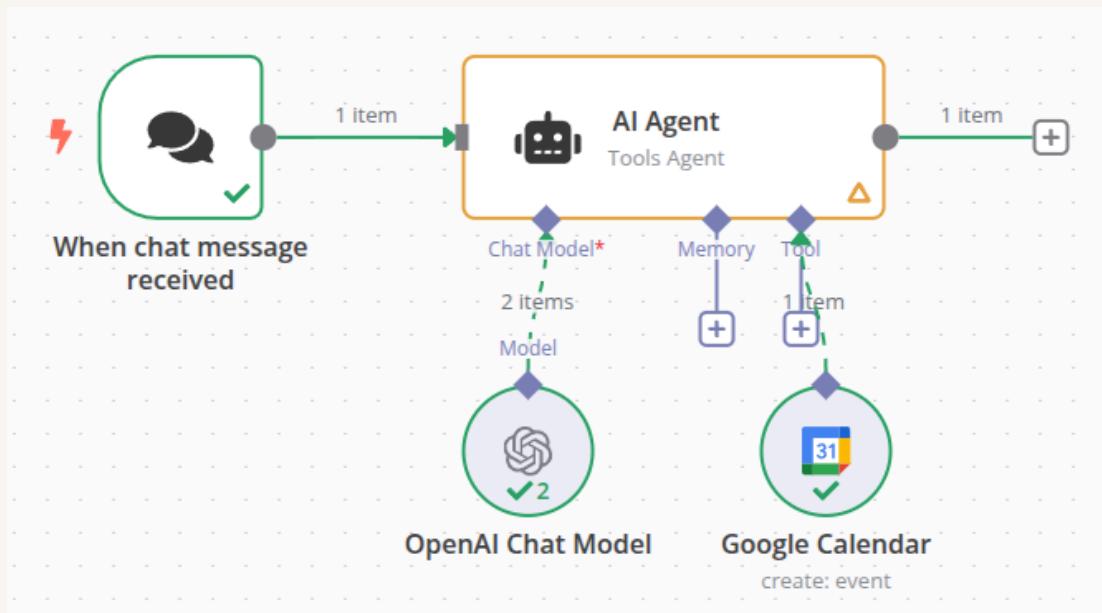


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# Building an AI Workflow



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# Introducing Today's Project!

In this project, I will demonstrate how to build an AI workflow using n8n. Send a text to our AI workflow, which will schedule events in our Google Calendar for us. I'm doing this project to learn how to automate tasks with AI.

## Tools and Techniques

Services I used were n8n, OpenAI, Google Calendar. Key concepts and skills I learnt include how to setup an AI workflow, workflow vs agents, credentials, JSON expressions and analyzing logs from AI agent to troubleshoot errors.

## Project reflection

This project took me approximately 2 hours including demo time. The most challenging part was using fixed vs expressions in system message (an important detail easy to miss). It was most rewarding to see the difference a tailored system can make.

This project was useful for getting an intro to AI automations, worflows and eventually building an AI agent. This project met my goals because we got to set up a working prototype by the end.

