**LECTURE-01 (Saturday 16-August-2025)**

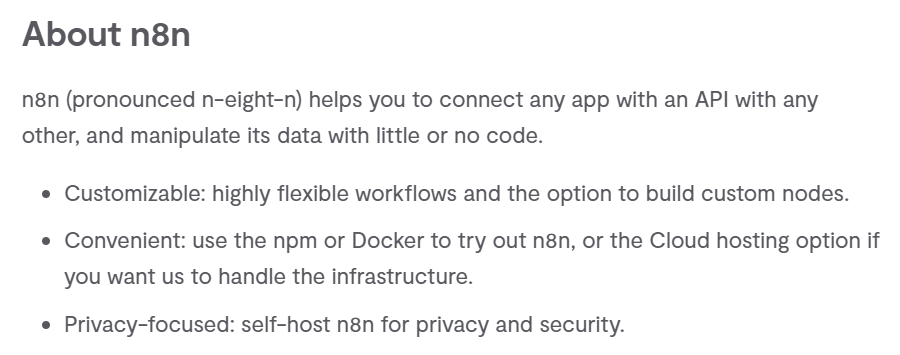
* Next Test: Step 12 to Step 17
* Our course is “AI-201”.
* <https://github.com/panaversity/learn-n8n-agentic-ai>
* <https://docs.n8n.io/>: It is the documentation for n8n.
* n8n (n-eight-n): A fair-code licensed workflow automation tool that combines AI capabilities with business process automation.
* Free 5000 business workflow templates are available of n8n, we just need to download template and configure template based on our requirement. Even, we can create custom workflow.
* Businesses workflow like

1. we do order and in return, we get confirmation email
2. we work in office at databases, applications

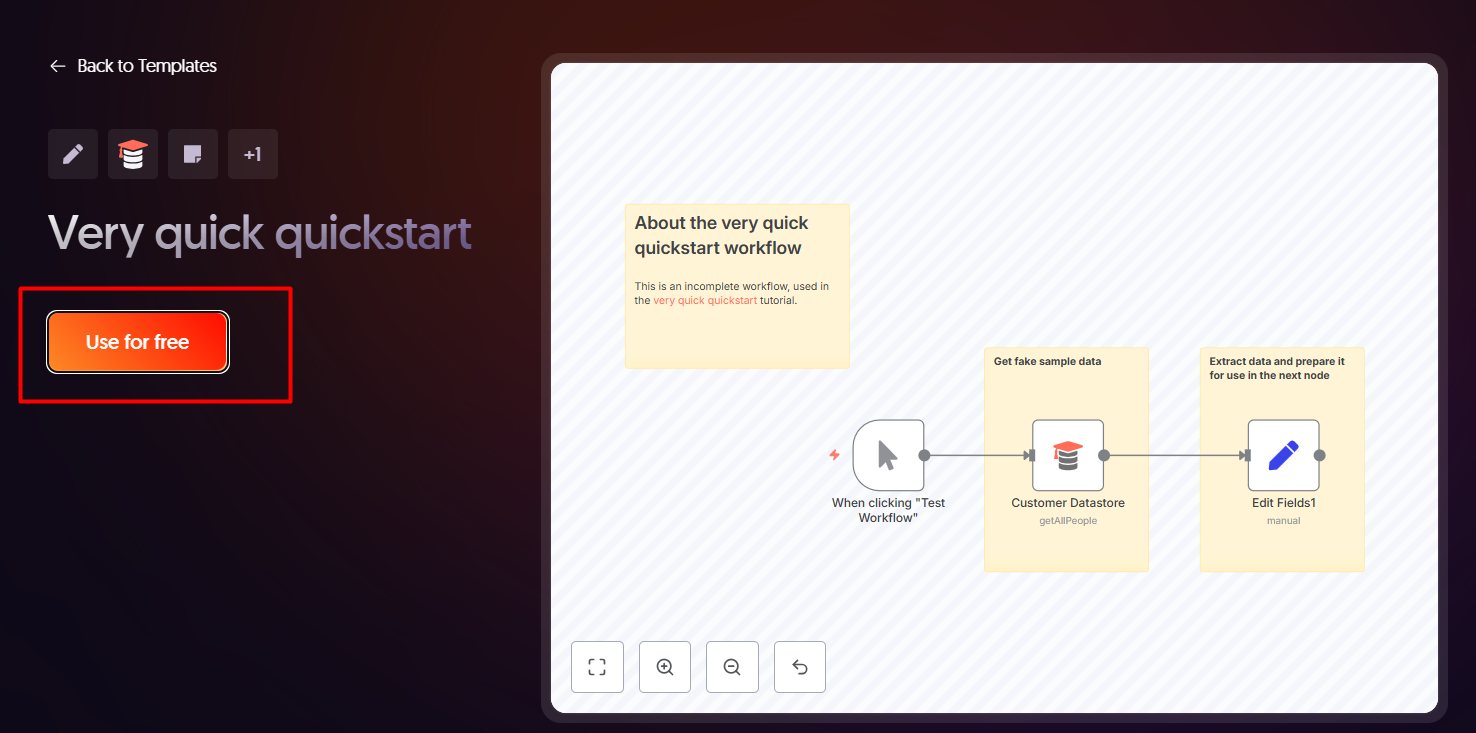
* n8n: It is a automation tool that adds AI in business.
* Choose n8n:

1. Cloud (Google Colab or n8n deployed at cloud with 14-day free trial)
2. npm (node package manager)
3. self-host (deploy at your own server)

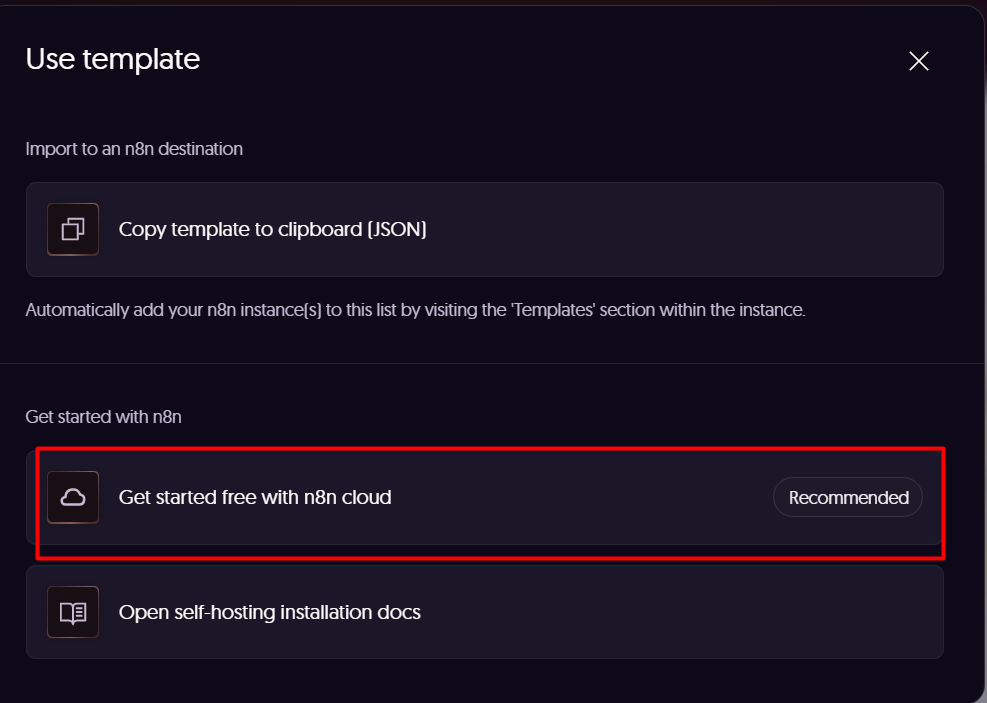
* Find your apps: libraries



* We can connect any application with any API.
* We can change data without code.
* N8n is low code.
* Customizable means we can made changes in code.
* Convenient: we can use NPM (node package manager) or Docker
* Privacy-focused: secure
* <https://docs.n8n.io/try-it-out/quickstart/>
* <https://github.com/panaversity/learn-n8n-agentic-ai/tree/main/00_quick_start>
* <https://docs.n8n.io/try-it-out/quickstart/>
* We first take one template and edit that template
* Click on “Templates | Very quick quickstart” at point 1
* If you have account then Sign In else Sign Up.
* Click on button “Use for free”



Then click on

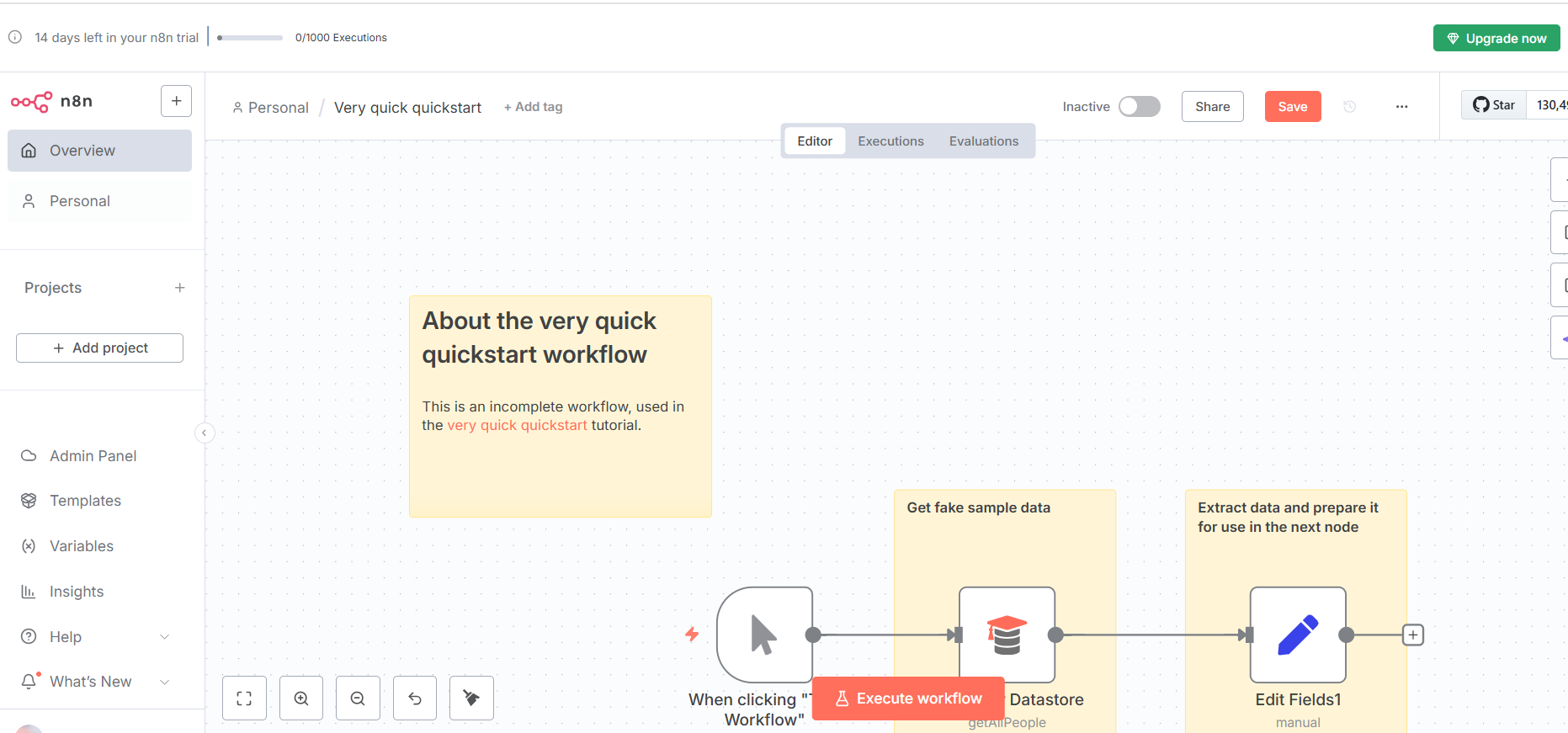


Then sign up for 14-day trial period.

* To search templates : <https://n8n.io/workflows/>
* n8n website: <https://n8n.io/>
* If you are login then after clicking on above highlighted image button, link will open

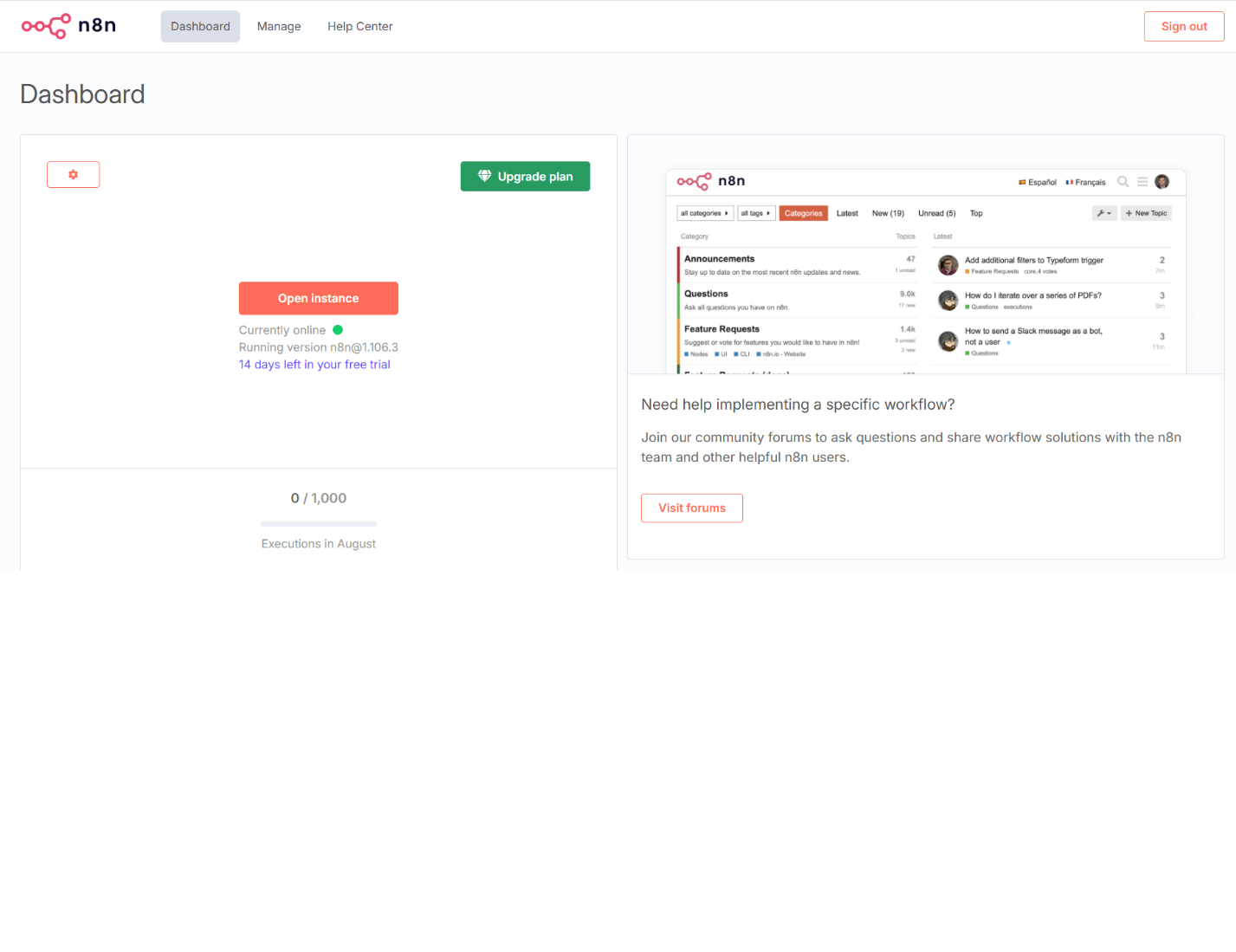
<https://username.app.n8n.cloud/workflow/new?templateId=1700>

Here, “username” is your account name.



