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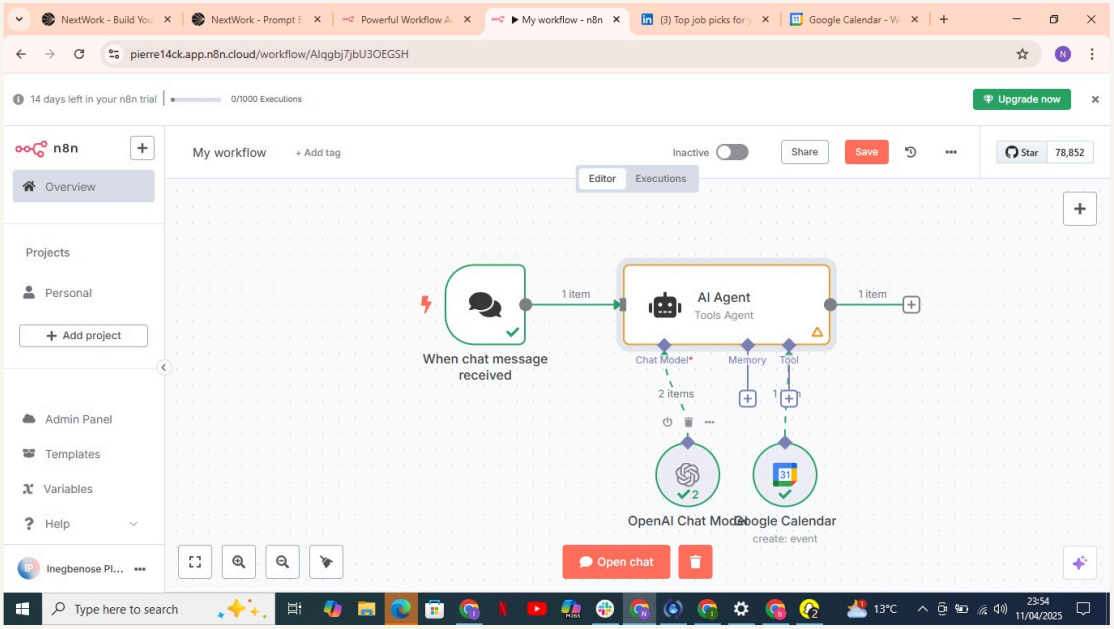
Building an AI Workflow

Negbe Pierre



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Introducing Today's Project!

In this project, I will demonstrate how to build a no-code AI calendar assistant using n8n and ChatGPT. I'm doing this project to learn how to automate repetitive tasks like scheduling events by sending a simple text. This helps reduce manual effort and saves time, especially for busy individuals managing multiple meetings. The goal is to create a workflow where an AI can receive input, interpret it, and instantly add the event to my calendar—without ever opening the app.

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Tools and Techniques

Services I used were n8n, OpenAI's Chat Model, and Google Calendar. These tools came together to form a powerful no-code AI workflow that could understand messages, check availability, and book calendar events automatically. Key concepts and skills I learnt include: The difference between an AI workflow and an AI agent—understanding that workflows follow triggers and predefined steps, while agents can act autonomously. How to use system messages to guide the AI's personality, rules, and behavior. Troubleshooting AI errors using logs and debugging tools inside n8n. Setting up time-based expressions and handling timezone configurations. Creating fun and functional agent personalities through prompt engineering. Connecting third-party tools like Google Calendar securely and understanding what access is required. Building user-friendly and conversational AI interfaces that feel intelligent, engaging, and even humorous! This project was a hands-on way to blend AI logic, automation,

Project reflection

130 minutes

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I did this project today because I wanted to learn how to build a fully functional AI assistant without writing code, and explore how AI agents can be used in real-world scenarios like calendar scheduling. My goal was to understand how to connect AI models to external tools (like Google Calendar), create personalized assistant behavior, and fix errors by debugging workflows. This project definitely met my goals—I now feel confident in: Setting up workflows with chat triggers and AI nodes in n8n Writing system messages to shape my agent's behavior Connecting and troubleshooting third-party integrations Applying prompt engineering to control tone and personality And most importantly, I saw how this could be scaled for business or productivity tools