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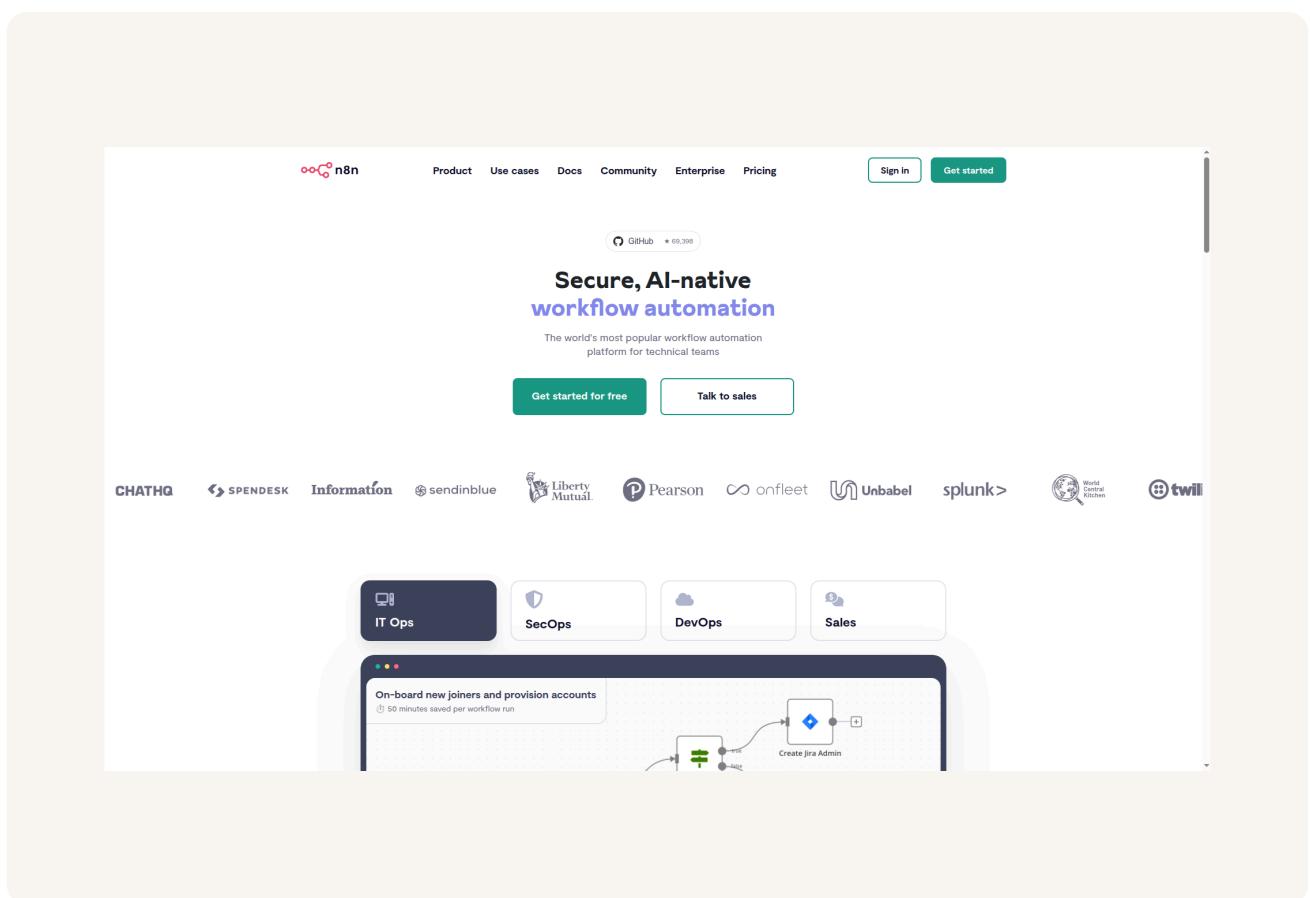
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# Exploring n8n

I'm using n8n in this project to build our workflow. Workflows are sequences of actions that complete a task. We can involve AI in a workflow by using AI to automate some of the decision making or actions e.g. generative AI to draft email replies.

I signed up for a free trial for n8n, which includes 14 days of access to n8n and the ability to create up to 5 workflows. I don't need to enter credit card details to start the trial, so I won't be charged.