* <https://n8n.io/>

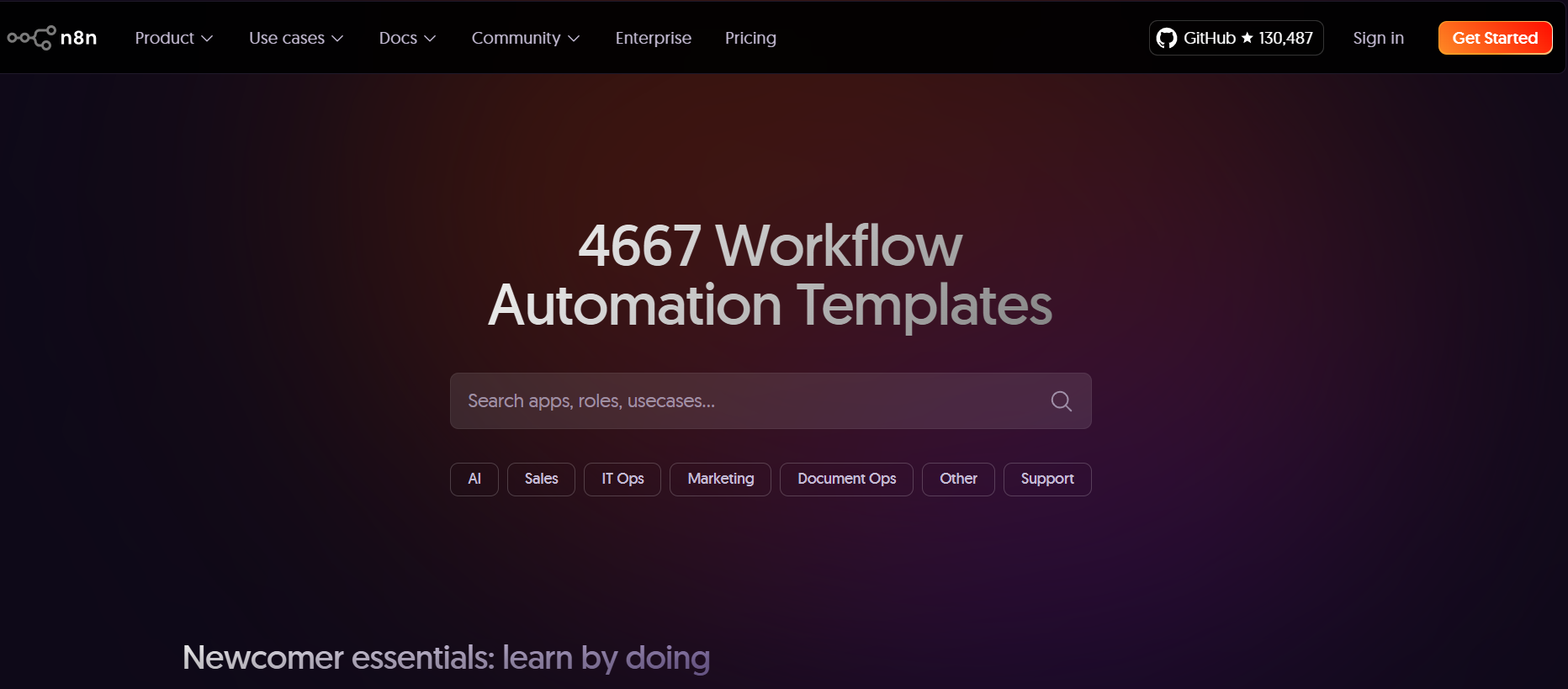
If logged-in then “Dashboard” open



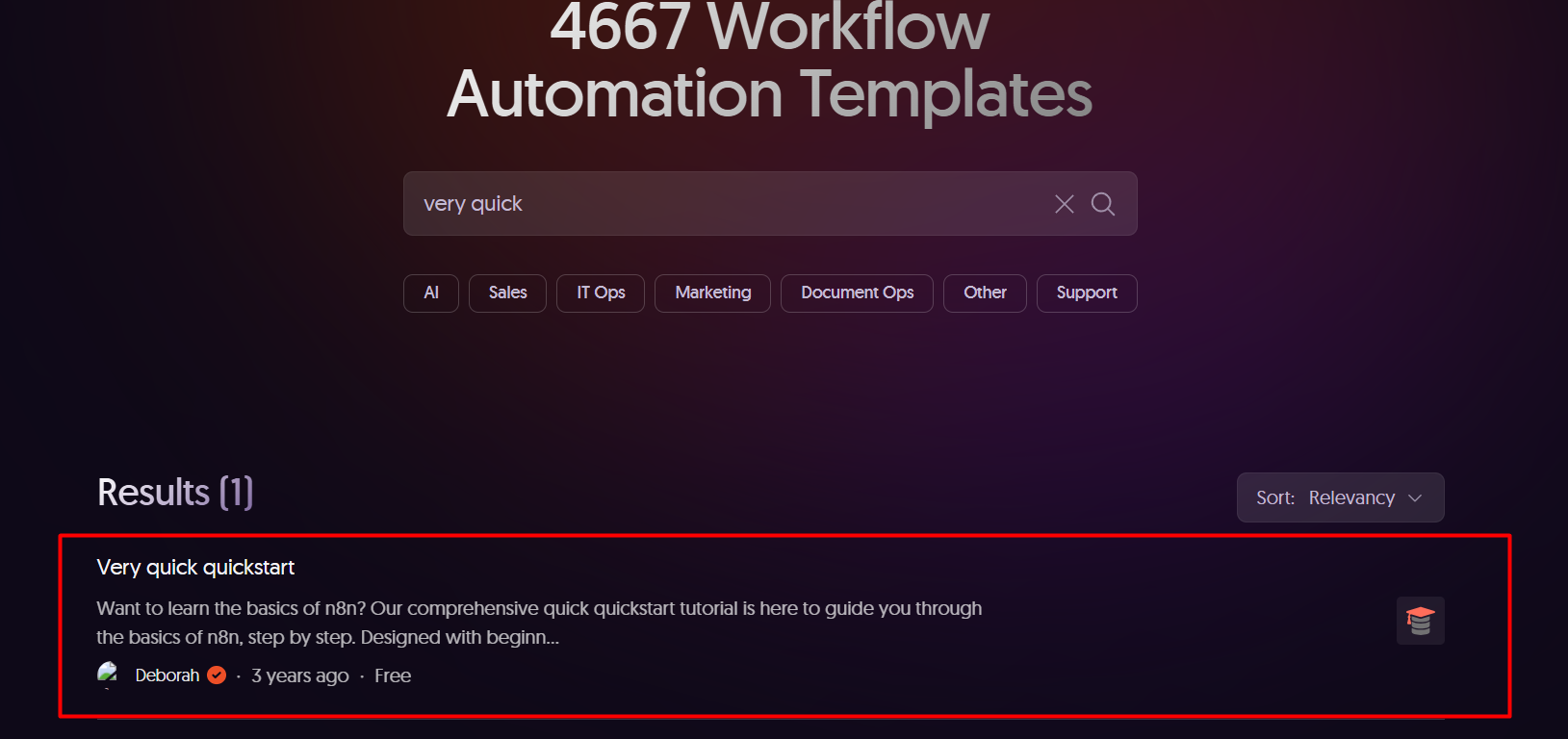
* Click on “Open instance” button

Here, “instance” is cloud machine already created.

* Click on left tab “Templates”

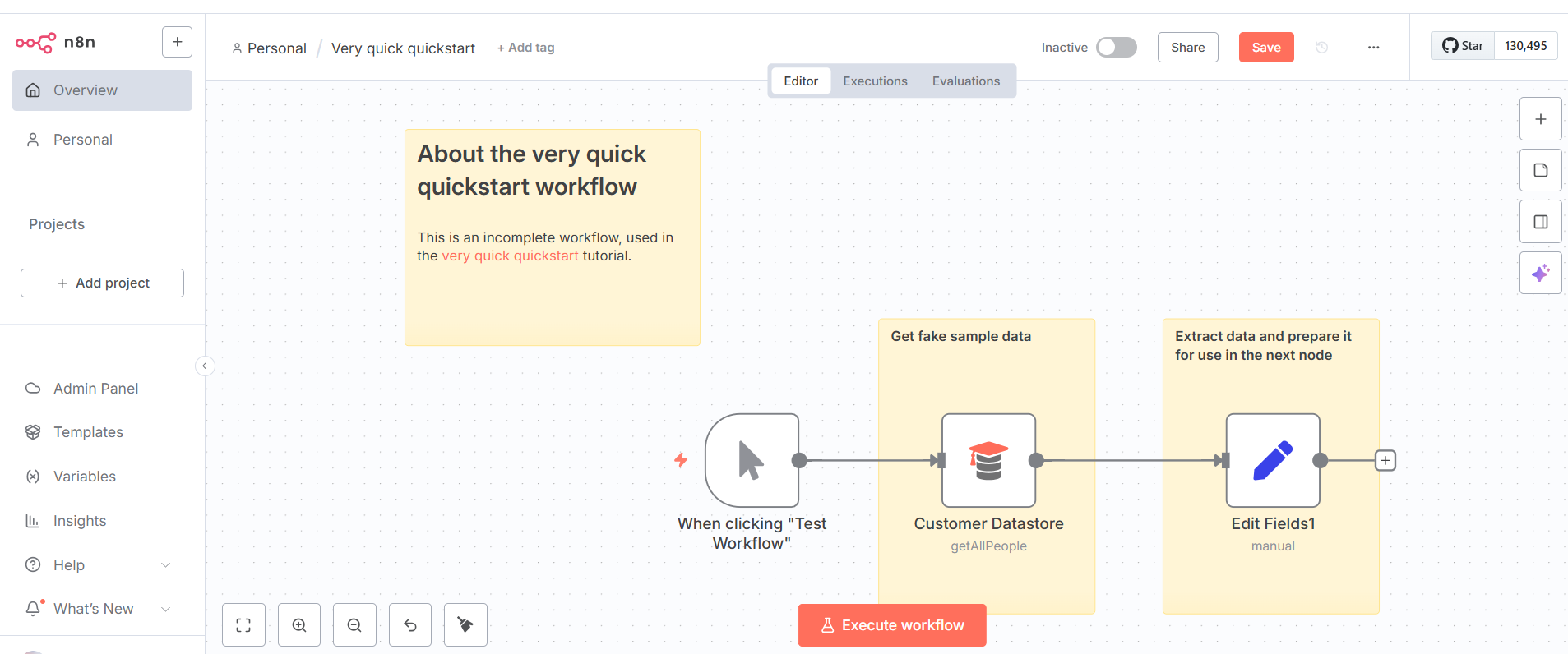


* “4667” workflow templates are available.
* For easy workflow, in search bar write “very quick” then you get results:



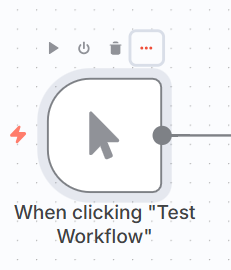
Then click on highlighted workflow in above image

* Click on “Use for free” button then click on “Get started with free n8n cloud”

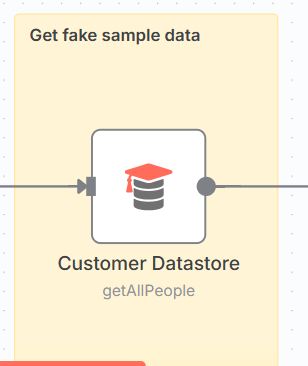


Here, in this workflow:

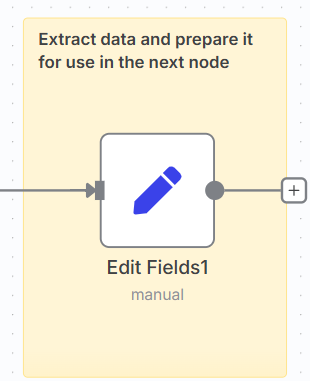
1. Node to Node connection
2. There are 3 nodes:
3. Trigger node: from where event started



1. “Customer Datastore” node: It gets data from fake “Customer Database”. We get customer data from database and then we convert fetched data into message.



1. “Edit fields1” node

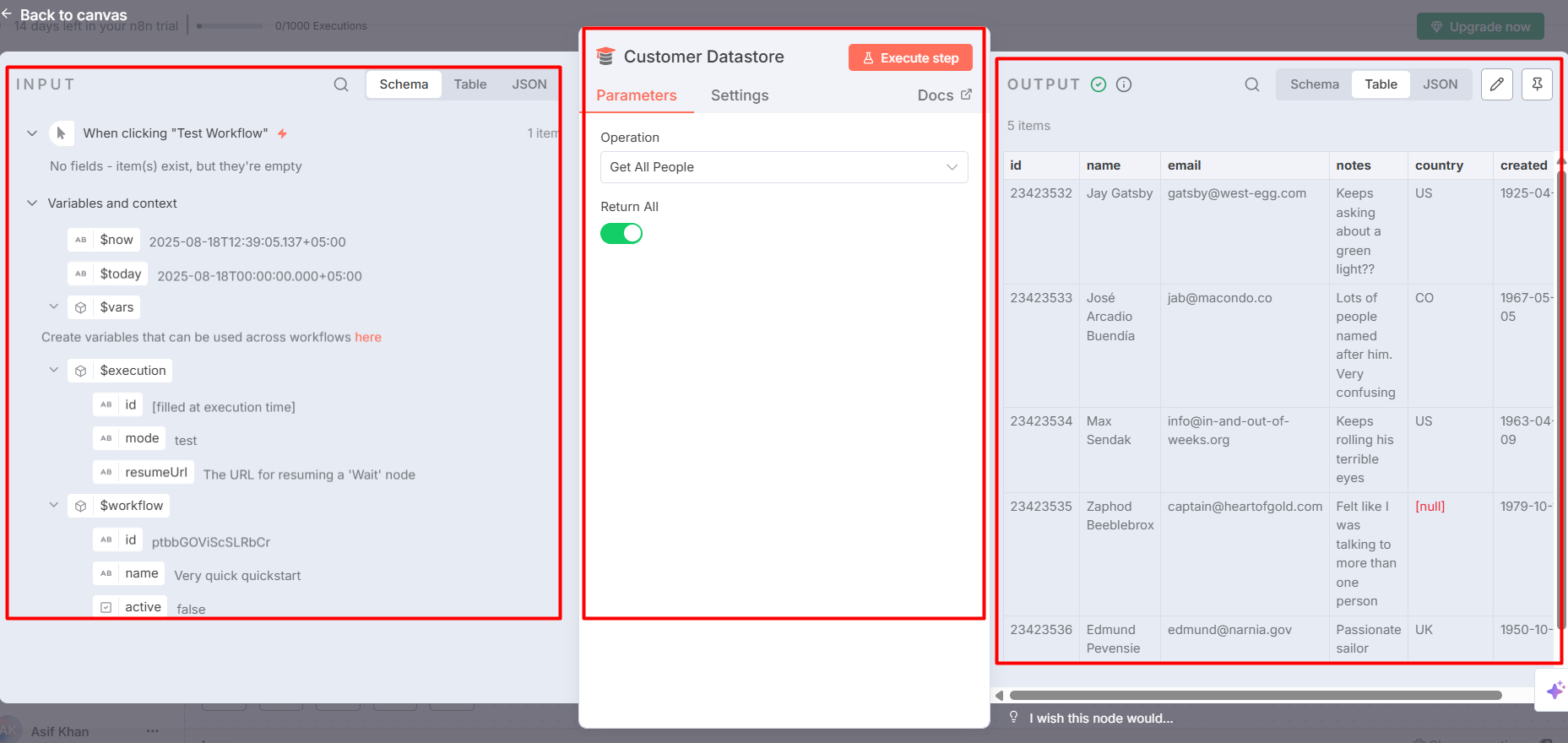


Click on “Execute workflow” button and it executes all nodes of workflow and we get message “Workflow executed successfully” and all nodes have green check mark. We have to always run “Execute workflow “ first.



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* When we double click on any node then a new window open which is called “Canvas” and Canvas interface contains hybrid interface.
* “Customer Datastore” canvas contains 3 schemas.



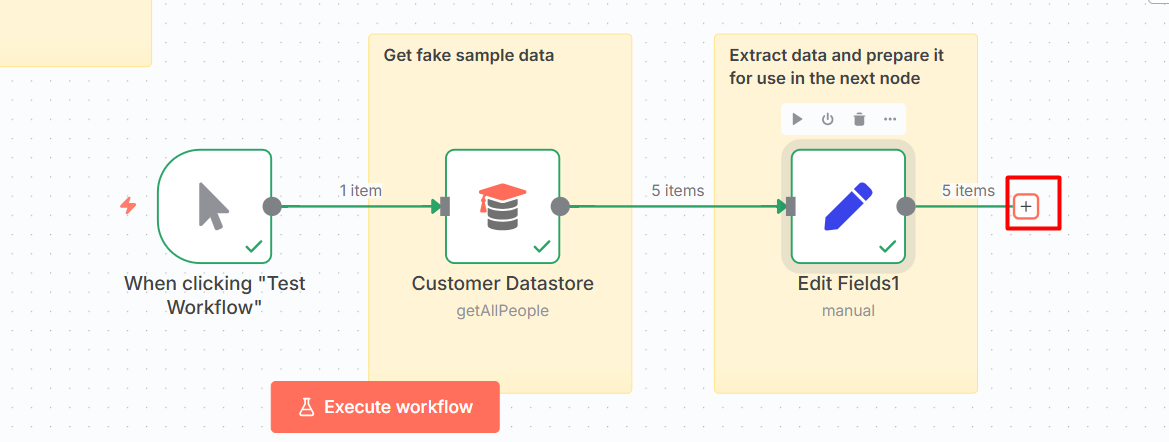
1. “INPUT”: It contains “Customer” table field names like “id”, “name”, “active”
2. “OUTPUT”: It contains data of “Customer” table.
3. Logic (center): Here we write logic of “Customer Datastore” node.

* “Edit fields” canvas also contains 3 schemas

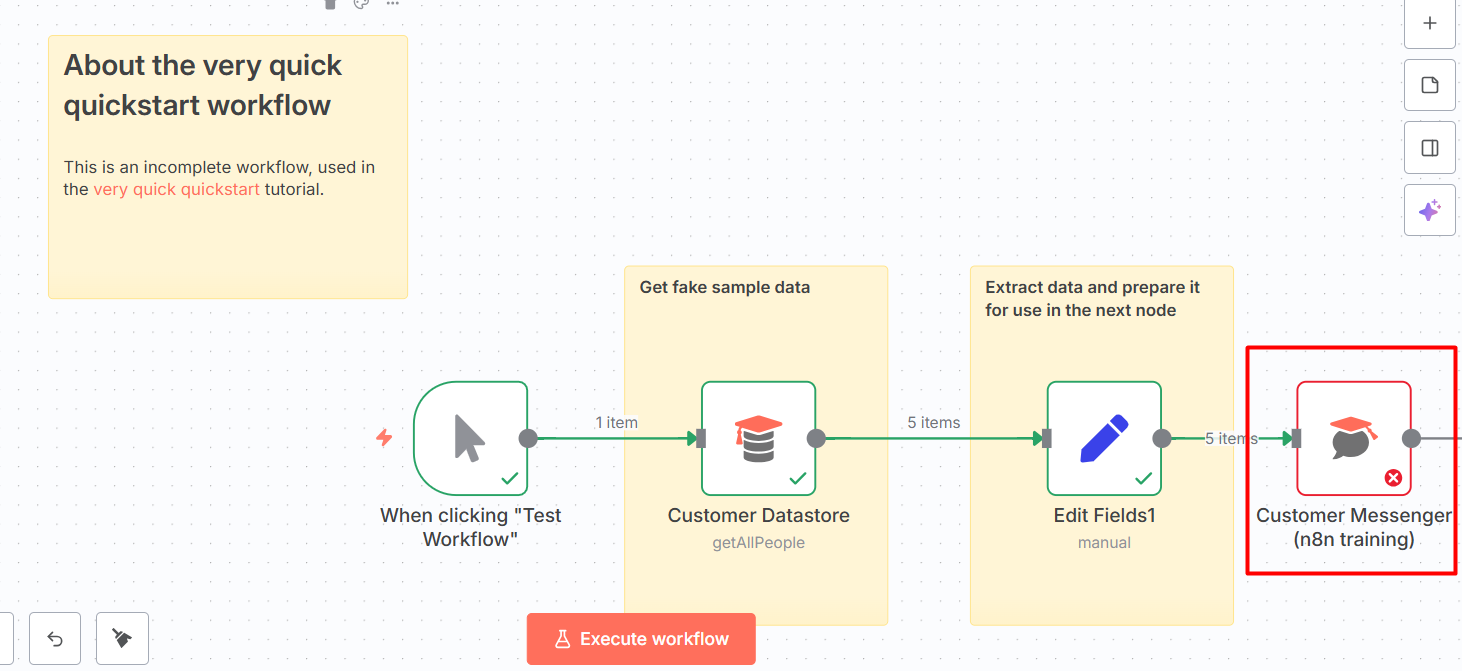


1. “INPUT”: It contains fields, which are return in output of “Customer Datastore” node.
2. “OUTPUT”: It contains output of logic present in center schema.
3. Logic schema in which we add logic of “Edit Fields1” node:

