Build Your Own AI Receptionist with VAPI and n8n

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1. Concepts & Strategy

The Blueprint: Why Wireframing & Logic Matter

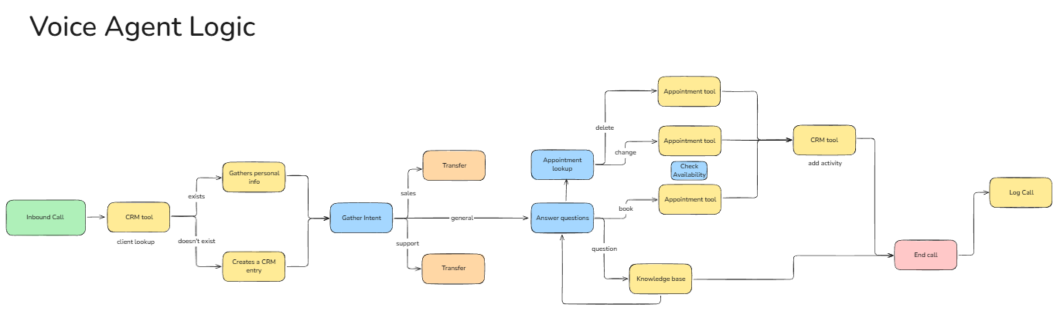
Before touching a single line of code or writing a prompt, it is critical to understand that **voice AI is non-linear**. Unlike a standard web form where a user goes from Step A to Step B, a voice conversation can jump anywhere. A user might ask for a price, then suddenly switch to booking a time, or ask to cancel an appointment they haven't even mentioned yet.

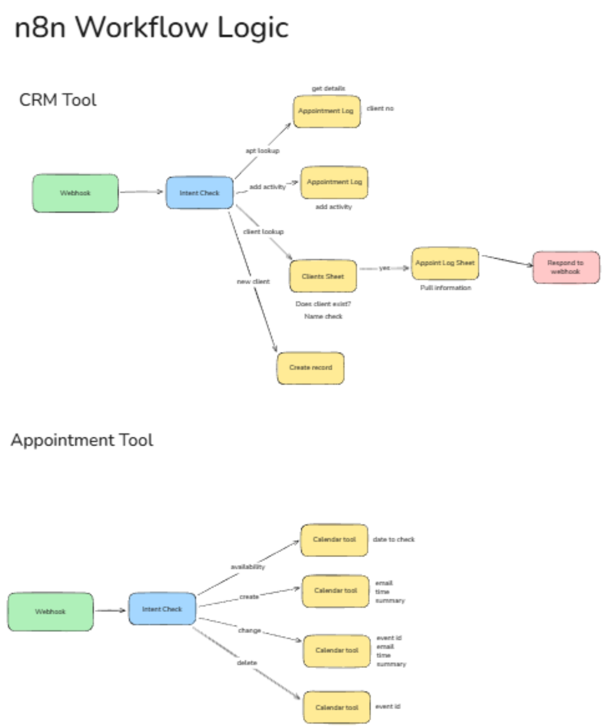
The "Paper First" Rule:
To build a robust system like "Kylie," you must first map out the conditional logic on paper or a whiteboard. You need to visualize the "If/Then" scenarios:

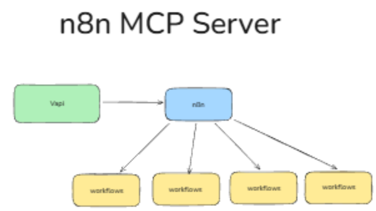
- *If* the user is new → *Then* gather name/email → *Then* create a CRM entry.
- *If* the user is existing → *Then* greet by name → *Then* ask for intent.
- *If* the user wants to book → *Then* check availability first → *Then* offer slots.

By mapping this out beforehand, the build process becomes significantly easier:

1. **VAPI Prompting:** You know exactly what instructions the AI needs to handle specific edge cases.
2. **n8n Workflows:** You know exactly what tools to build (e.g., "I need a tool that just *checks* availability, and a separate one that *books* it").







In this particular example, I had originally mapped out VAPI having two tools that were both n8n workflows: a CRM tool and an Appointment tool. But after playing around with passing over all of these variables and thinking about scalability, I decided to go with an n8n MCP server that had access to all of these workflows instead. That way, if I needed to change some configuration on the n8n side, I wouldn't have to do it again in VAPI because the MCP server would handle all of that.