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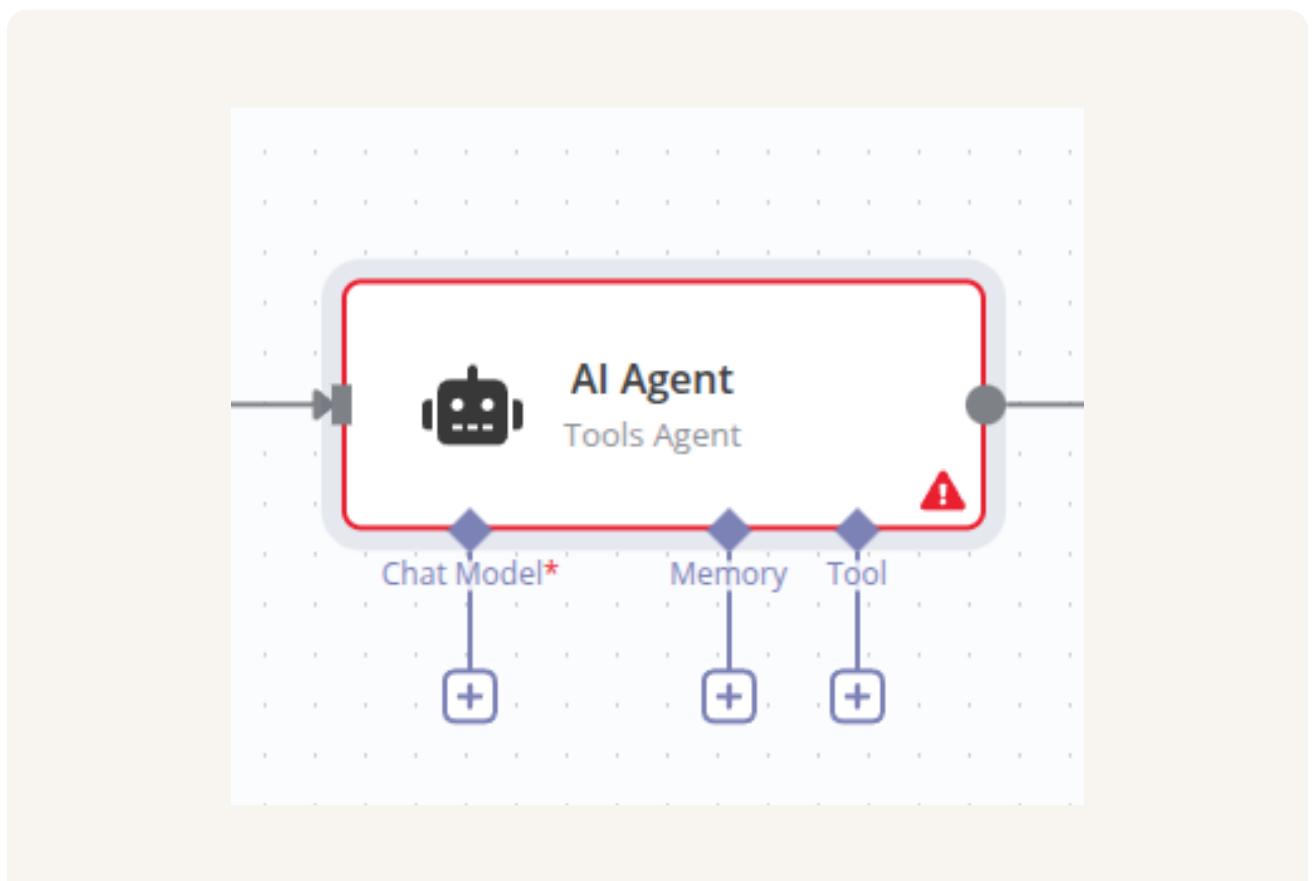
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# Starting an AI Workflow

To set up a workflow, I first configured a trigger, which means the action or scheduled time that kicks off the workflow (make it run). My trigger is a chat message. Other options include a scheduled time (every day at 8am) or a manual trigger.

I connected my trigger with an AI agent node. AI Agents are autonomous systems that can decide on tasks and carry out actions WITHOUT triggers or predefined steps. But, in this project, we are building a workflow, which does require triggers/steps.