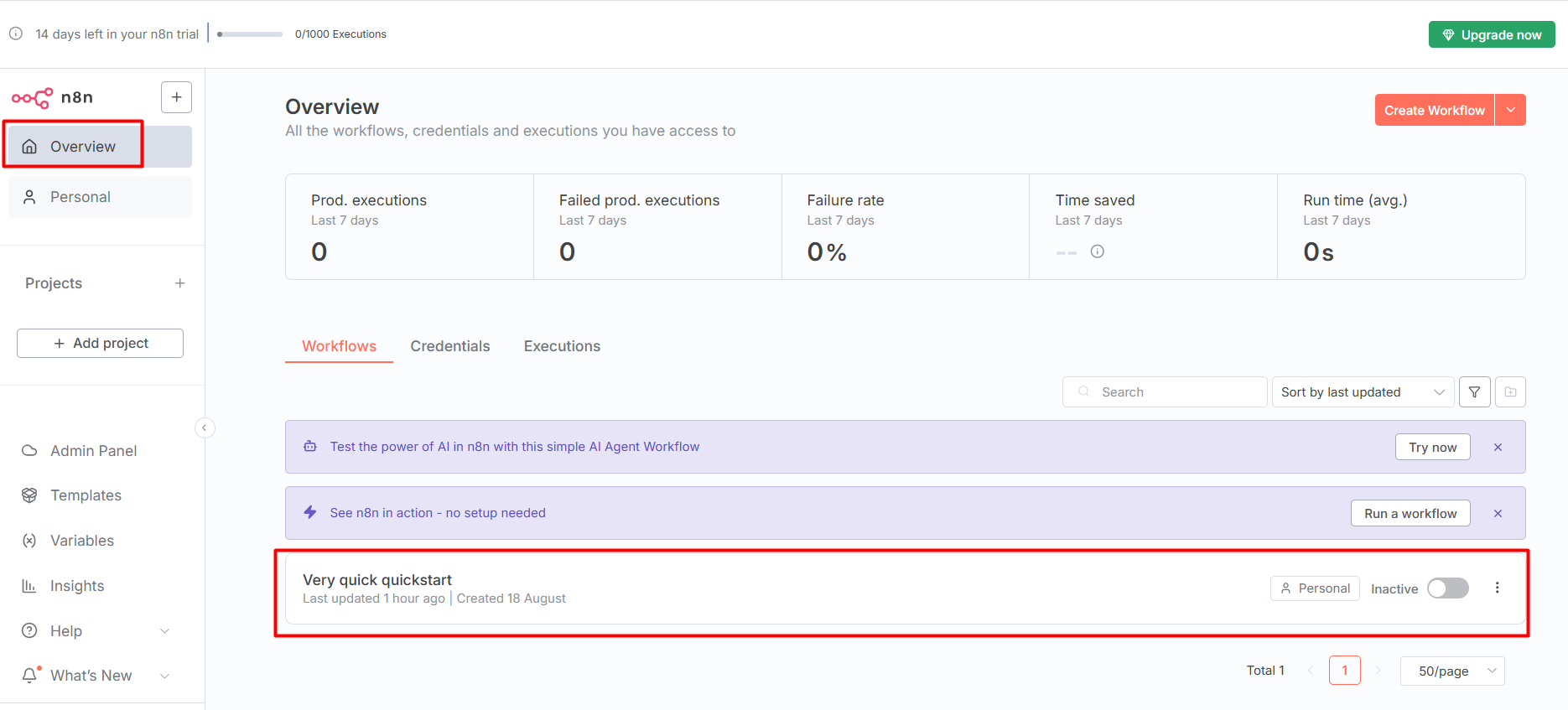
* Every node can be executed separately by button “Execute step” present inside each node.
* We can add custom node in workflow by clicking at “+” button



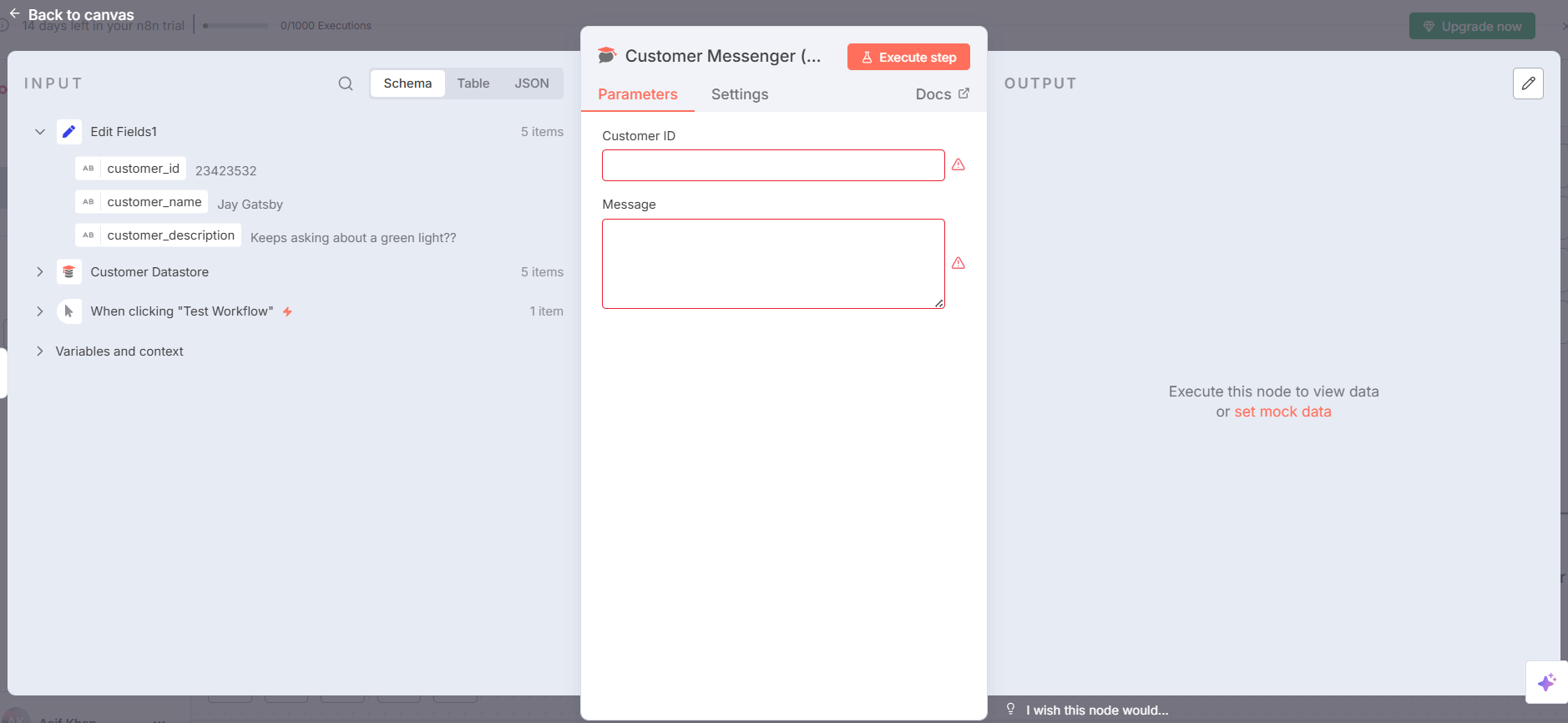
* Add new node and select “Customer Messenger (n8n Training) then new node added.



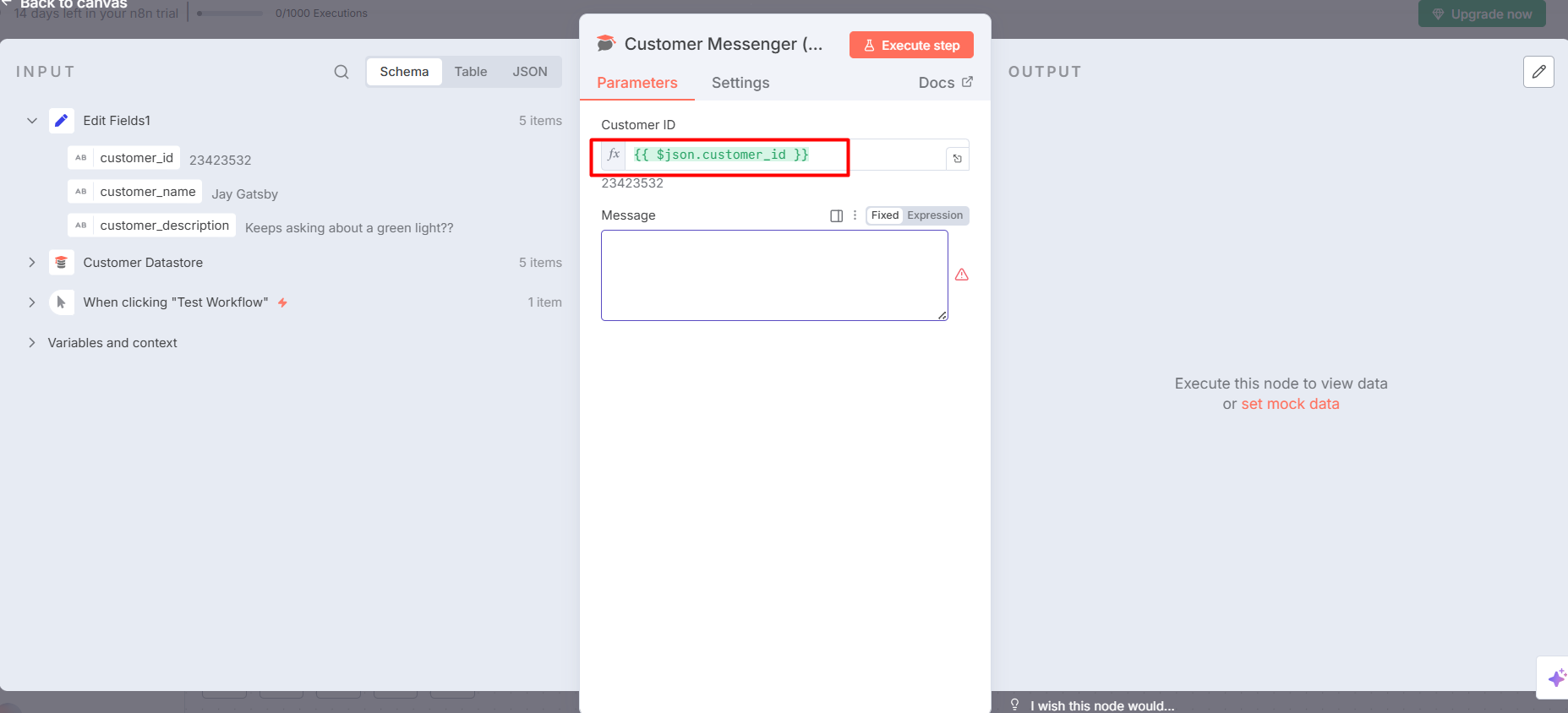
* To go main dashboard of n8n, click on left tab “Overview”. On main dashboard, all your workflows are present.



* Open “Customer Messenger (n8n Training)” canvas:

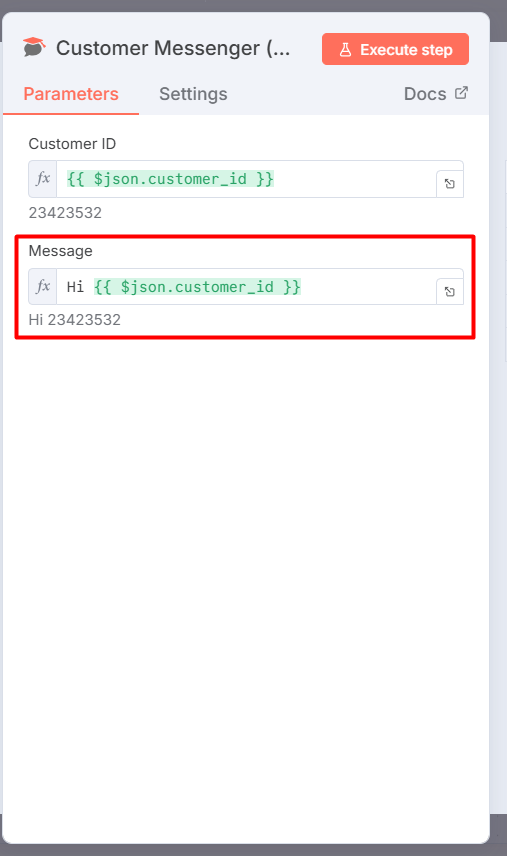


1. Add “customer\_id” field in center by drag and drop from “INPUT”



1. Add text in “Message“ as

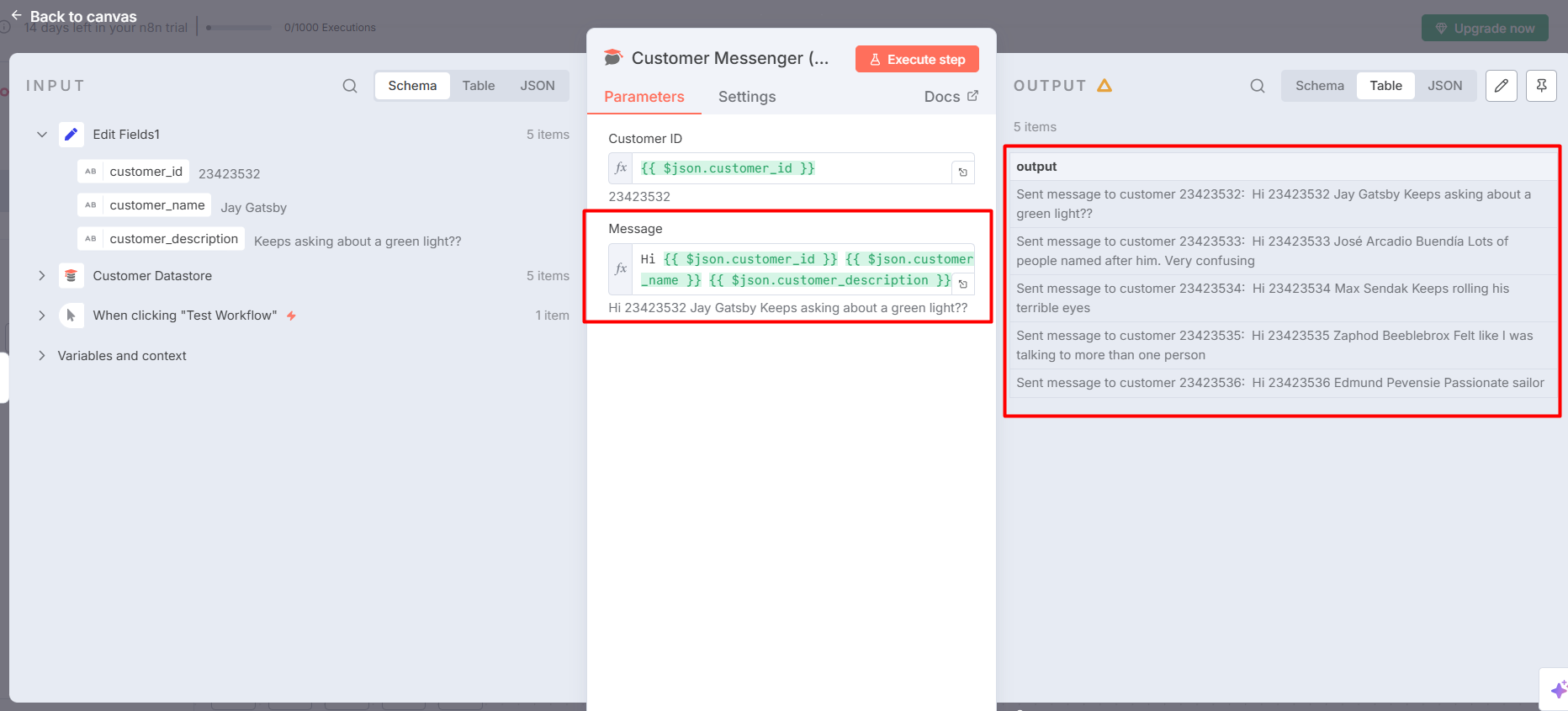
Hi {{ $json.customer\_id }}



When we execute step then in output, we get message for each record:



Similarly, drag and drop other fields:

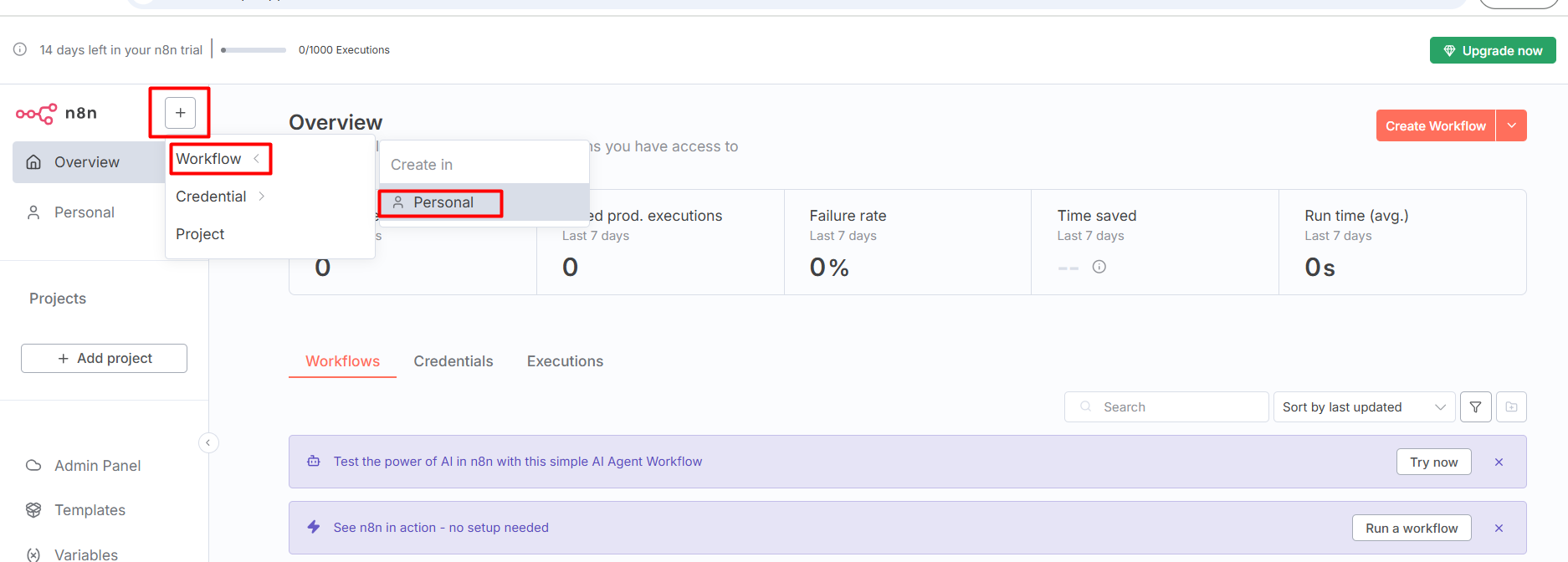


We have to drag and drop field “customer\_id” field twice, one in “Message” and other in fields because “customer\_id” field is unique while rest fields needs to be drag and drop to only “Message”