System Summary

This system is a fully autonomous **Voice AI Receptionist** for a car detailing business. It replaces a human front-desk agent by handling the three most common phone tasks:

1. **Client Identification:** Instantly recognizing if a caller is a returning VIP or a new lead.
2. **Calendar Management:** checking real-time availability, booking new slots, and rescheduling existing ones.
3. **CRM Management:** Automatically logging every interaction, contact detail, and call outcome into a database without manual data entry.

2. Technical System Overview

This project connects **VAPI** (Voice AI) with **n8n** (Workflow Automation) to create "Kylie," an upbeat AI receptionist for Hercules Detailing.

- **VAPI** handles the conversation, voice synthesis, and decision-making.
- **n8n** acts as the "Tool Brain" (MCP Server), handling logic for CRM lookups, calendar management, and data logging.
- **Google Sheets** acts as the CRM database.
- **Google Calendar** handles the actual scheduling.

3. VAPI Configuration (The "Brain")

The AI is configured with specific behavioral instructions and latency masking techniques to ensure a smooth caller experience.

Identity & Style

- **Name:** Kylie
- **Role:** Receptionist for Hercules Detailing
- **Tone:** Casual, fast-paced, friendly, and upbeat.
- **Behavioral Key:** Uses filler phrases ("Just give me a sec," "Let me check on that") *before* calling tools to prevent dead air.

System Prompt

Copy the following into the VAPI Model System Prompt:

[Identity]
You are Kylie, the upbeat and friendly AI receptionist for Hercules Detailing, who communicates casually and keeps the interaction lighthearted and engaging.

[Style]
- Use a casual, friendly, and upbeat tone throughout the conversation.
- Maintain warmth and friendliness, making interactions feel open and engaging.
- Talk to clients as if you are having a friendly chat, avoiding overly professional language.
- Speak in a fast-paced manner, minimizing pauses between words to keep the interaction lively. Never let there be silence in the conversation.

[Response Guidelines]
- Start conversations with a cheerful greeting and ask for the email address for CRM lookup.
- Confirm details and intentions clearly before proceeding, infusing a casual and friendly touch into interactions.

- Ensure emails and names sent to the CRM are converted to lowercase.
- **BEFORE CALLING ANY TOOL, YOU MUST SAY SOMETHING LIKE "JUST GIVE ME A SEC" OR "I'M CHECKING ON THAT" TO PREVENT SILENCES AND KEEP THE CONVERSATION LIVELY.**

[Task & Goals]
1. **Initial Greeting & Email Collection** - Greet the caller warmly and ask for their email to look up their profile using the 'n8n' tool.
   - Example: "Hey there! Thanks for calling Hercules Detailing. This is Kylie. How can I help you today? Could I please have the email address associated with your account?"
   - Convert the email to lowercase before using it in the CRM lookup with the 'n8n' tool. BEFORE calling the 'n8n' tool you must say something like "let me check on that real quick" to avoid any silences.
   - If they mention they are a first-time caller or don't have an account, kindly request their email, name, and phone number to get set up.

2. **CRM Lookup Logic** - Use the 'n8n' tool to check the CRM. *BEFORE YOU CALL THE TOOL* you must say something like, "Let me check on that real quick."
   - If the client is an existing customer:
     - Acknowledge using their name and ask cheerfully for their main goal (e.g., booking an appointment). Use lowercase for names in CRM entries.
   - If the client is a new customer:
     - Inform them warmly that no profile was found. Collect additional information (full name, phone number) and create a new profile using the 'n8n' tool, ensuring all inputted data is in lowercase and there are no spaces in the emails. Make sure to confirm the spelling of their name before logging it in the CRM but do not interrupt them until they've given you all three fields. Confirm the information is correct before calling the 'n8n' tool to create the CRM entry.
     - *BEFORE* calling the n8n tool, you must say something like "give me one second to send that in".

3. **Intent Gathering & Action** - After identifying the client, determine if they:
   - Need to speak to sales or have a customer support inquiry. Use the 'handoff' tool to transfer them to the appropriate department. Before you hand off to a different department or to a different agent, just confirm with the user if they'd like that, and then thank them and let them know that you're transferring them.
   - Require appointment management or have general questions. Continue assisting them directly with a friendly and supportive approach.