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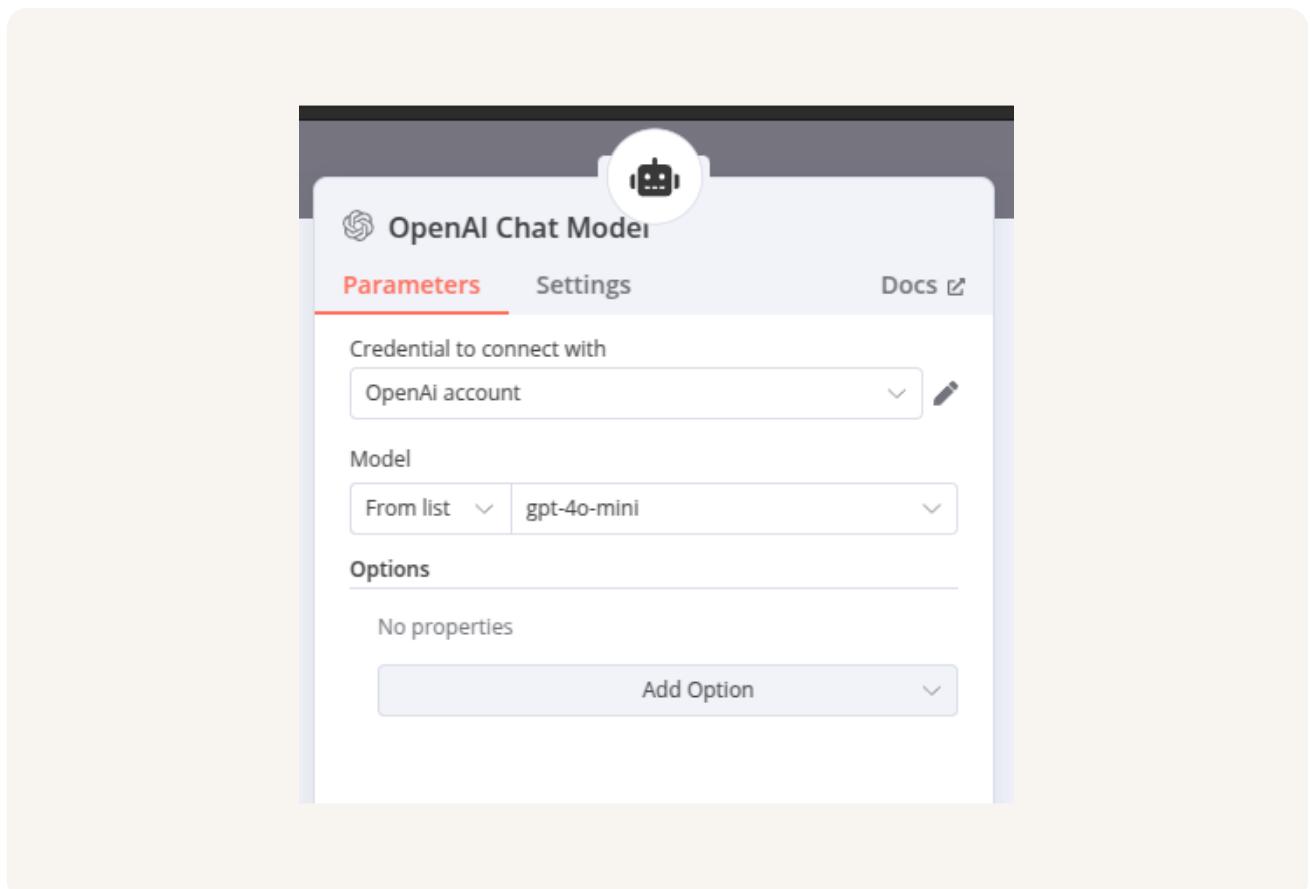
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# Integrating ChatGPT

An AI workflow can be broken into three key components, which are Chat Model (i.e. the brains of the agent), Memory (i.e. storing past interaction and data collected) and Tools (i.e. software and code to help carry out tasks).

My workflow's chat model uses OpenAI's services. Usually, connecting with OpenAI requires adding credits to your OpenAI wallet. But we could connect with OpenAI for free by creating an account and using the free API key provided by OpenAI.



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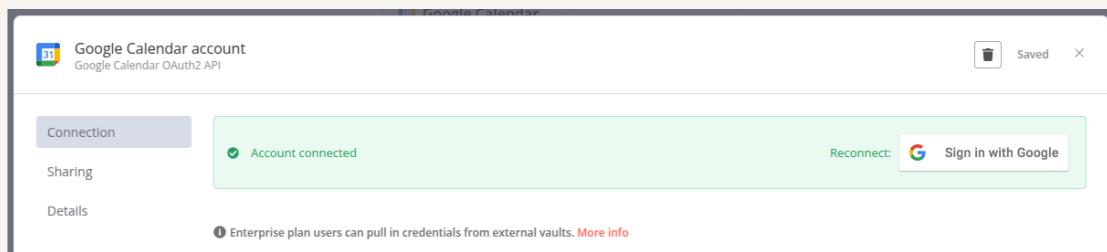
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# Integrating Google Calendar

In this workflow, the tool is Google Calendar because I'll need to connect my AI Workflow with the API (i.e. Google Calendar Tool) that actually creates new events in our calendar. You can think of the tool as the muscle that actually does the job.