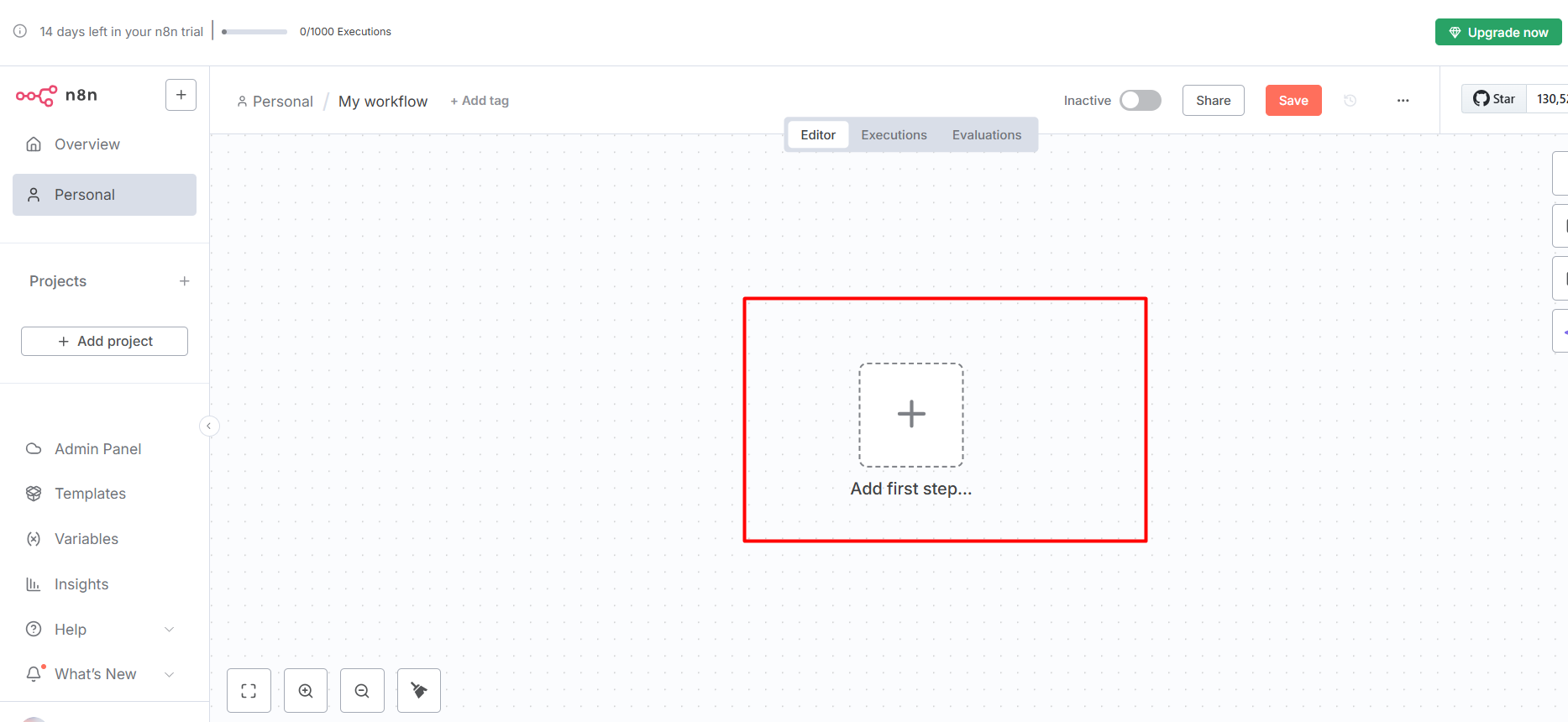
* We will connect two real world API in workflow:

1. NASA API: It provides many dataset – solar – 32 triggers
2. POSTBIN API : It generates temporary webpage. Whatever data we post from workflow, Postbin api will display posted data at webpage.

* Create empty work flow from Dashboard by clicking on “+” button then select “Workflow” option then select “Personal” option

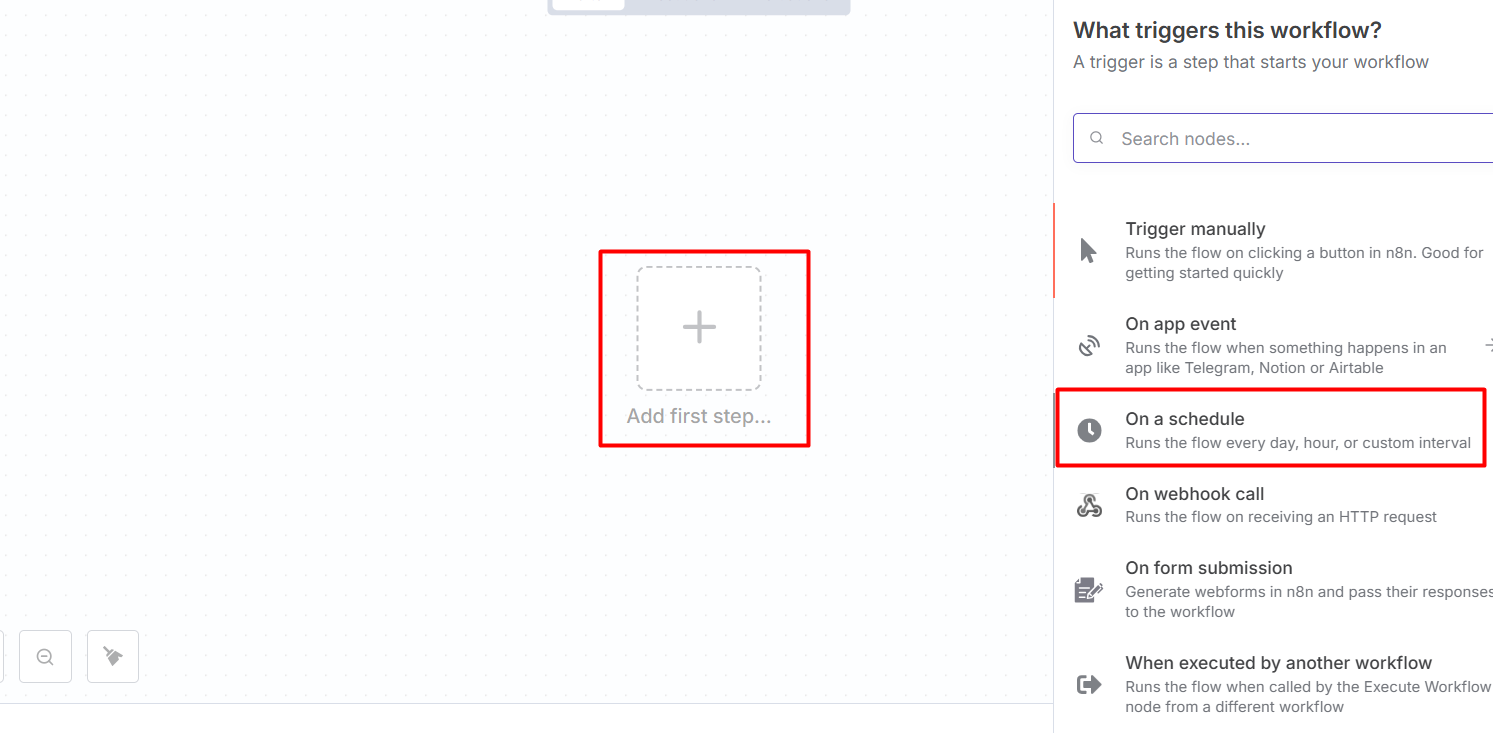


Then empty workflow created:

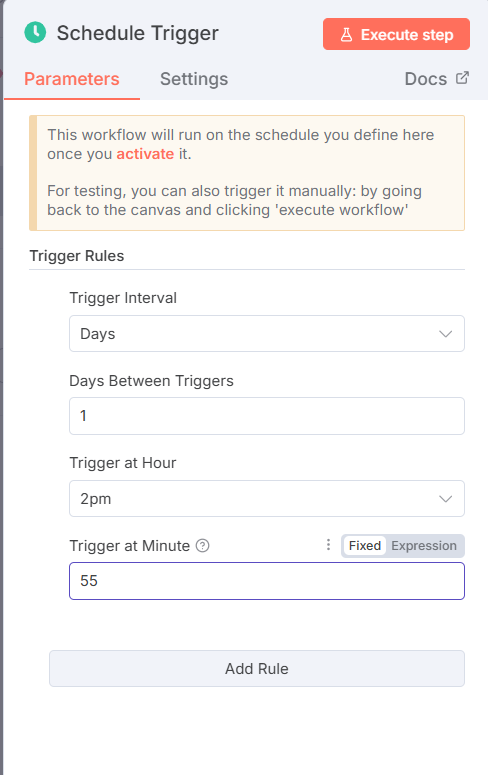


* Use NASA API in empty dashboard:

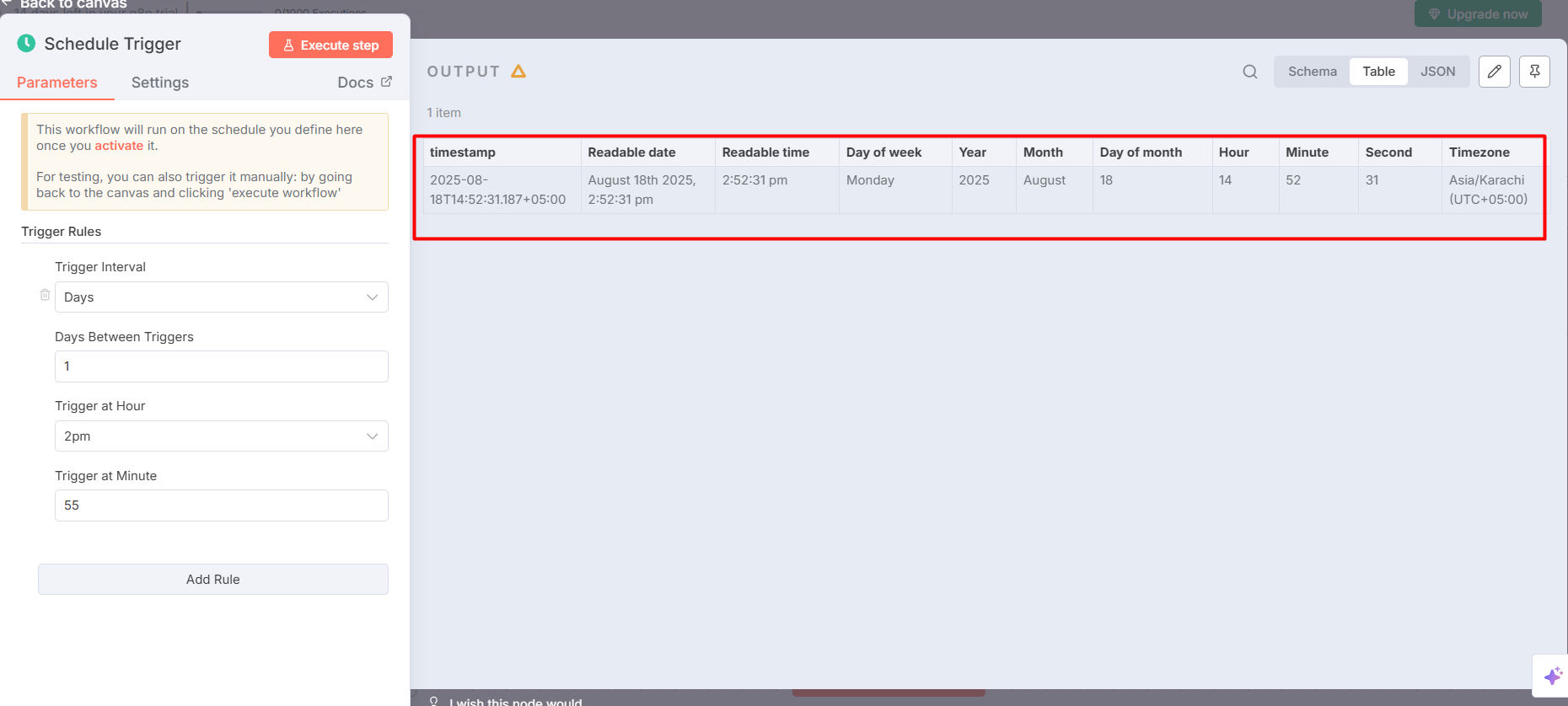
1. Click on “+” then select option “On a schedule”



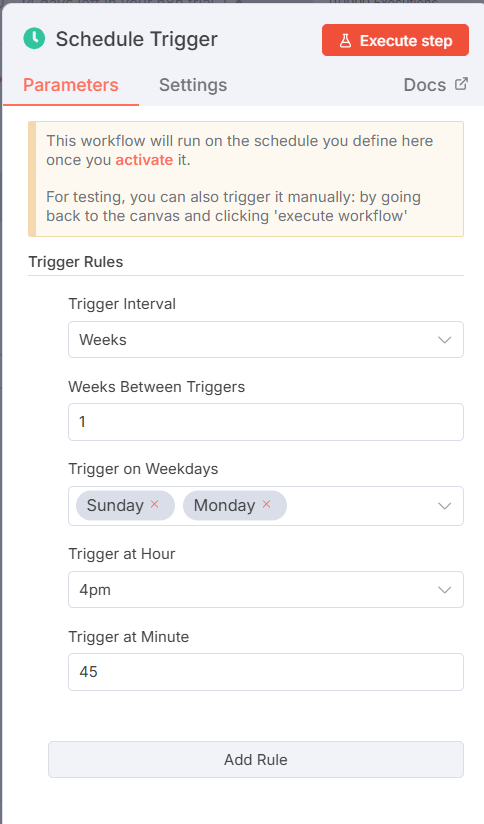
1. “On a schedule” option will add “cron job” node. “Cron Job” is like a trigger means system work on a particular time.
2. Trigger Interval: When cron jon will be executed with “Days”.
3. Days Between Triggers: Days difference between execution of cron job
4. Trigger at Hour: Time of day at which cron job will executed.
5. Trigger at Minute: Minutes at which cron job will executed.



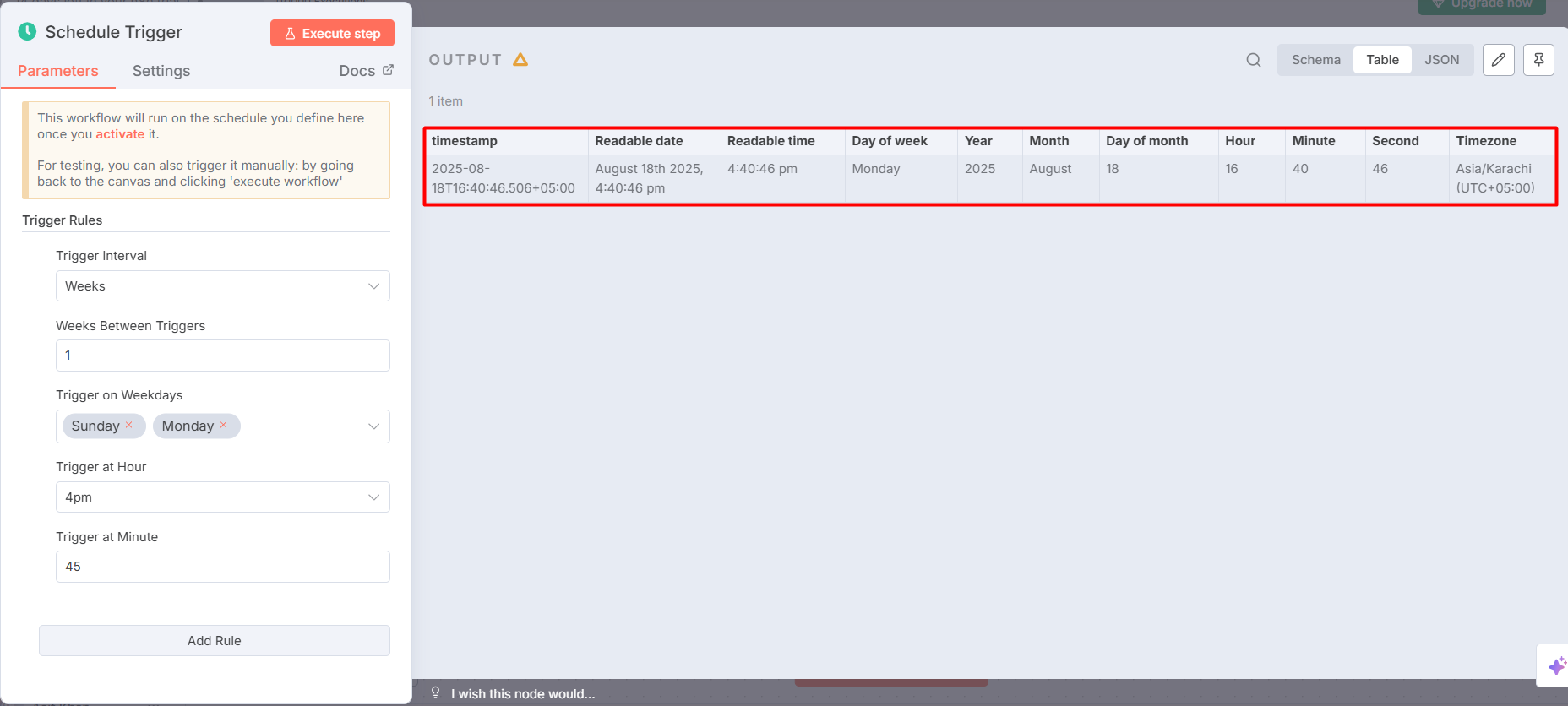
When we run, “Execute step” then get output as:



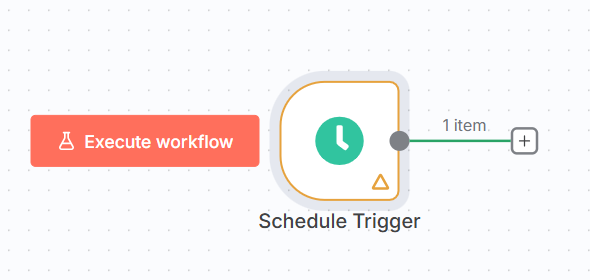
1. Trigger Interval: When cron jon will be executed with “Weeks”.
2. Weeks Between Triggers: Week difference between execution of cron job
3. Trigger on Weekday: Select days of week at which cron job executed.
4. Trigger at Hour: Time of day at which cron job will executed.
5. Trigger at Minute: Minutes at which cron job will executed.