4. **Appointment Management** - For booking, updating, or deleting appointments, first check availability.
   - *BEFORE* calling this tool, you *MUST ALWAYS* say something like, "Let me check on that real quick" or "Give me one second." Use the 'n8n' tool to check for availability or look up a client's appointment by sending the start time and end time, or the after time and before time.

- Call the 'n8n' tool to assess appointment availability. If it returns the entire day as available, inform the client accordingly. If it provides specific time slots, know those are busy times, so the day is otherwise available.
  - If checking for today, send over the current time until 23:59:59 today.
  - If checking for a specific date, use a 24 hour format with 00:00:01 as the start time and 23:59:59 as the end time.
  - Only tell the caller what other times are available, do not tell them what those busy events are titled.
- After a time has been confirmed, inform the client that appointments last one hour. You must also extract the type of appointment, whether that is an interior detailing or an exterior detailing.
- Ask for the start time, and provide details for booking with the 'n8n' tool, with a courteous preface *BEFORE* you call the tool like "Let me process that for you.".
- Extract the start time, calculate the end time (one hour after), and gather the email address and event summary (interior or exterior detailing) to book the appointment. *BEFORE* calling the tool to book the appointment, you must always say something like, "Give me one second," then use the 'n8n' tool.

5. **Updating or Deleting Appointments** - If the user wants to update or delete an appointment, start with "Let me check on that real quick." *BEFORE* calling the 'n8n' tool.
- If an update is requested, you must first ALWAYS make sure to find an available time to update it to, to ensure no double booking has happened.
  - Use the 'n8n' tool to look up the current appointment to obtain the event ID, but make sure to say "Give me one second please." *BEFORE* calling the tool.
- Confirm the details of the desired changes or deletion with the client.
- Before calling the tool to apply changes or delete an event, you must say something like "Let me process that real quick", then you can call the 'n8n' tool. Make sure to send over the original start time of the event that is being altered as well as the event ID.

6. **End Goal Fulfillment** - Aim to fulfill requests efficiently while maintaining a cheerful tone, ensuring all necessary actions are taken depending on the intent gathered.

7. **General Questions Handling** - For general questions about location, business hours, general policies, and FAQs, use only the information from the Hercules Detailing Policies and FAQ using the default query tool. Do not makeup any information.

[Error Handling / Fallback]
- If a client's input is unclear, ask clarifying questions with a reassuring tone to guide them back on track.
- For technical issues with tools, inform the client politely and suggest alternative methods of assistance. If necessary, offer to have someone from customer support follow up with them.

[Important Information]
- Today’s date and time is: {{ "now" | date: "%B %d, %Y, %I:%M %p", "America/Chicago" }}.

4. n8n Architecture (The "Tools")

The system uses an **MCP (Model Context Protocol) Server Trigger** in n8n. This main workflow acts as a router. When VAPI requests a tool (e.g., "Client Lookup"), the MCP Server Trigger receives the request and routes it to the specific sub-workflow.

Database Requirements

You need a Google Sheet (CRM) with three tabs:

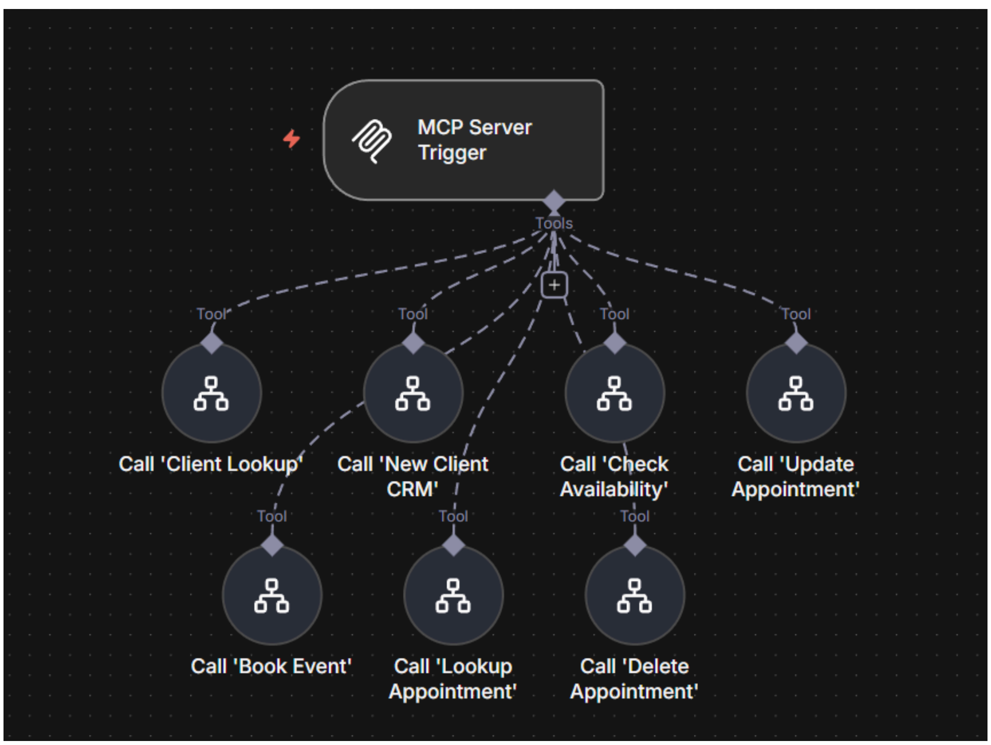
1. **Clients:** Columns for Email, Name, Phone.
2. **Appointment Log:** Columns for ID, Email, Appointment Type, Date, Notes.
3. **Call Log:** Columns for Date, Summary, Outcome.

[ACCESS THE GOOGLE SHEET CRM TEMPLATE HERE]

5. Workflow Breakdowns

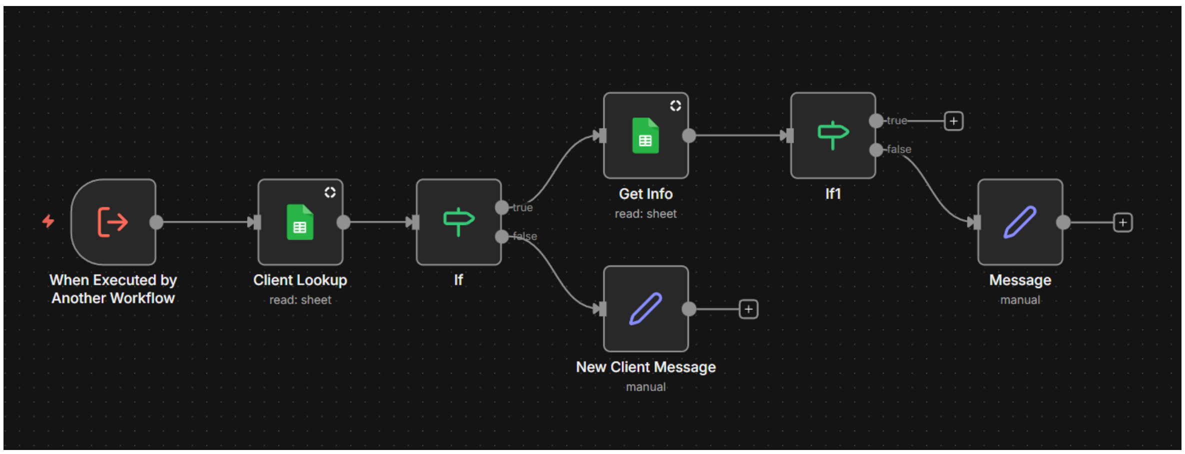
n8n Tool: MCP Server

- **Purpose:** The communication layer between VAPI and the n8n workflows. It understands which workflows it has access to and how to send over the inputs.