To connect with Google Calendar, you have to allow n8n access to creating and edit events and entire calendars in your account. For security best practice, it's important to delete those credentials when you no longer need it for the workflow.



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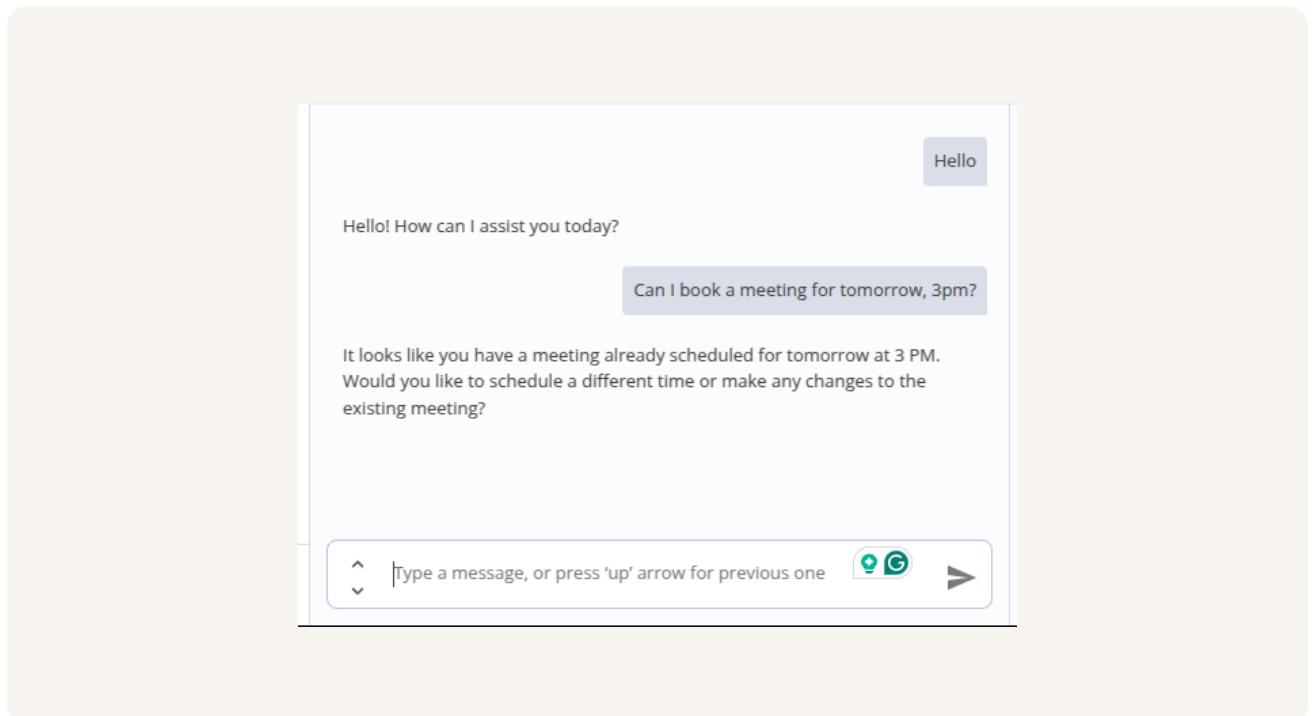
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# Testing My Workflow

I tested my AI workflow by asking it to book a meeting tomorrow at 3pm. The response was that i have already scheduled meeting at that time which is an error because I am free for tomorrow 3pm.

To troubleshoot errors, you can investigate the AI Agent's logs. I observed that the logs for the Calendar Tool showcased no input, which means it's not getting any information, such as start and end time for the event I want to book.