When we run, “Execute step” then get output as:



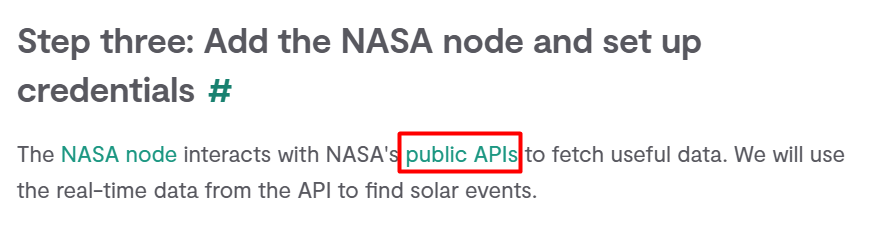
In result, we get “Schedule Trigger” node in empty workflow



Then go to <https://docs.n8n.io/try-it-out/tutorial-first-workflow/>

Then go to “Step three: Add the NASA node and set up credentials”

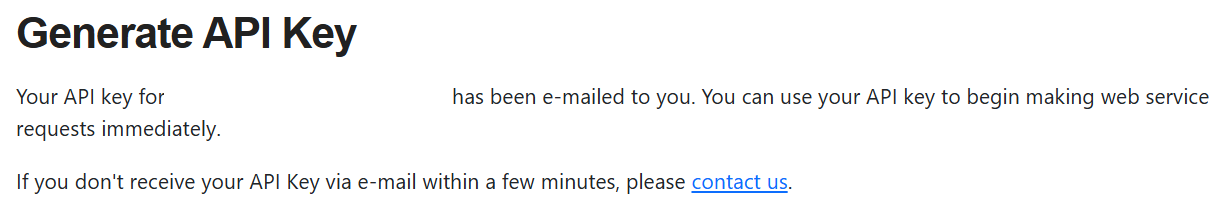
Then click on link “public APIs” (https://api.nasa.gov/)



Then at link <https://api.nasa.gov/>

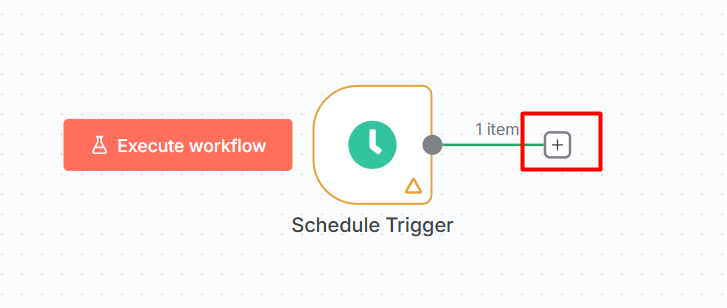
Click on “Get Started” then sign up account.

When you sign up, you get below message and an api key is sent at your provided email address.

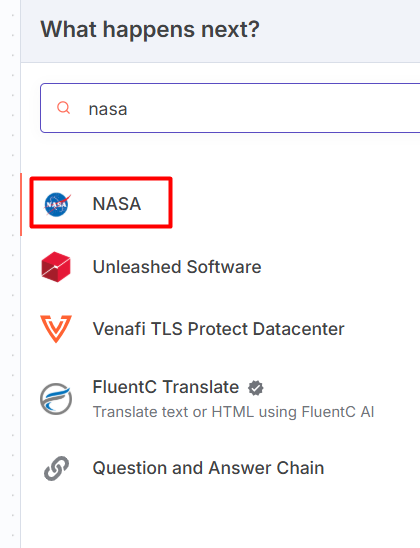


Example: PfXRUORO5cdX6OWhd1OlZXXXXXXXXXXXXX

Then click on “+”



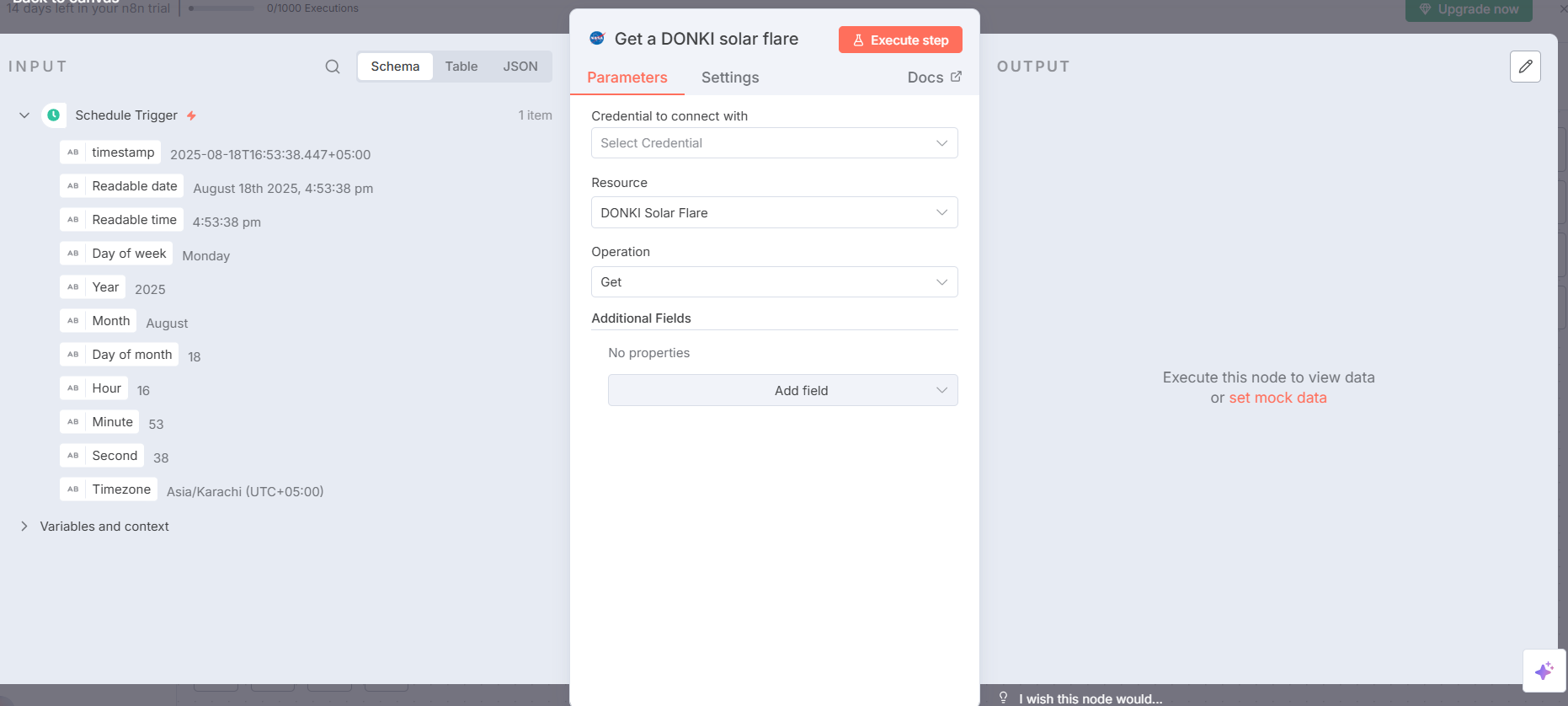
Select “NASA” option



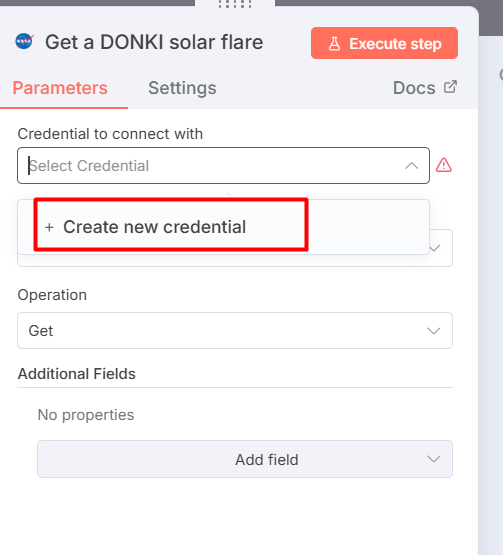
Select “Get a DONKI solar flare” option



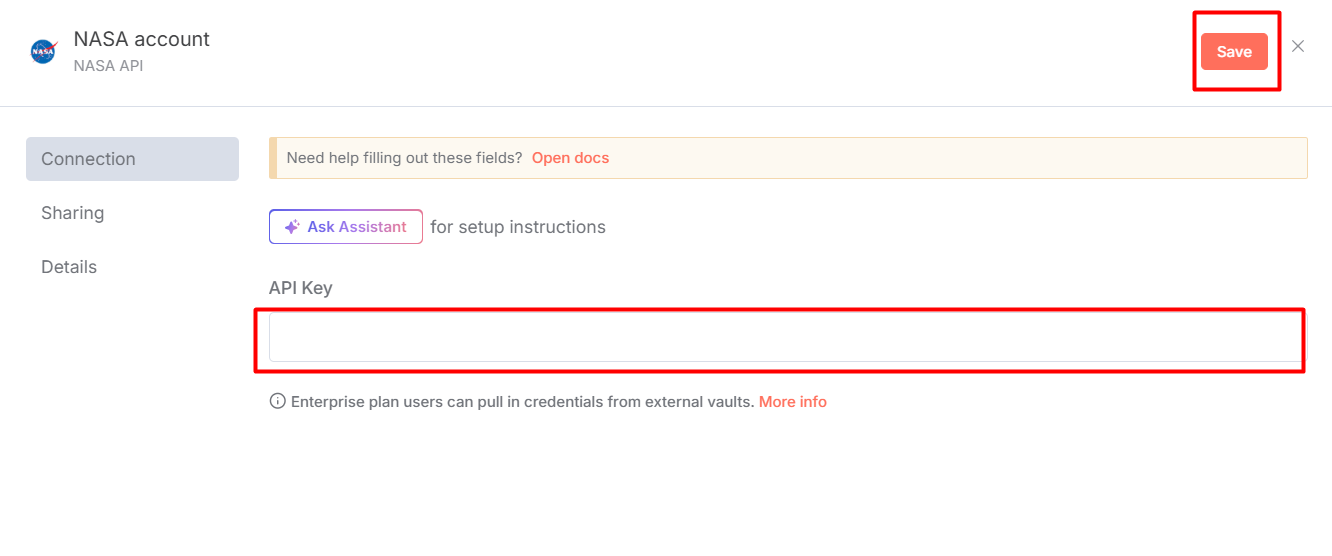
Then below canvas open



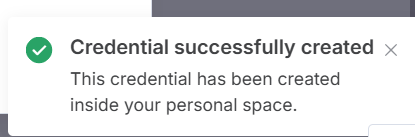
Then click on “Select Credential” textbox then select option “Create new credential”



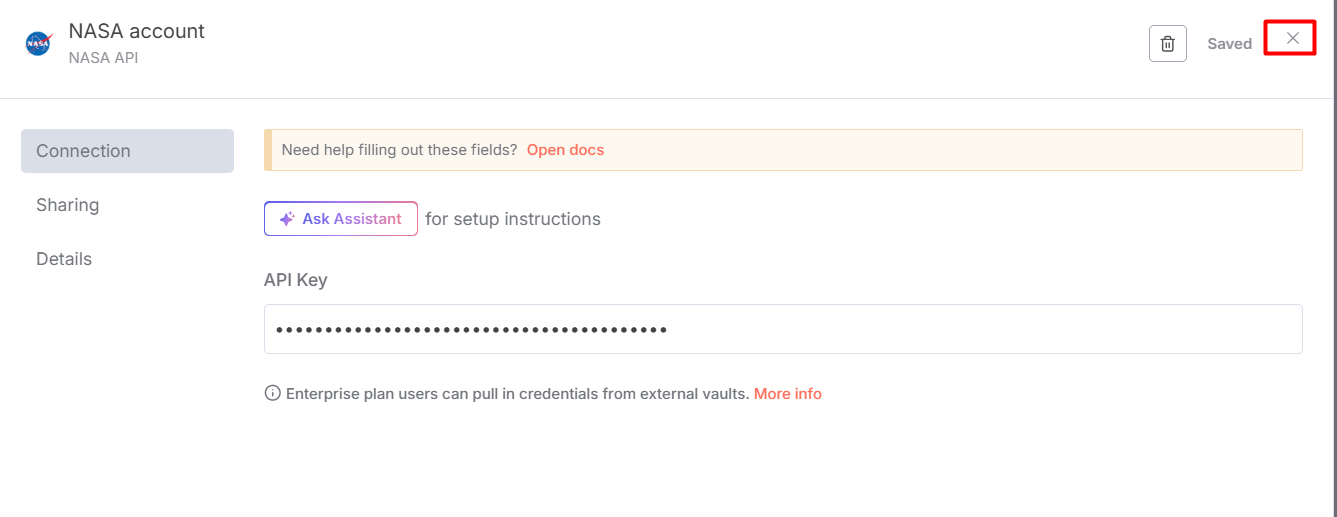
Then paste NASA generated API key in below highlighted text box and click on “Save” button:



Then you get message



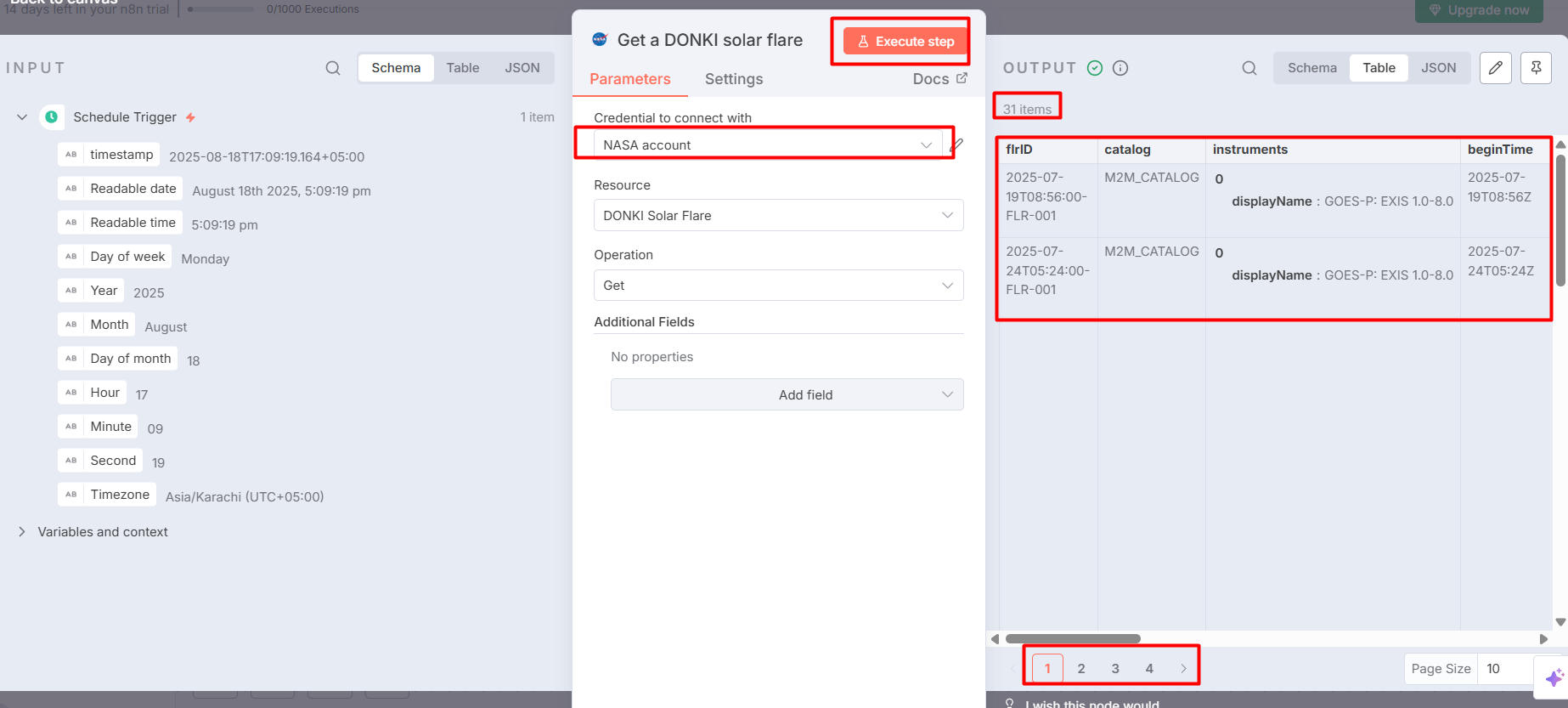
Then close window:



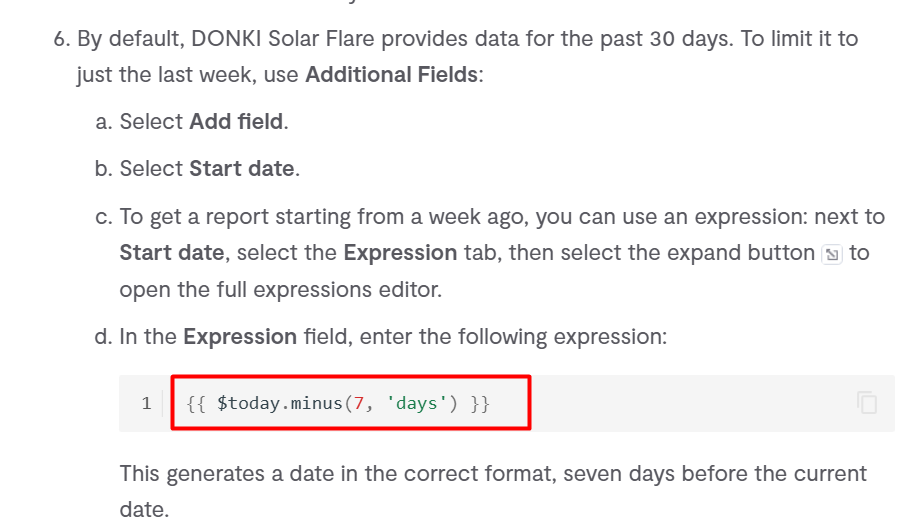
You found that “NASA account” is available to select.