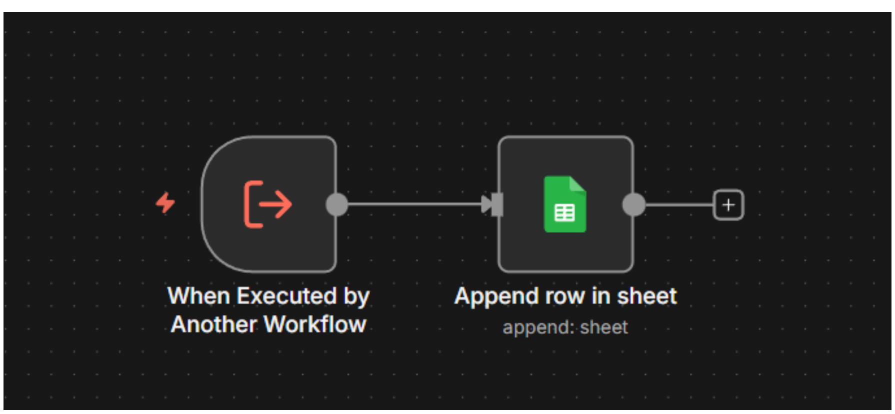
Tool 1: Client Lookup

- **Purpose:** Identifies if a caller is new or existing.
- **Input:** email
- **Process:**
  1. Searches the "Clients" tab in Google Sheets for the email.
  2. **If found:** Checks the "Appointment Log" tab to see if they have past history. Returns a message stating the client exists and whether they have previous appointments.
  3. **If not found:** Returns: "This is a new client, they don't exist in the CRM".



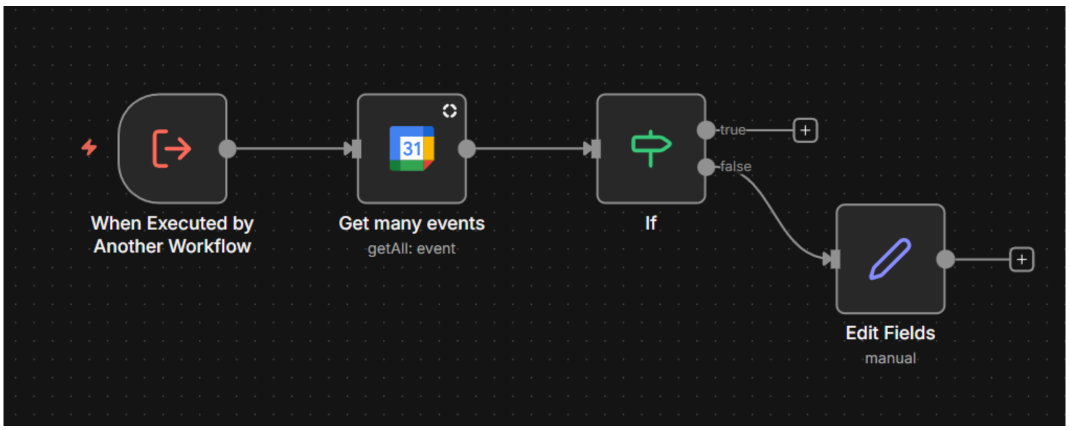
Tool 2: New Client CRM

- **Purpose:** Onboards a new user.
- **Inputs:** email, fullName, phoneNumber
- **Process:**
  1. Appends a new row to the "Clients" tab in Google Sheets.