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# JSON Expressions

I decided to troubleshoot by reviewing my Calendar Tool setup. I noticed an error in the Tool's start and end time configuration. By default, it takes in the current time as start time - this ignores input/information from the chat model.

I updated the start and end times to JSON references for information our AI model will gather. For example, instead of the current time, the start time now is '{{ \$fromAI('start\_time') }}', which the AI model will fill for us.



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# System Messages

On my second test, the workflow successfully created an event and took in input from the AI Chat Model. But it still made an error in scheduling the right date. This was because the Chat Model is passing the wrong dates to the Calendar Tool.

This time, I tried to troubleshoot the error by writing a system message, which is a prompt that gets sent your AI Agent before the conversation starts. The prompt gives the agent instructions on what to do and information on the current date.

The screenshot shows a 'System Message' configuration panel within a larger workflow interface. The panel has a title 'Options' at the top. Below it, under 'System Message', there is a text area containing the following text:

```
You are a calendar assistant. Your job is to create new events for times that my calendar is free.  
You are to use the Chat Model to process the user's requests. You can use the Google Calendar tool to create a new event in my calendar if I am available.  
Today's date is {{DateTime.now().setZone('Asia/Jakarta').toFormat('dd LLL yyyy HH:mm:ss')}}
```

At the bottom of the panel, there are two small circular icons: one with a location pin and another with a gear, followed by a downward-pointing arrow indicating more options. Below the panel, there is a button labeled 'Add Option'.

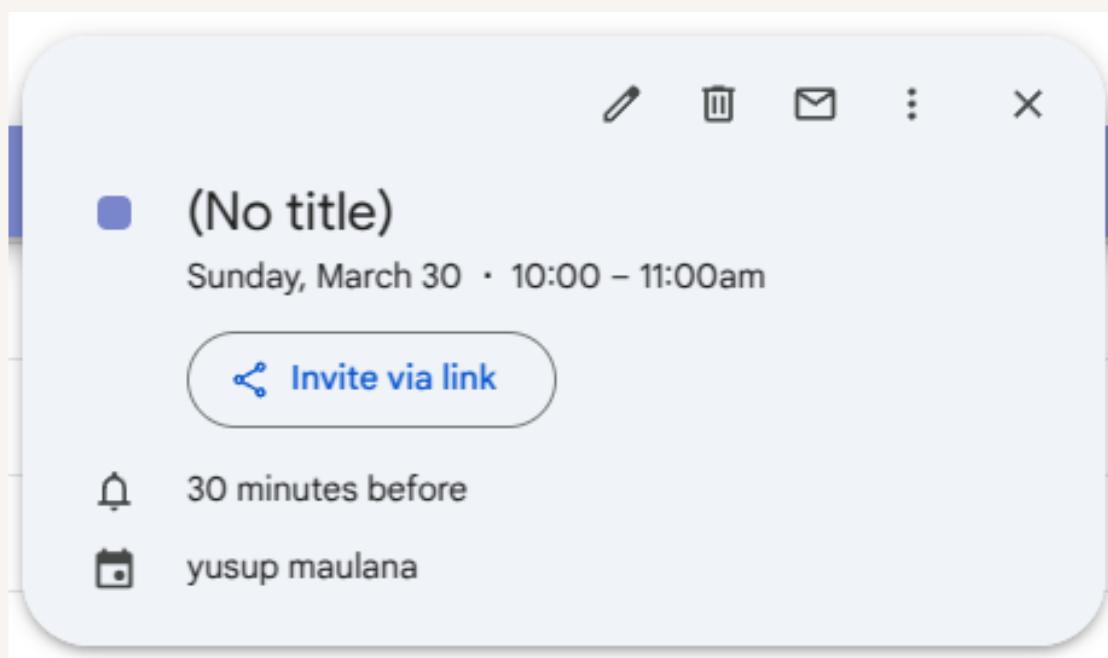
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# Success!

On my final test, a new event was scheduled at the right time because my system message was set as an expression (not fixed). This means my AI agent will get accurate information around today's date, calculated automatically at every message.





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