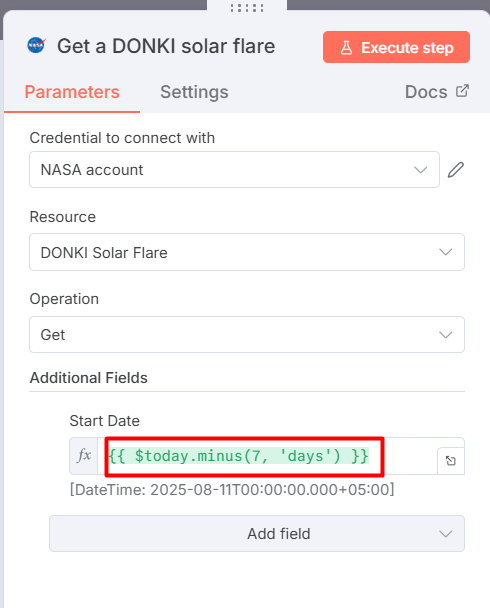
Then select “NASA account” then click on “Execute step” then we get lot of data in “OUTPUT”



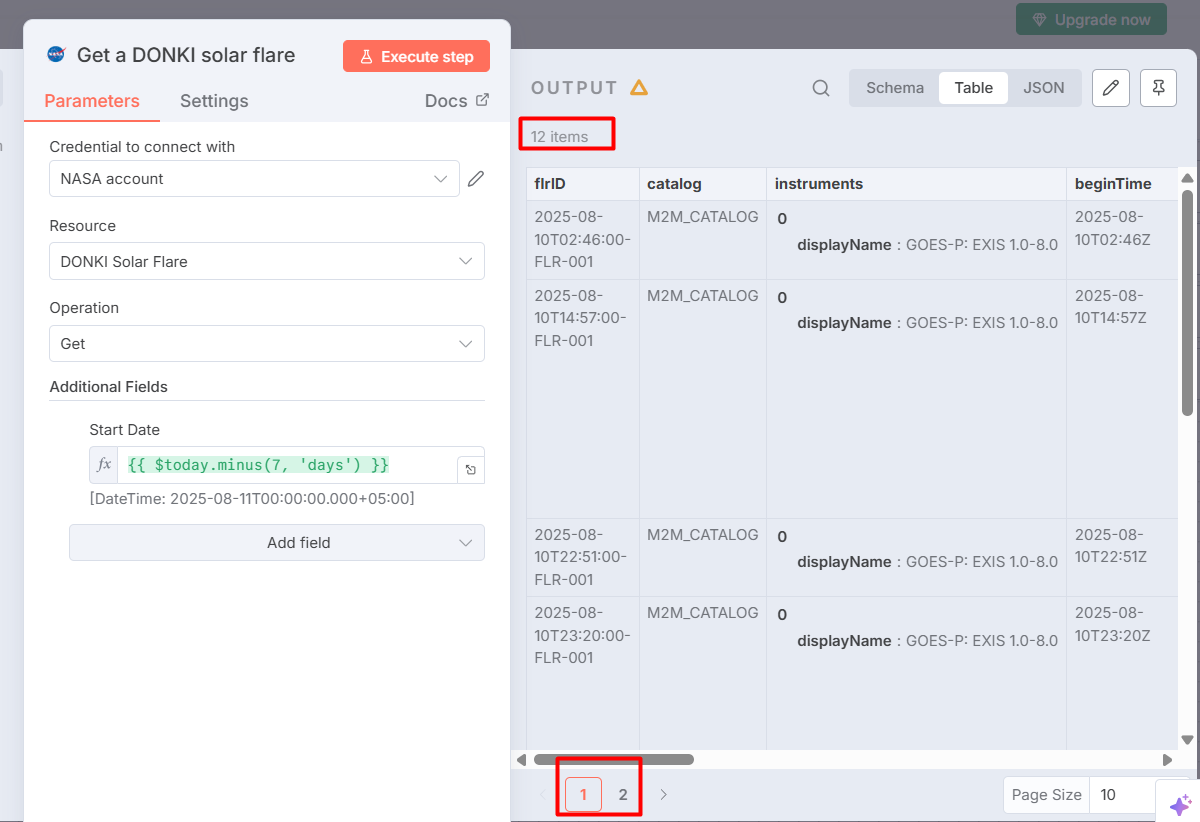
To filter “OUTPUT” data from retrieved data from NASA API, click on “Add Field” and paste highlighted text from <https://docs.n8n.io/try-it-out/tutorial-first-workflow/#step-three-add-the-nasa-node-and-set-up-credentials>



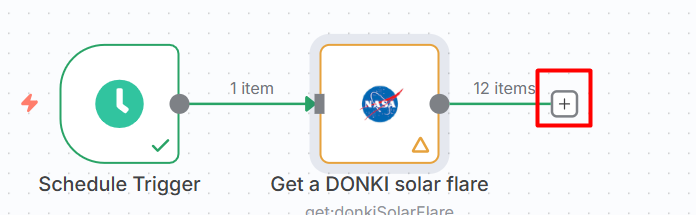
Like



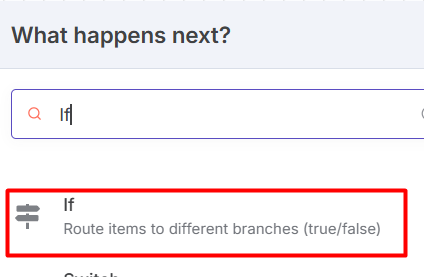
When you “Execute step” then you get filtered data in “OUTPUT”:



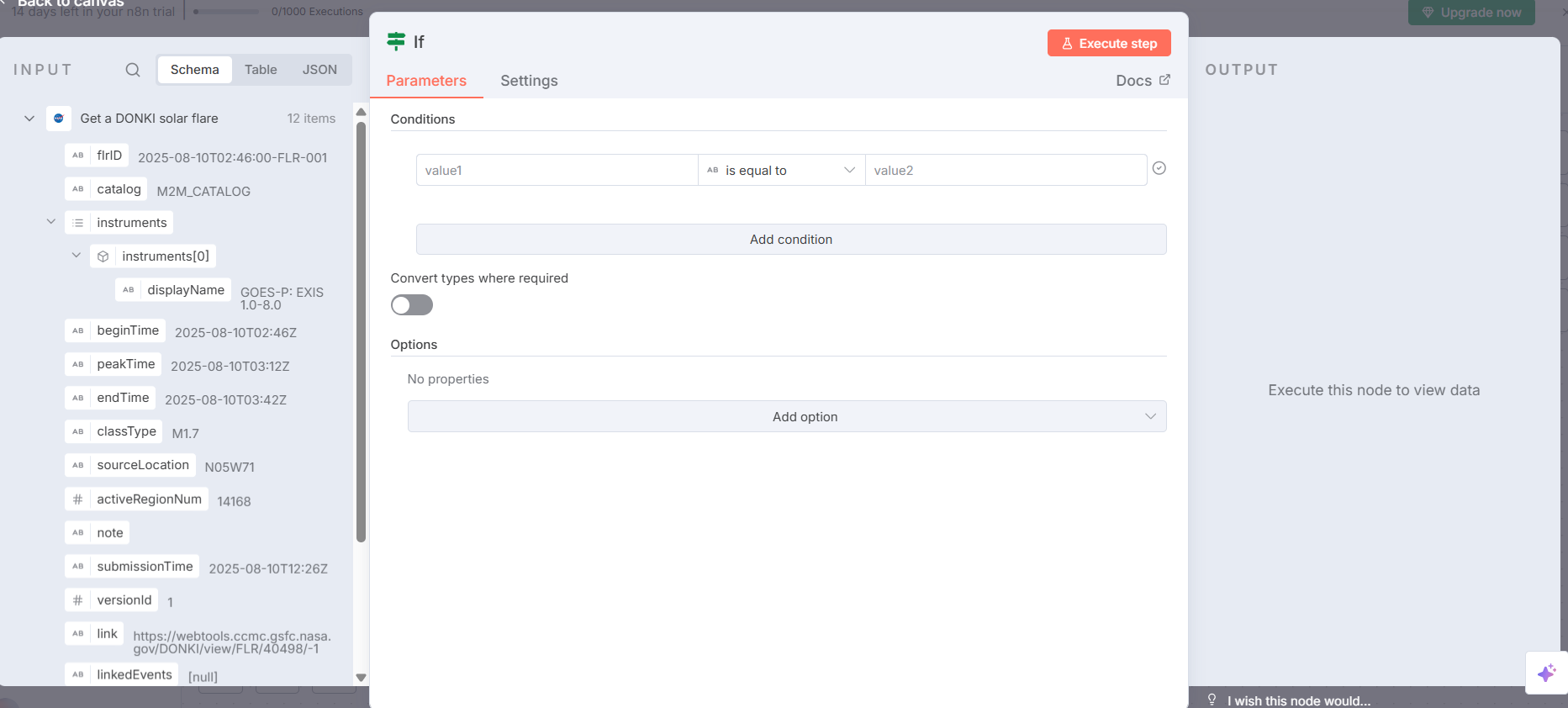
If we want to add, condition to get data of NASA API based on our condition then click “+”:



Then select “If” option:



Below “If” canvas open:

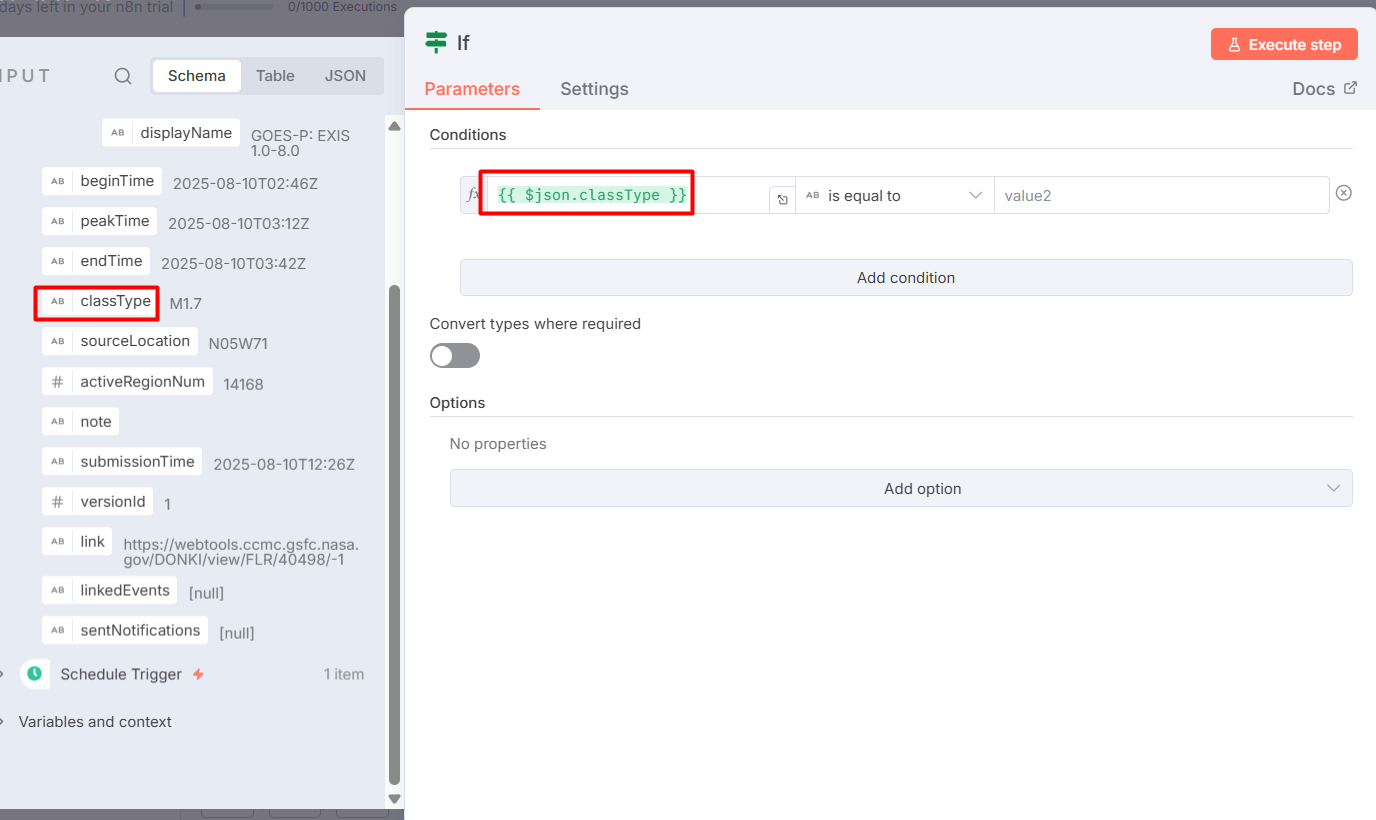


In “INPUT”, we have fields at which we can apply condition.

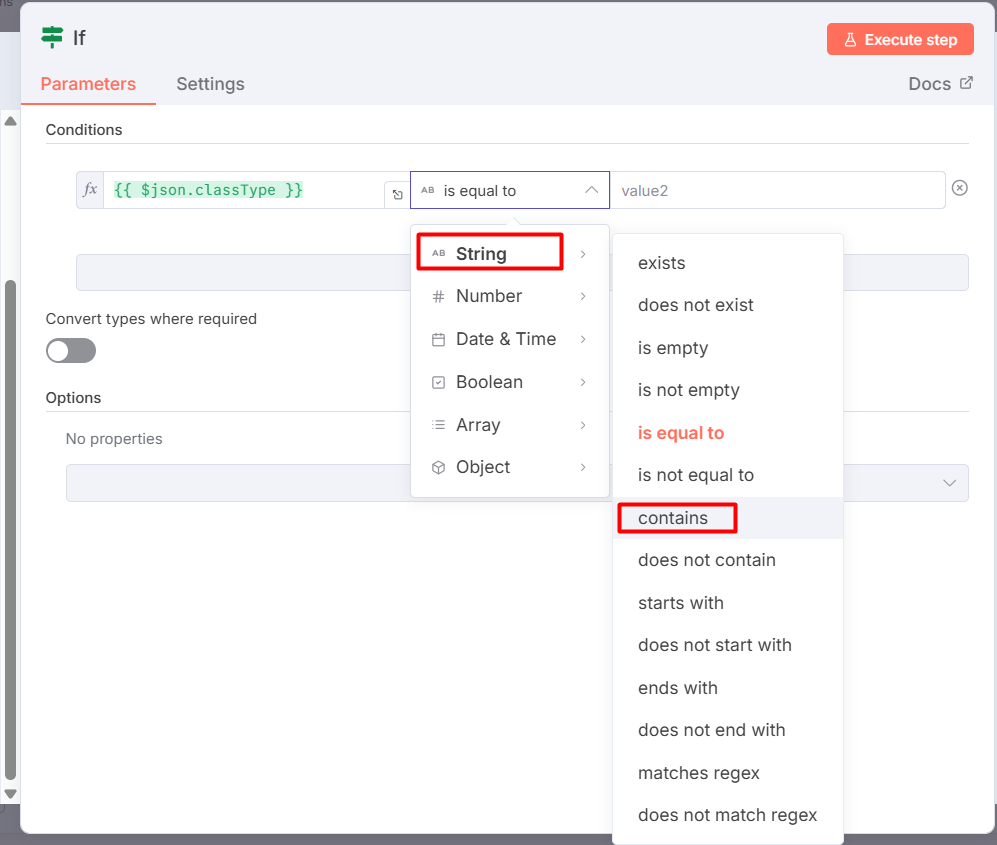
For Example: In NASA API data contains column “classType” and some value this column starts from “M” while some start from “C”.

We want record of NASA API in which column “classType” value starts from “M”.

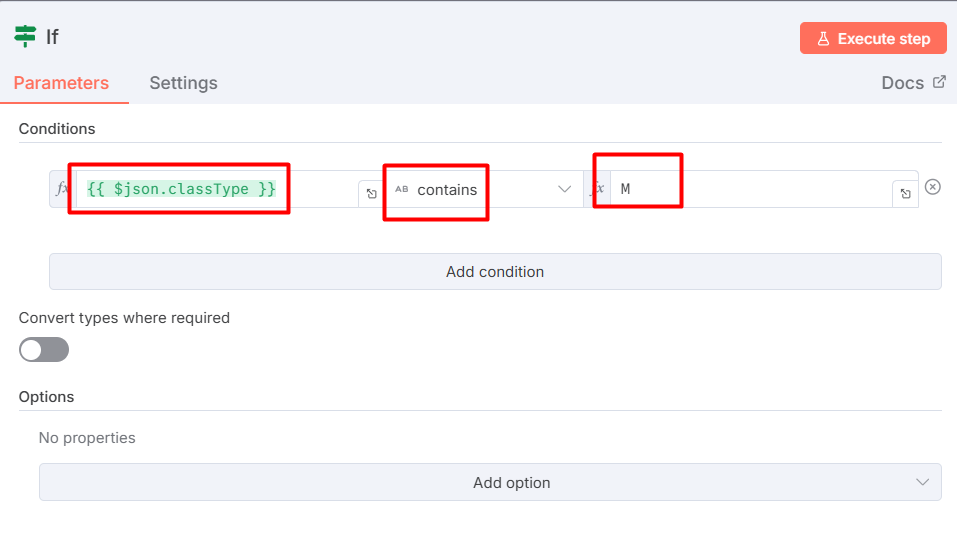
Drag and drop field from “INPUT” to “Conditions” tab.