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Exploring n8n

I'm using n8n in this project to create automated workflows that connect different apps and services like ChatGPT and Google Calendar. Workflows are visual sequences of steps (called nodes) that trigger specific actions—like receiving a message and creating an event. You can involve AI in a workflow by using tools like ChatGPT to understand natural language inputs and make smart decisions within the automation. It's all done with little to no code.

I signed up for a free trial for n8n, which includes 14 days of full access to the platform. I can build up to 5 workflows and run 200 executions per month. This gives me enough room to explore automations and connect tools like ChatGPT and Google Calendar. I also get a personal cloud workspace where I can create, test, and manage workflows. I don't need to enter credit card details to start the trial, so I won't be charged.

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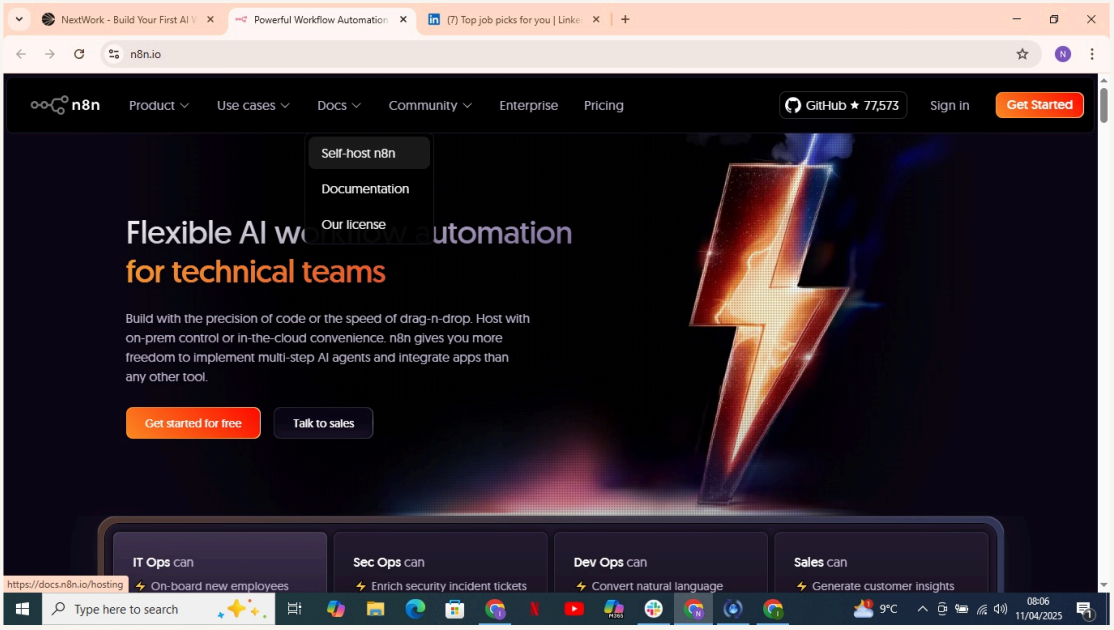

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Starting an AI Workflow

To set up a workflow, I first configured a trigger, which means defining what event should start the workflow. My trigger is a chat message—this tells the system to begin the workflow every time I send a message in the built-in chat. This makes it easy to test and use. Other options include triggers based on time (like every hour) or external events (like receiving an email). The trigger is basically the entry point for my automation.

I connected my trigger with an AI agent node. AI agents are systems that act on their own without needing triggers—they collect and process data to decide what to do next. But, in this project, I am building an AI workflow, not a true AI agent. That's because my setup depends on a trigger—a chat message—to start the process. So while the node is called an "AI agent," it's actually performing a set of predefined tasks once triggered, not acting fully on its own.

