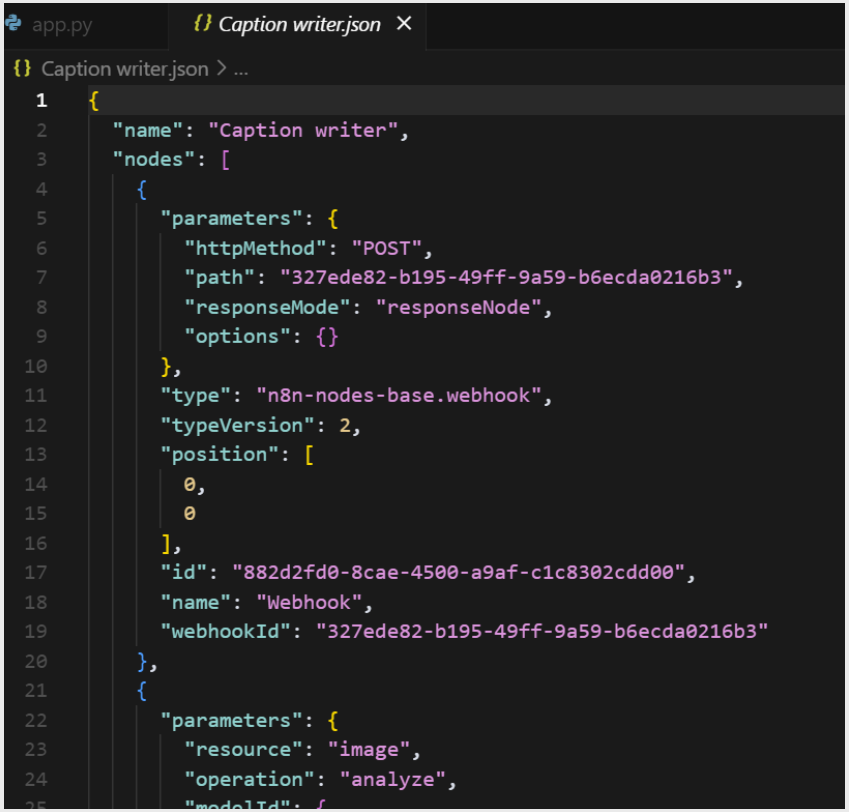


OMG, guys! 😱 Look at this epic standoff! Superman totally has this, right? Even though the bad guy looks intense, you know our boy's gonna turn it around. Kryptonian power for the win! Let's go, Supes! 💪🦸‍♂️🔥 #SupermanForever #SupermanVsVillains #TeamSuperman

Downloading n8n Workflow

- You can download your n8n workflow to a JSON file

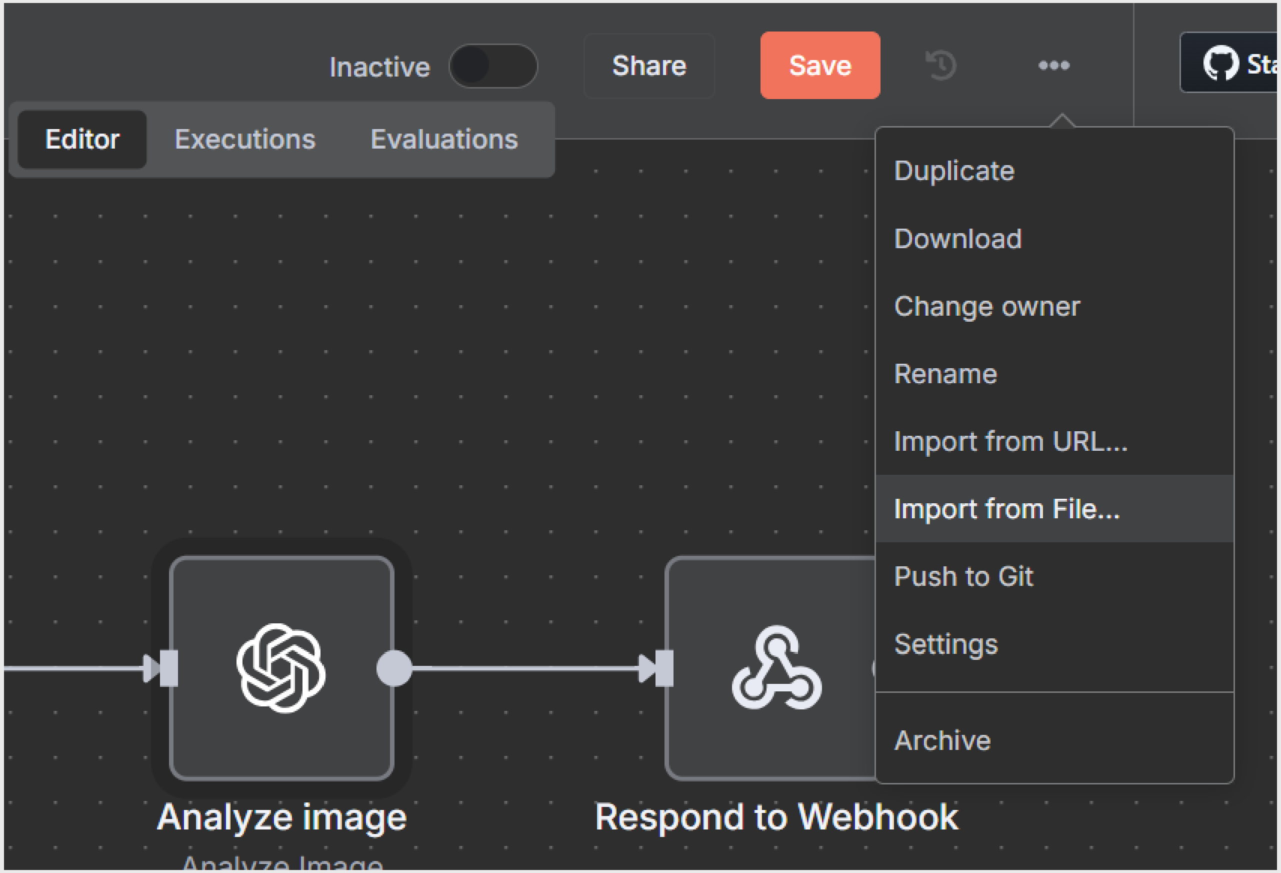




```
{
  "name": "Caption writer",
  "nodes": [
    {
      "parameters": {
        "httpMethod": "POST",
        "path": "327ede82-b195-49ff-9a59-b6ecda0216b3",
        "responseMode": "responseNode",
        "options": {}
      },
      "type": "n8n-nodes-base.webhook",
      "typeVersion": 2,
      "position": [
        0,
        0
      ],
      "id": "882d2fd0-8cae-4500-a9af-c1c8302cdd00",
      "name": "Webhook",
      "webhookId": "327ede82-b195-49ff-9a59-b6ecda0216b3"
    },
    {
      "parameters": {
        "resource": "image",
        "operation": "analyze",
        "modelId": {
```