Set condition:

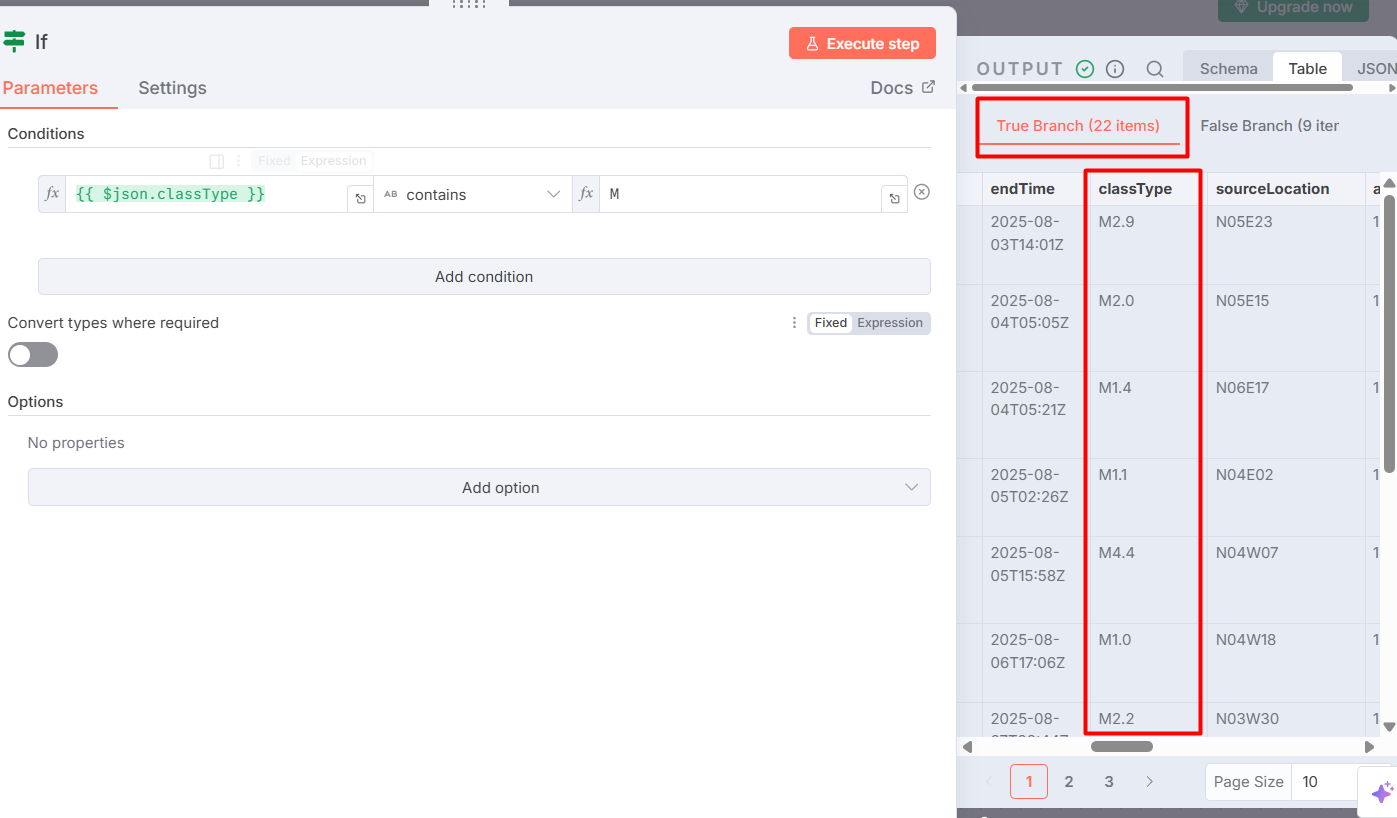


Write “M” in value text box

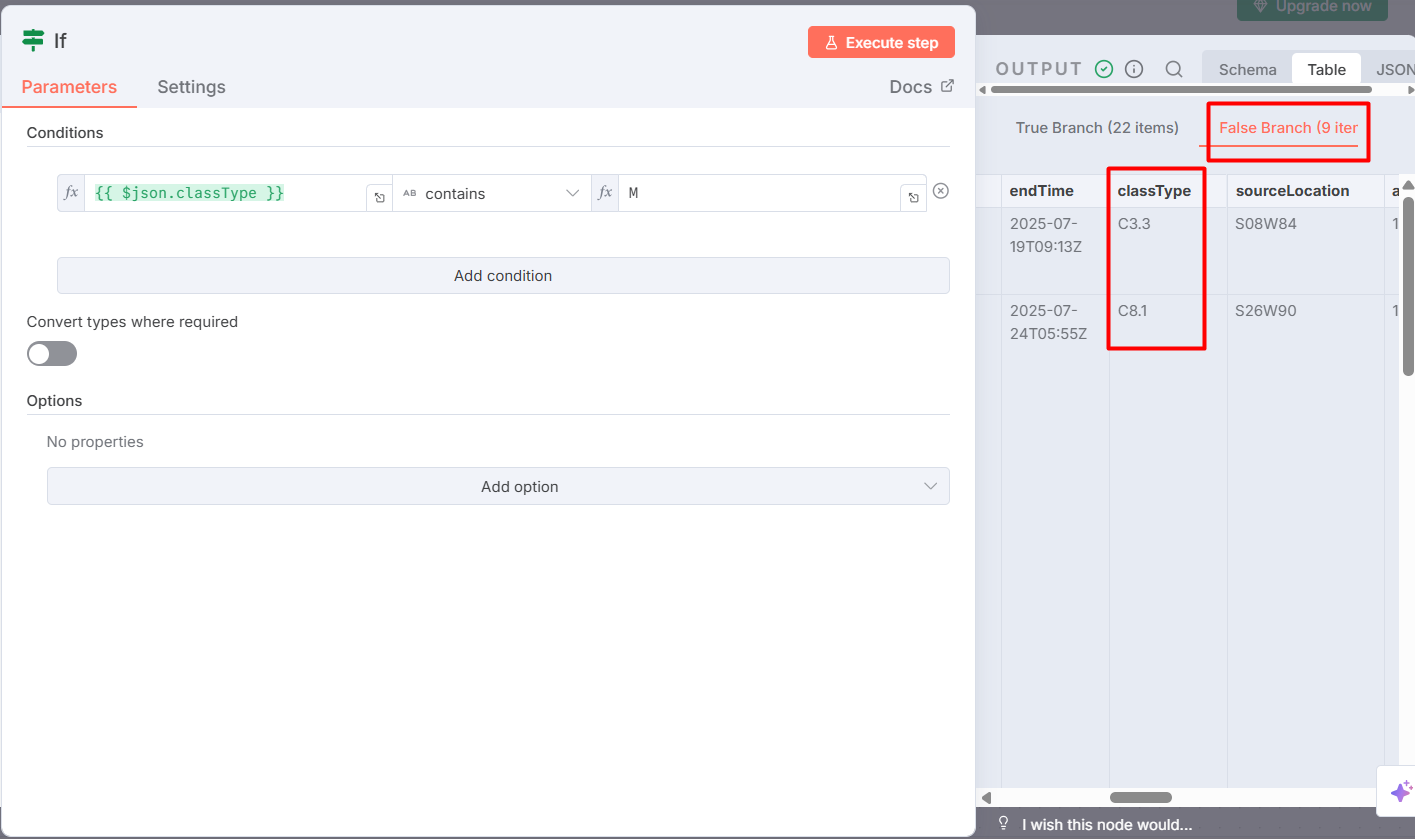


When we “Execute step” then in “OUTPUT”, we get record for “True” as well as “False” tab.

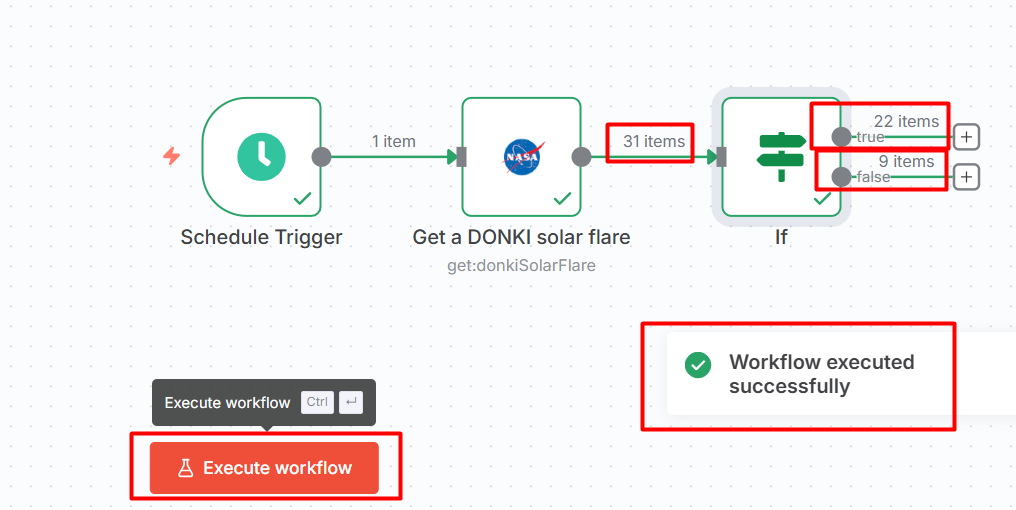
“True” tab contains records, which fulfill condition.



While “False” tab contains records, which do not fulfill condition.



When we execute workflow then all nodes executed one by one:

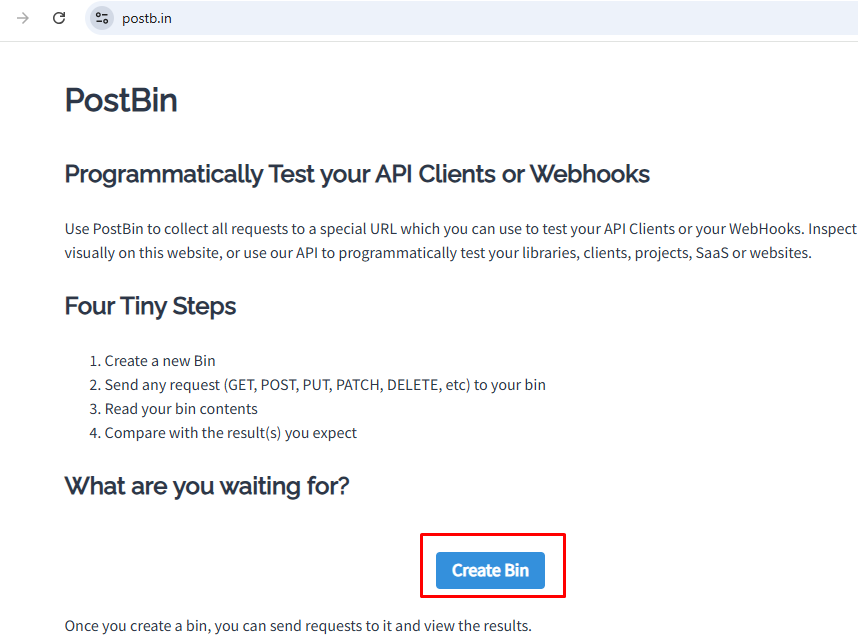


* PostBin: It posts data to web.
* Use Postbin API in existing workflow:

“Step five: Output data from your workflow” from <https://docs.n8n.io/try-it-out/tutorial-first-workflow/#step-five-output-data-from-your-workflow>

Go to <https://www.postb.in/>

Click on “Create Bin” button:

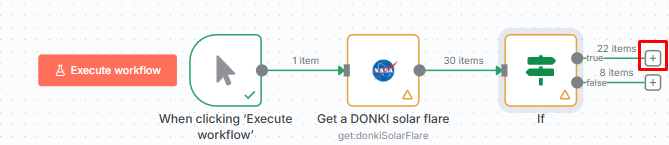


You will get BIN ID

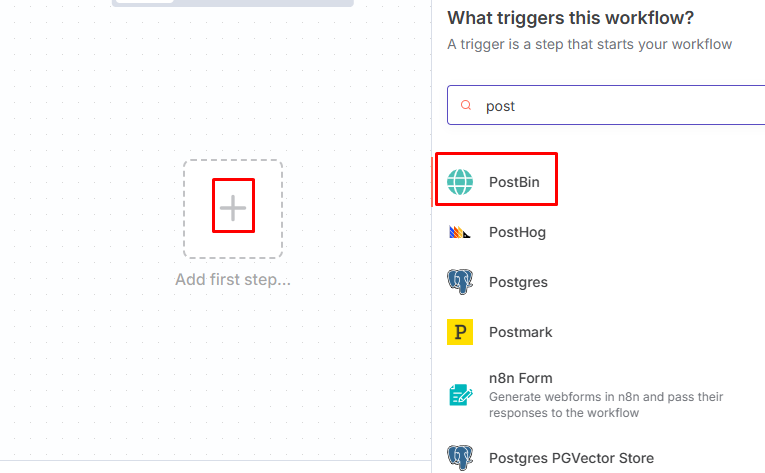


Use existing workflow in which we have received NASA api data.

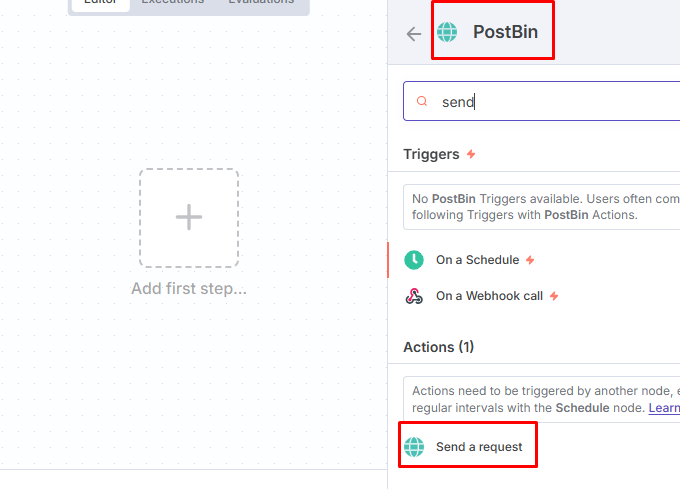
Click on “+”



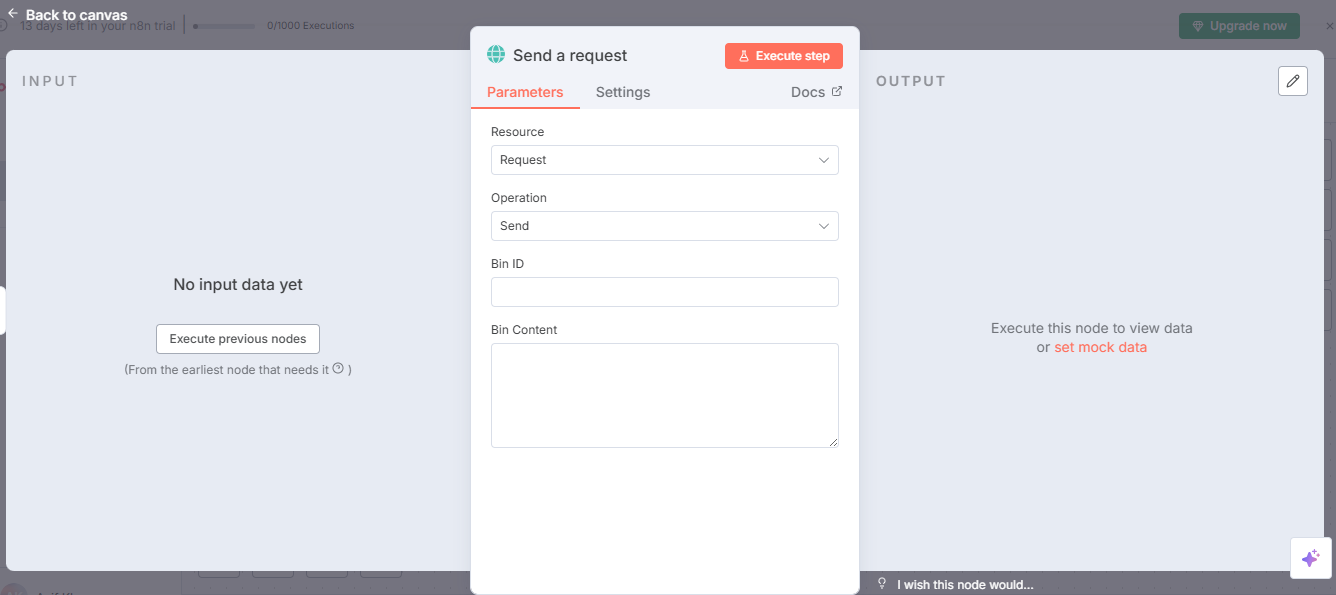
Select “PostBin” option:



In “PostBin”, select “Send a request” option

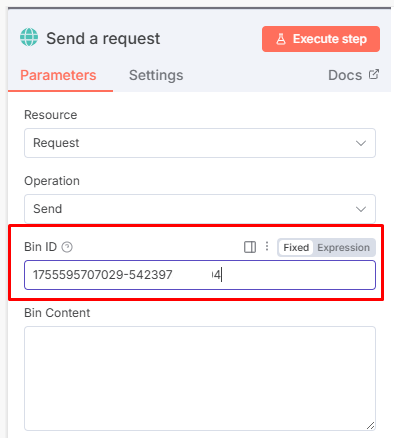


“Send a request” canvas open as:



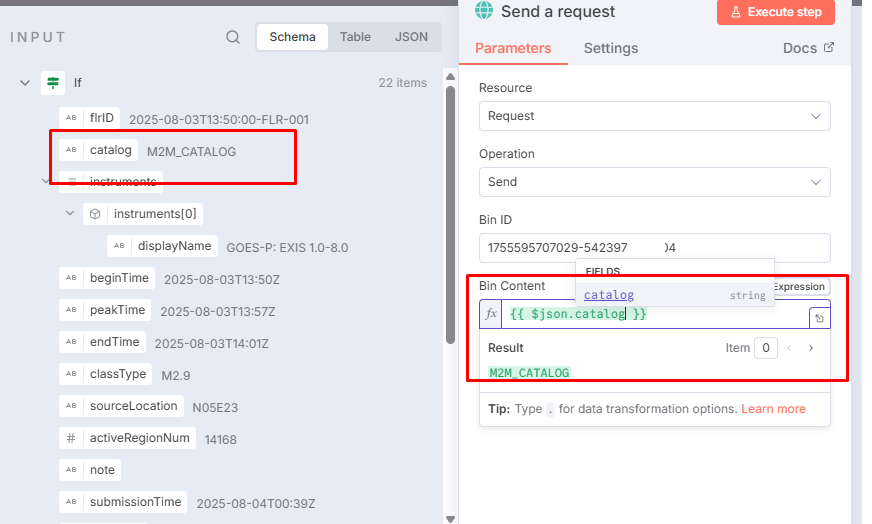
In fields “Bin ID” add key, which you get:





“INPUT” contains fields and data, which is the output of “If” condition with “True” value