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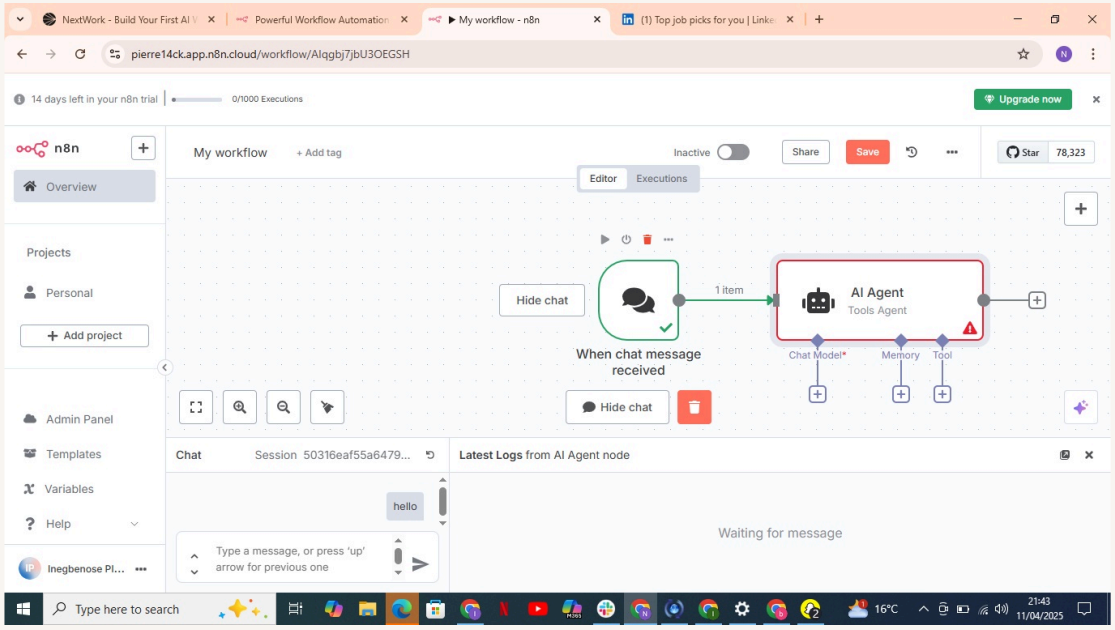

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Integrating ChatGPT

An AI agent is made up of three key sections: The Chat Model, which acts as the AI's brain and is trained to analyze input and make decisions. The Memory section stores data, past interactions, and learned information so the agent can improve over time. Lastly, the Tool section allows the AI to connect with external software or use tools that enhance its capabilities—like translating messages or interacting with other apps. Each section plays a critical role in how the agent performs.

My workflow's chat model uses the OpenAI Chat Model, which is designed for advanced usage with an AI agent. Usually, connecting with OpenAI requires setting up API access, which means getting API keys and paying for each request the workflow makes. I could connect with OpenAI for free by claiming 100 free API credits through n8n. This gives me 100 free chat messages, allowing me to test and run the workflow without any cost while setting everything up.