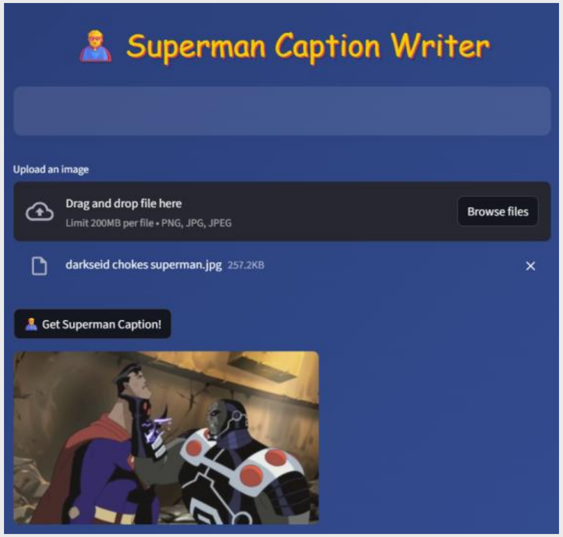
Importing n8n Workflow

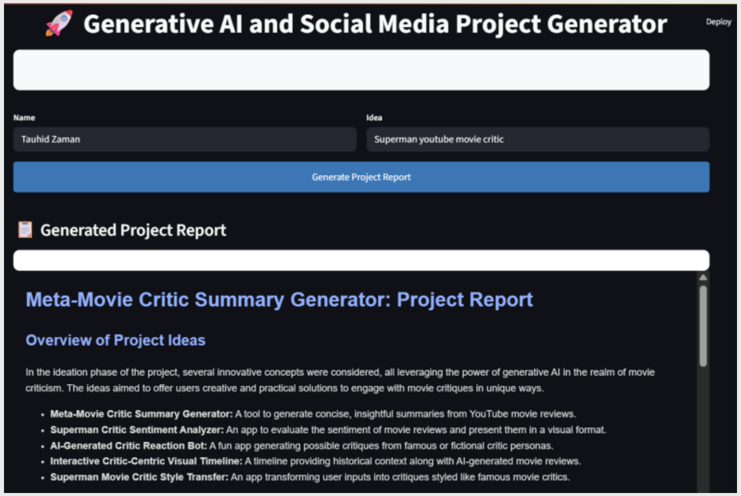
- You can import a n8n workflow from a JSON file



Coding Session

- In our coding session we will build two apps
  1. An image captioning web app using Streamlit and n8n
  2. A web app that can write your final project report for you and then email it to the professor





Name: Tauhid Zaman

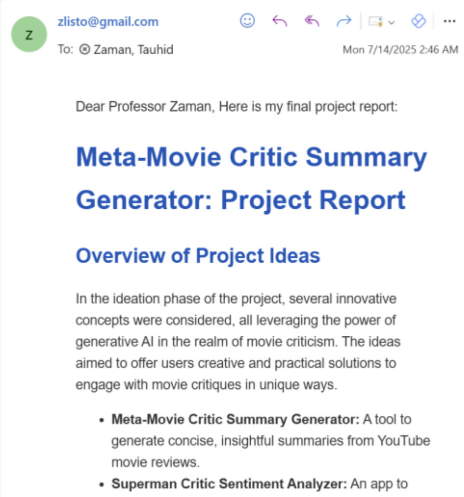
Idea: Superman youtube movie critic

Meta-Movie Critic Summary Generator: Project Report

Overview of Project Ideas

In the ideation phase of the project, several innovative concepts were considered, all leveraging the power of generative AI in the realm of movie criticism. The ideas aimed to offer users creative and practical solutions to engage with movie critiques in unique ways.

- **Meta-Movie Critic Summary Generator:** A tool to generate concise, insightful summaries from YouTube movie reviews.
- **Superman Critic Sentiment Analyzer:** An app to evaluate the sentiment of movie reviews and present them in a visual format.
- **AI-Generated Critic Reaction Bot:** A fun app generating possible critiques from famous or fictional critic personas.
- **Interactive Critic-Centric Visual Timeline:** A timeline providing historical context along with AI-generated movie reviews.
- **Superman Movie Critic Style Transfer:** An app transforming user inputs into critiques styled like famous movie critics.



zlisto@gmail.com

To: Zaman, Tauhid

Mon 7/14/2025 2:46 AM

Dear Professor Zaman, Here is my final project report:

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