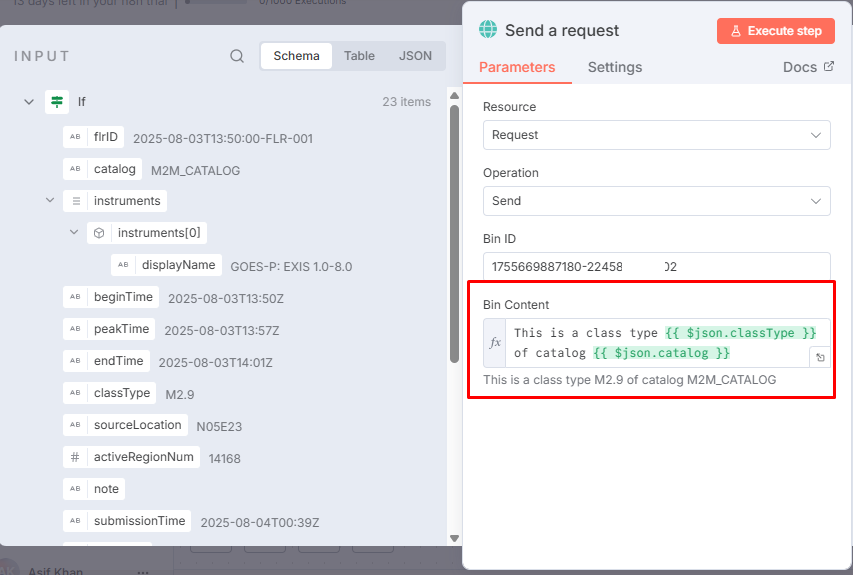
In “Bin Content”, drag and drop fields from “INPUT”:



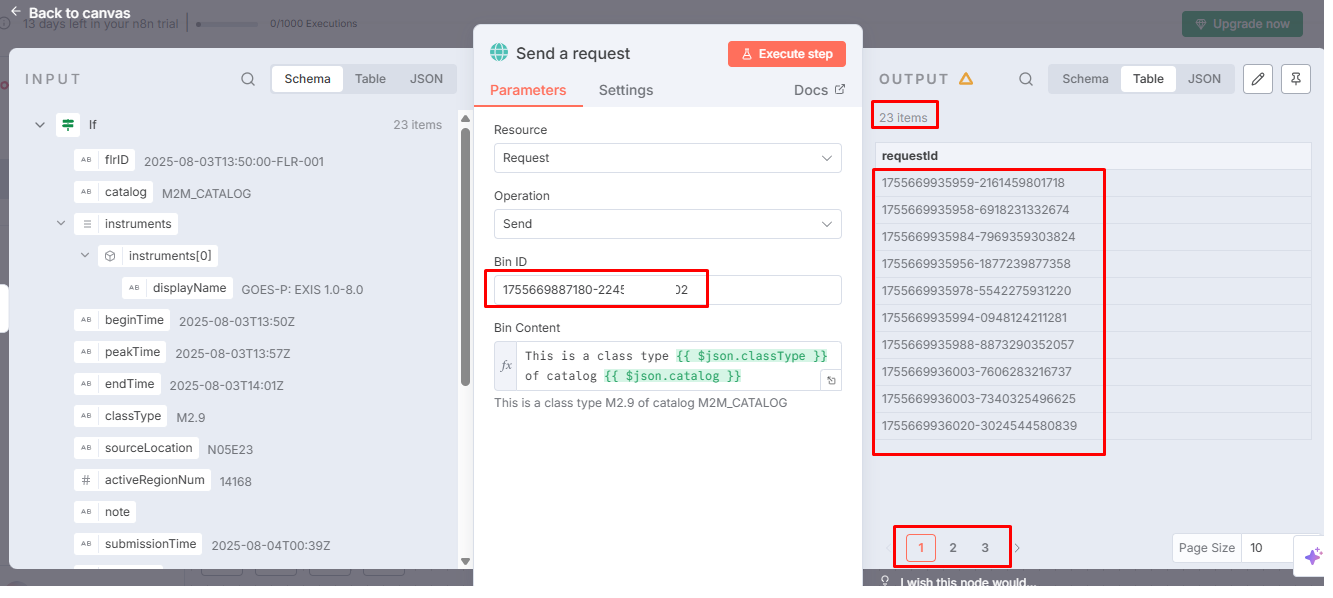
OR

You can edit text after drag and drop as

This is a class type {{ $json.classType }} of catalog {{ $json.catalog }}



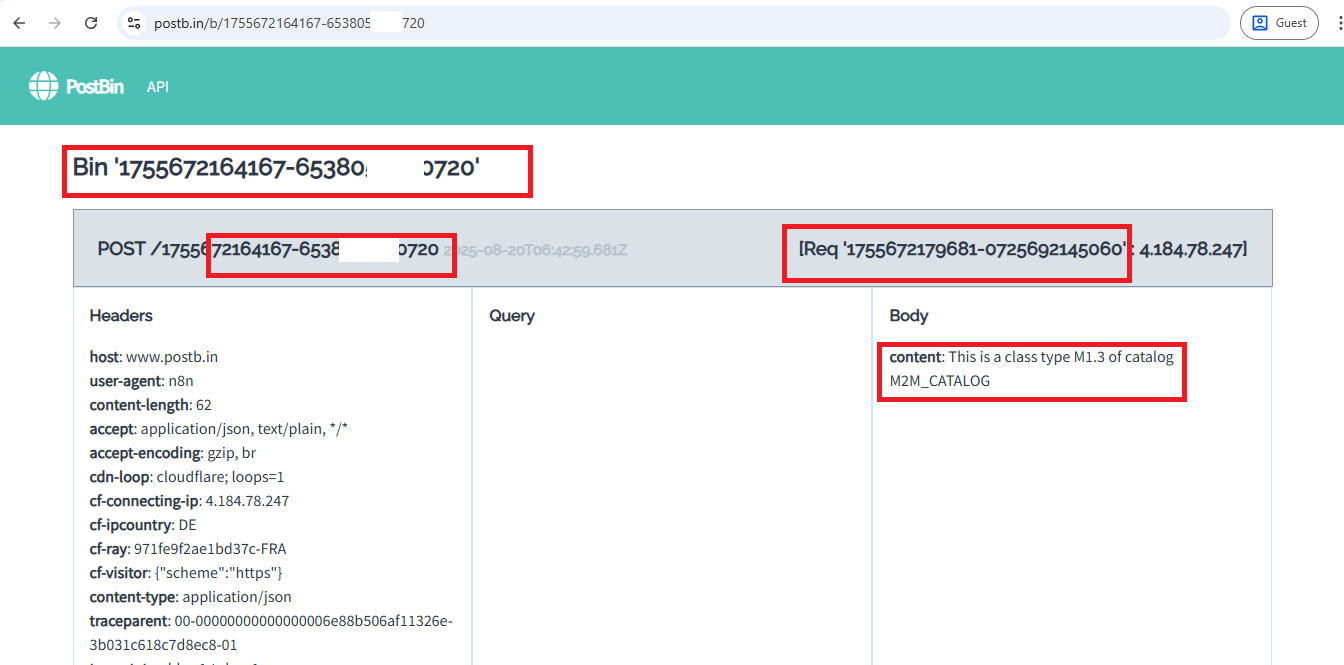
Click at “Execute step” and all records are posted to PostBin API against provided “Bin ID” and in “Output”, you get “requestid” of each record:



Then go to below webpage again:



Just refresh webpage and you get all uploaded data in row wise:



Here,

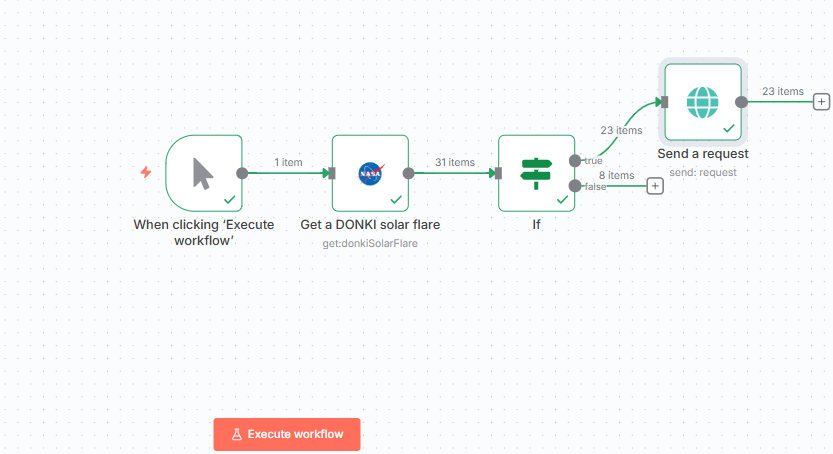
Bin ‘Bin ID’

POST/BinID

[Req ‘requestid’:….]

content: It contains data which you have posted from workflow.

* If we click on “Execute workflow” then all nodes executed, one by one:



* <https://github.com/panaversity/learn-agentic-ai>
* We will learn “Open AI agent SDK”.
* <https://github.com/panaversity/learn-agentic-ai/tree/main/-01_lets_get_started>
* <https://github.com/panaversity/learn-agentic-ai/tree/main/-01_lets_get_started/00_which_llm>
* LLM (Large Language Model): ChatGPT train model and provided trained model to us.
* Free LLM - Google Gemini 2.5 Pro, it process 5 request per minute
* <https://lmarena.ai/> Interboard Chatbot: We can ask any question and we got answer in response but we do not know which LLM is used at backend.
* <https://lmarena.ai/leaderboard> LMArena Leaderboard: It shows LLM ranking based on operation.
* <https://github.com/panaversity/learn-agentic-ai/tree/main/-01_lets_get_started/01_which_agentic_framework>
* Earlier, we do programming using “if-else” then AI introduced

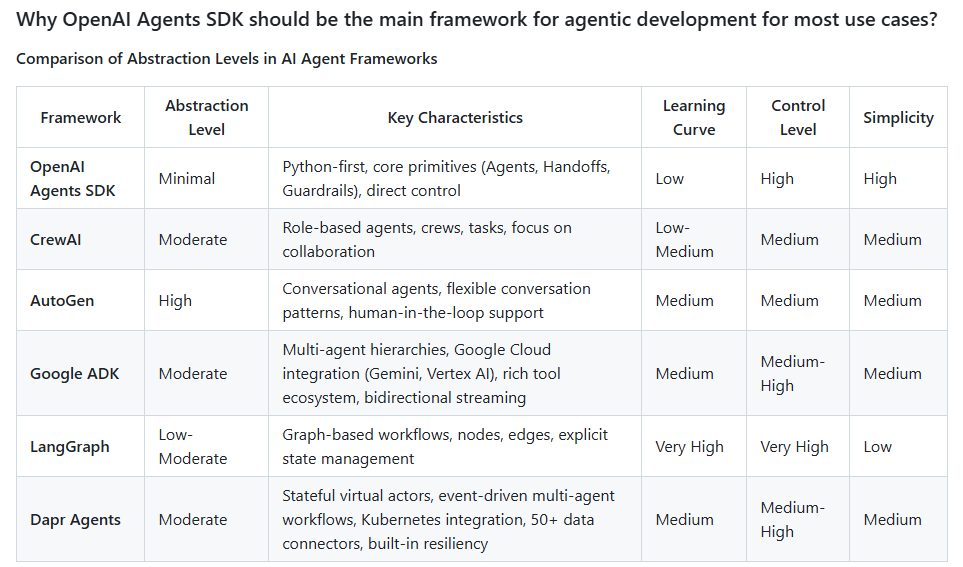
1. Symbolic AI
2. Deep Learning
3. Generative AI
4. Agentic AI

* Waves of AI

1. Predictive: We need data to develop model then we need to train model then get output from trained model. Issue with Predictive AI is that large data needed to train model.
2. Generative (AGI - Artificial General Intelligence): Chatbot, Reasoning
3. Agentic (Artificial Super intelligence - ASI)

* Agentic AI frameworks:

1. OpenAI Agents SDK
2. LangGraph
3. CrewAI



* Best Agentic AI framework is “OpenAI Agents SDK”
* <https://github.com/panaversity/learn-agentic-ai/tree/main/-01_lets_get_started/02_prompts_by_examples>
* Engineering mean steps to do work.
* Previously, we do chat/conversation with LLM model but now, Agent will communicate with LLM and we need to connect Agent with LLM.
* Prompt Engineering:

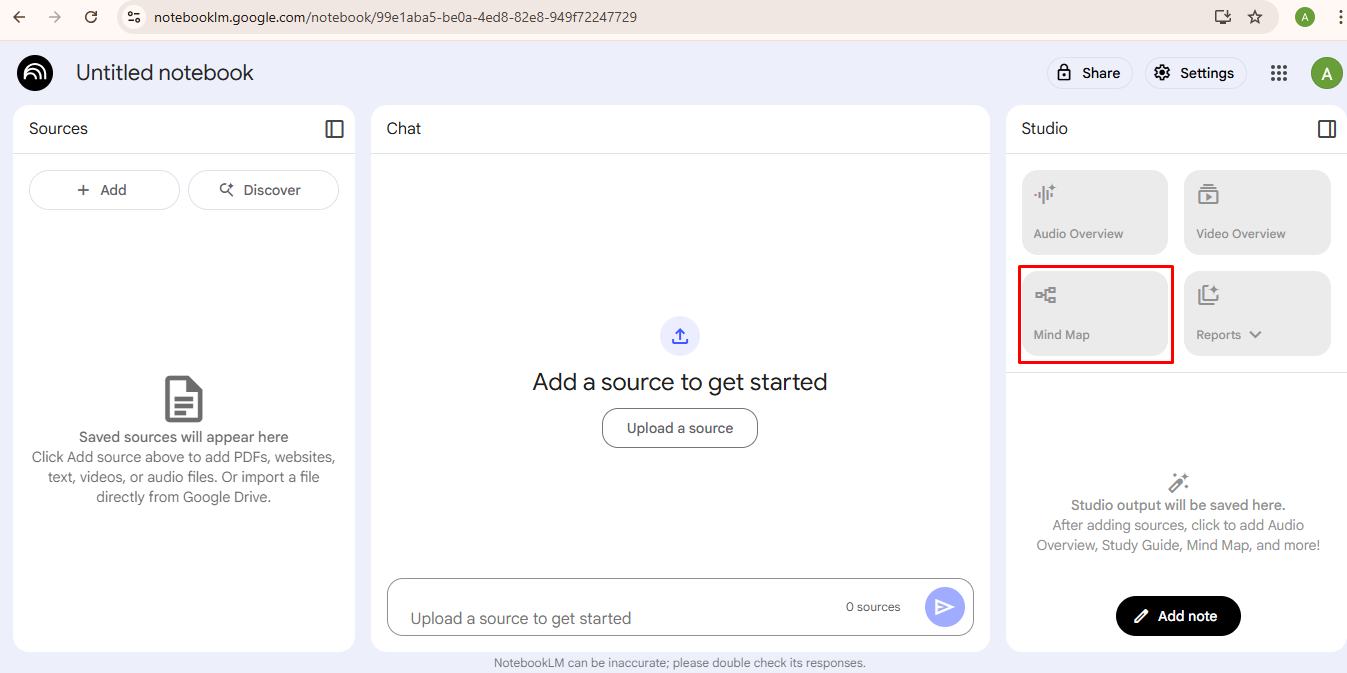
1. Prompt: user question.
2. Inference: output by LLM
3. LLM training

* Agent:

1. Persona: acts like or behavior (like doctor, 5 year old boy)
2. Available Tools for Agent like MCP (Model Context Protocol)
3. Context: previously, we do Prompt Engineering but now, we do Context Engineering

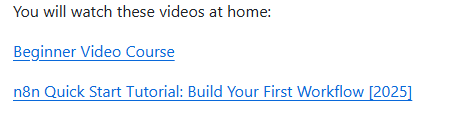
* Context Engineering means external or domain information.
* We use tools to get context.
* <https://notebooklm.google/> Notebook LLM: We can paste website link then Notebook LLM reads whole website then we can ask from Notebook LLM our questions. Notebook LLM will also create notes.

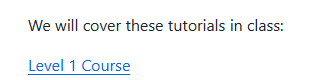
“Mind Map” button in Notebook LLM designed to quickly generates an interactive visual summary of your uploaded sources whether source is research papers, PDFs, notes or even free-form brain dumps.



* Home Work:

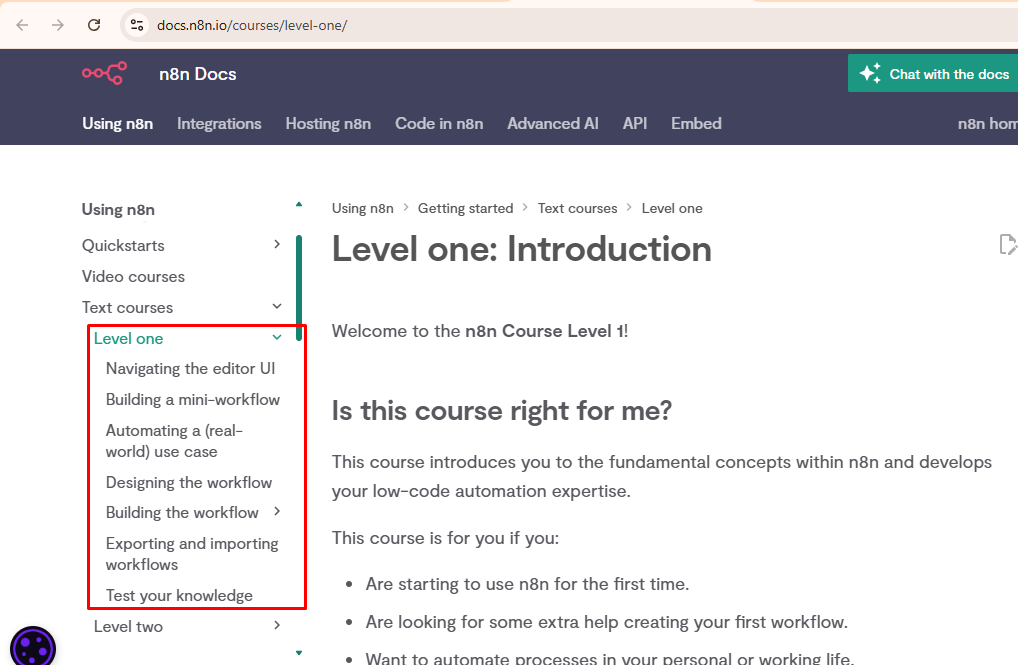
1. <https://docs.n8n.io/video-courses/#beginner>
2. <https://docs.n8n.io/courses/level-one/>
3. <https://github.com/panaversity/learn-n8n-agentic-ai/tree/main/00_quick_start>



1. <https://github.com/panaversity/learn-n8n-agentic-ai/tree/main/01_beginner_tutorial>

<https://docs.n8n.io/courses/level-one/>

All left highlighted menu options, also “Test your knowledge”: It is a test, which we need to pass:



1. <https://github.com/panaversity/learn-agentic-ai/tree/main/-01_lets_get_started/02_prompts_by_examples>
2. 3 articles of prompting guide:
3. <https://cookbook.openai.com/examples/gpt4-1_prompting_guide>
4. <https://cookbook.openai.com/examples/gpt-5/gpt-5_prompting_guide>
5. <https://www.kaggle.com/whitepaper-prompt-engineering>