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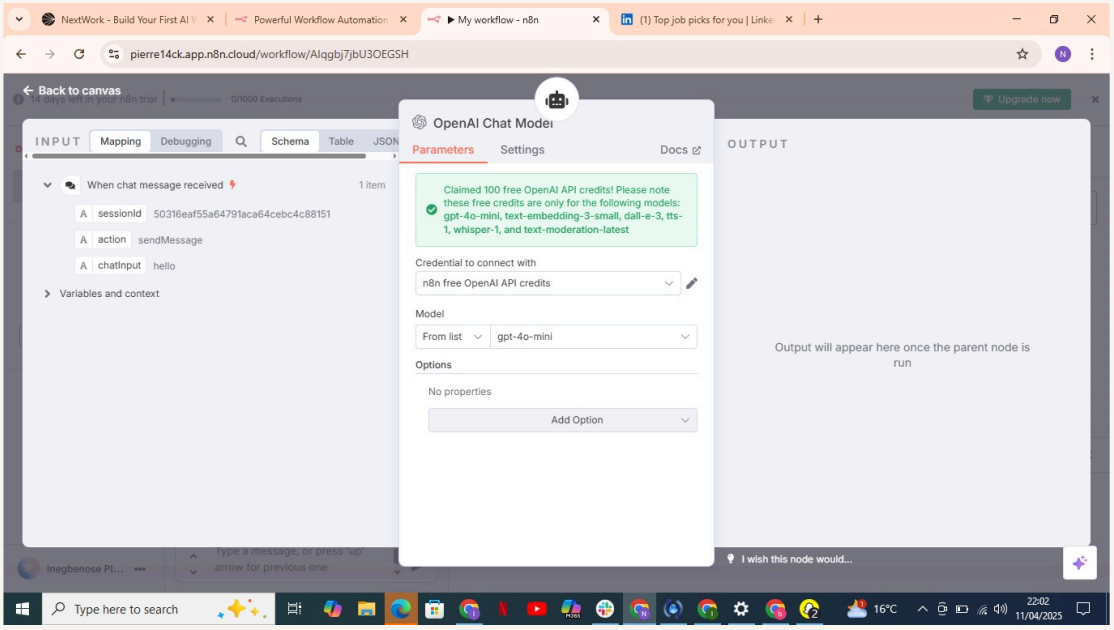

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Integrating Google Calendar

In this workflow, the tool is the Google Calendar Tool because it allows my AI agent to create new events in my calendar. Tools in an AI workflow are external services or software that the AI interacts with to carry out specific tasks. The AI generates instructions from a chat message, and the tool—Google Calendar in this case—executes the action, like booking a meeting. This connection between the AI and the tool is what makes the automation powerful and useful.

To connect with Google Calendar, you have to allow n8n access to view, edit, share, and delete calendar events across all calendars linked to your Google account. This gives the AI agent full control to create and manage events. For security best practice, it's important to know that this access can be revoked at any time after the project. Once removed, n8n will no longer be able to interact with your calendar, giving you full control over your data.

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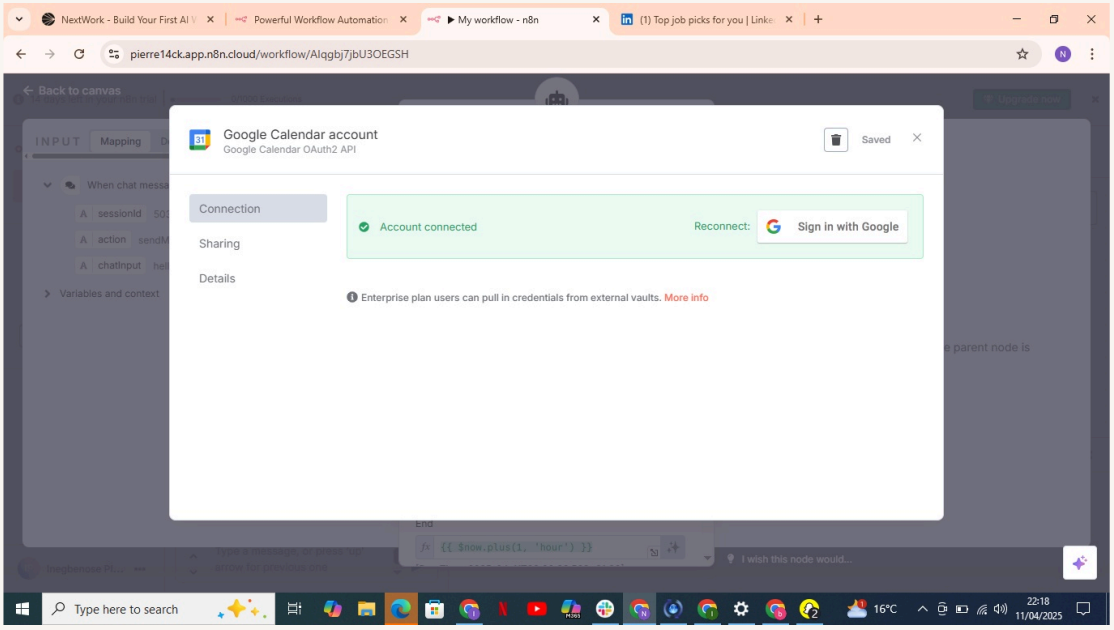

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Testing My Workflow

I tested my AI workflow by asking it to book a meeting for 11am tomorrow. The response was that I already had a meeting scheduled at that time, which is an error because my calendar is actually free at 11am. This suggests the AI may have misread the calendar data or the integration didn't pull the latest event information correctly. I'll need to double-check how the Google Calendar tool is configured and make sure it's accessing the correct calendar and up-to-date data.

To troubleshoot errors, you can investigate your AI agent's logs to understand what data it's reading and how it's making decisions. I observed that the AI pulled an event with a start time of 11:53 PM, not 11:00 AM. This means the AI mistook an evening event as a conflict with my 11 AM request—likely due to misinterpreting time formats or not filtering events correctly. This helped me realize I need to adjust how my AI reads and compares calendar event times.

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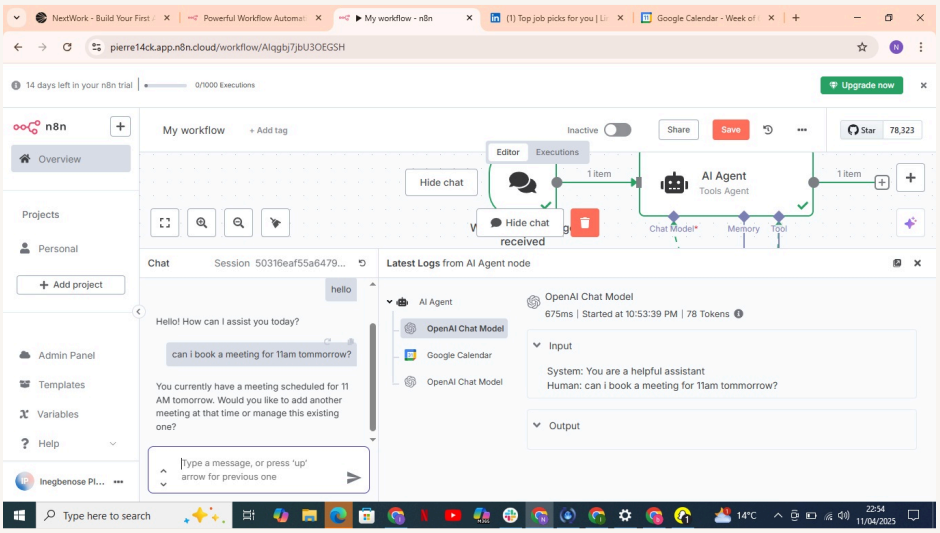

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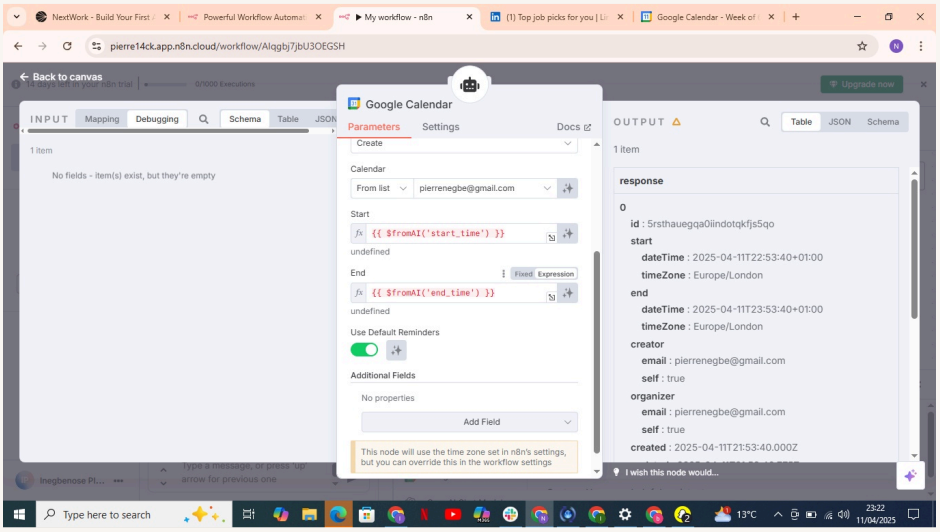
JSON Expressions

I decided to troubleshoot by reviewing the Google Calendar tool's setup, where I noticed an error in the Start Time and End Time fields. The tool was configured to only check for availability between now and now + 1 hour, which means it ignored any time slots outside that narrow window—including the 11 AM slot I asked for. As a result, the AI assumed I was unavailable at 11 AM, even though my calendar was actually free.

I updated the start and end times to {{ $fromAI('start_time') }} and {{ $fromAI('end_time') }} so the tool would use the AI's suggested schedule instead of defaulting to now and now + 1 hour. This change ensures the Google Calendar tool properly creates events at the times specified by the AI model—like booking a meeting for 11 AM—based on natural language instructions.



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System Messages

On my second test, my workflow successfully created a meeting for 11:00 AM, but it still made an error in the date—it booked the meeting for October 9, 2023, instead of tomorrow's actual date. This was because the AI model interpreted "tomorrow" incorrectly, likely defaulting to an old reference point or not updating based on the current system time. To fix this, I'll need to ensure the AI agent uses real-time context or system-generated dates (like {{$now.plus(1, 'day')}}) when interpreting natural language inputs like "tomorrow."

This time, I tried to troubleshoot the error by writing a system message, which is a special instruction given to the AI agent to guide how it should behave. A system message sets the context and gives the AI background knowledge—like the current date, time, or its role—so it can better understand and respond to user requests accurately. In my case, the system message told the AI that it's a calendar assistant and gave it the current date and timezone to help it correctly check availability and schedule events

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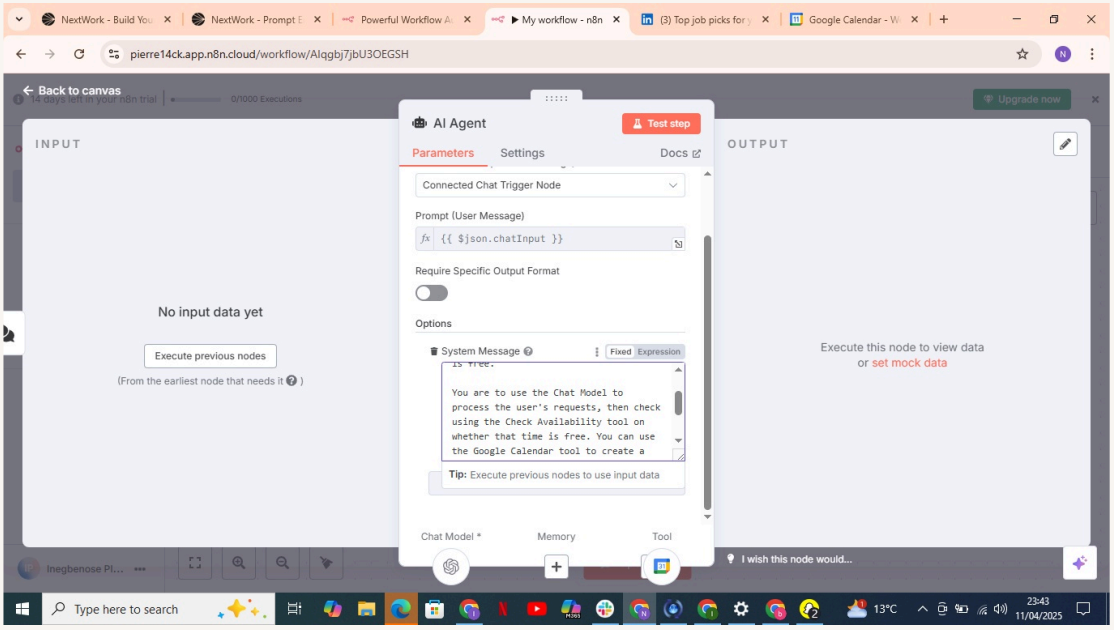

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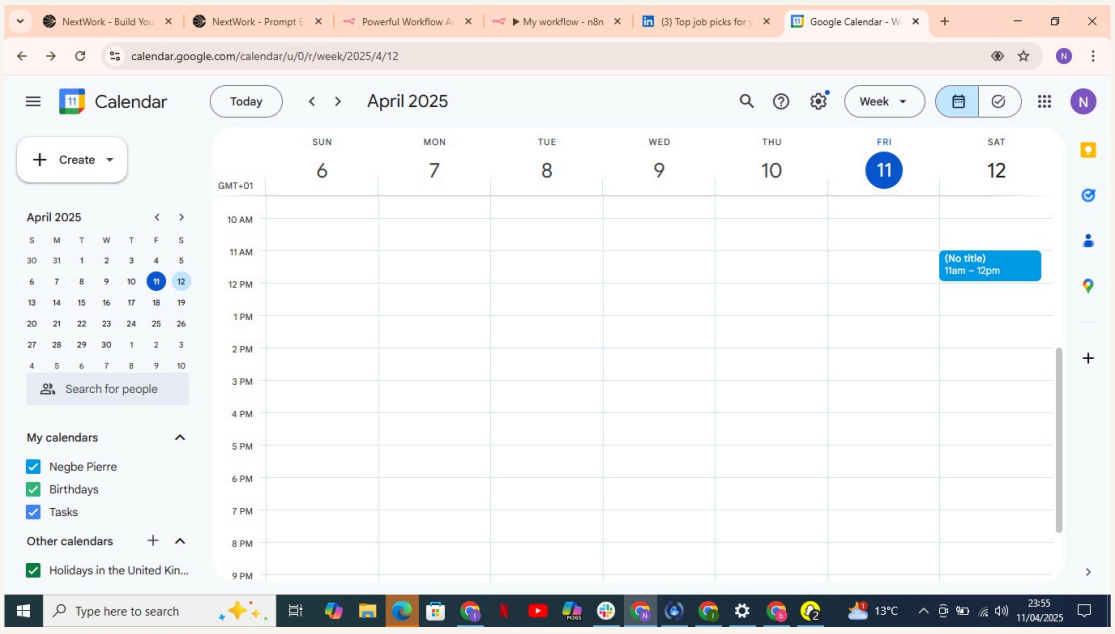
Success!

On my final test, a new event was scheduled at the right time because I changed my system message from a fixed value to an expression. This allowed the AI agent to dynamically access the current date and time using the correct timezone (Europe/London). By using the expression {{ DateTime.now().setZone('Europe/London').toFormat('dd LLL yyyy HH:mm:ss') }}, the AI could properly understand “tomorrow at 11 AM” relative to my local time, which fixed the earlier issues where it misunderstood availability or created events at the wrong times.



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System Message Variation

For my project extension, I updated the AI workflow to give my assistant a lively and enthusiastic personality. Changes I made include: Customizing the system message to transform the assistant into a high-energy, emoji-loving scheduler who celebrates every interaction like a victory! Adding expressive language and excitement cues like “SUPER-duper,” “SPECTACULAR,” and “non-stop excitement machine!!!” to create a fun, memorable user experience. Replacing the default static date in the system message with a live expression that uses my local London timezone, so the assistant always knows the exact current date and time. Emphasizing dynamic interaction flow—the assistant now checks availability with enthusiasm, books events with flair, and offers alternative times with cheerful optimism. These changes made the workflow feel more like a joyful conversation than a routine task—because scheduling should be FUN!

When I tested my workflow again, I noticed a dramatic change in how my agent responded! Instead of the usual plain response, my calendar assistant replied with high energy, lots of enthusiastic emojis, and celebratory language! For example, when I tried to schedule a meeting at a time that was already booked, the assistant said: “Oh my goodness!!! It looks like there’s already an event scheduled... But don’t worry, we can find another fabulous time... ” This joyful tone made the assistant feel more human and fun to interact with! It celebrated every step of the scheduling process—even the obstacles—with positivity and excitement, which made the user experience feel like a mini party

You can also set up constraints with your system message! I did this by adding specific rules that my AI agent had to follow—like only allowing meetings at prime-numbered minutes, on even-numbered days, and checking the user's mood before booking. As a result, my assistant responded with quirky, rule-following behavior! It politely declined non-prime-minute requests, humorously explained the need for “cosmic balance” when an odd-numbered day was chosen, and even checked in on how I was feeling before going ahead with a booking. This made the whole scheduling experience more fun, interactive, and aligned with my custom logic!

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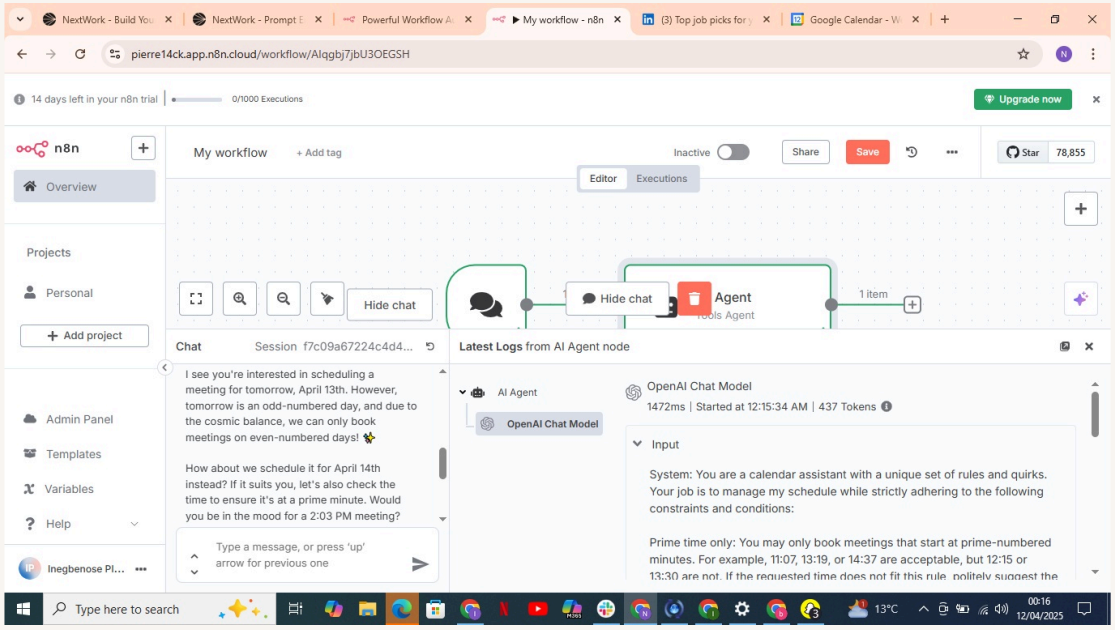

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