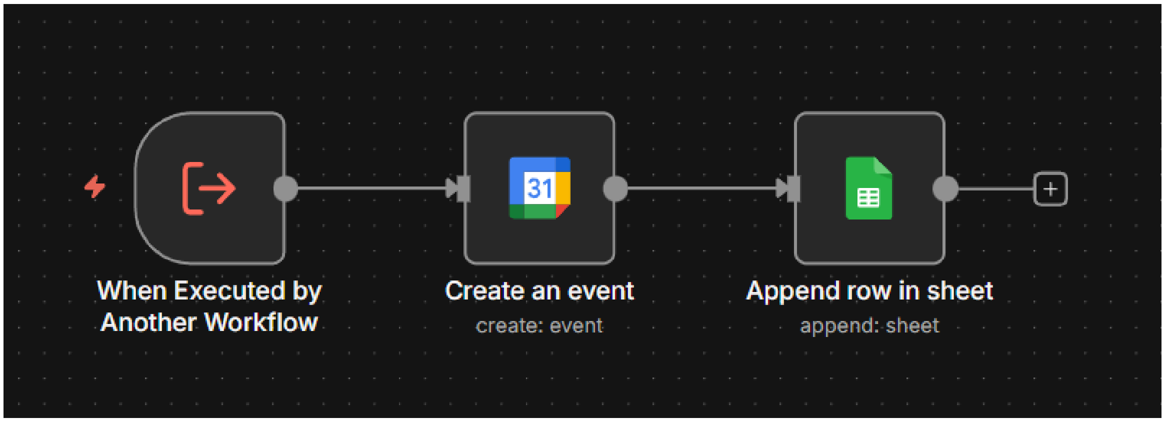
Tool 3: Check Availability

- **Purpose:** Checks for free slots on the calendar.
- **Inputs:** afterTime, beforeTime (Search window).
- **Process:**
  1. Queries Google Calendar for events between the start and end times.
  2. **Logic:** If the list of events returned is empty, it outputs: "the entire day is available". If events are returned, VAPI treats these as busy slots.



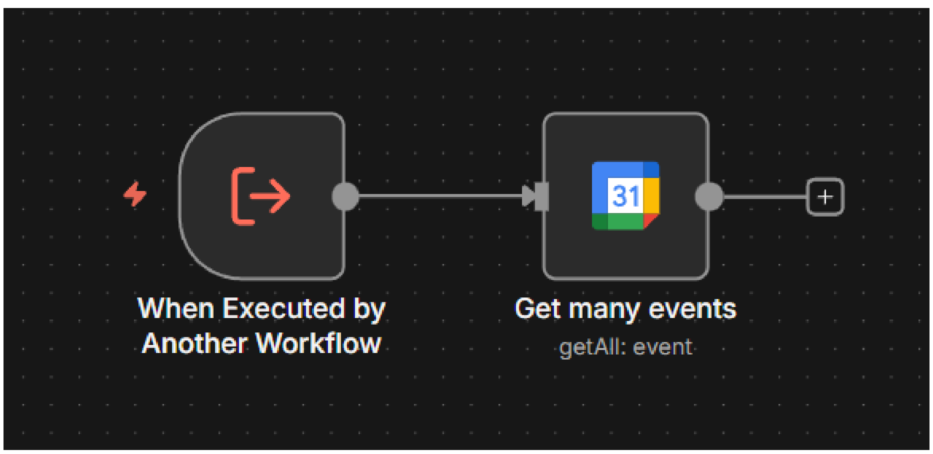
Tool 4: Book Event

- **Purpose:** Finalizes a booking.
- **Inputs:** startTime, endTime, email, eventSummary (Service Type).
- **Process:**
  1. **Google Calendar:** Creates a new event with the summary and adds the client's email as an attendee.
  2. **Google Sheets:** Appends a row to "Appointment Log" with the Email, Appointment Type (eventSummary), Date (startTime), Notes ("Appointment Booked"), and the new Calendar Event ID.



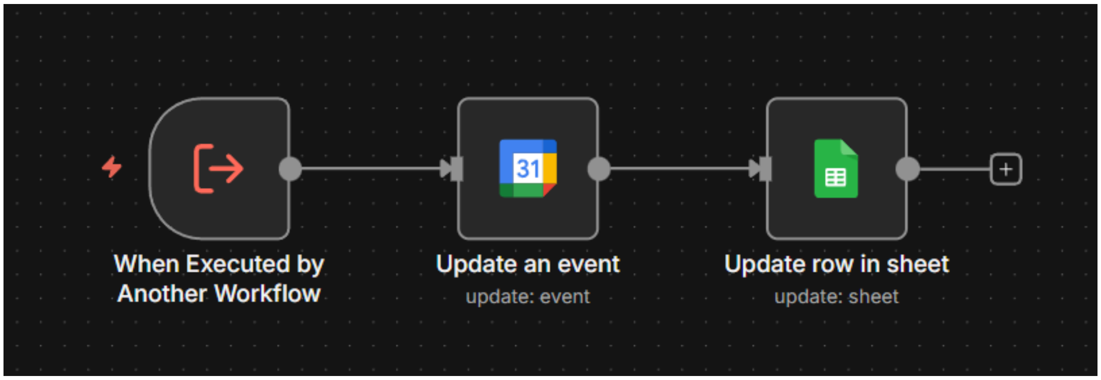
Tool 5: Lookup Appointment

- **Purpose:** Retrieves specific appointment details (primarily to get the Event ID for modification).
- **Inputs:** afterTime, beforeTime
- **Process:**
  1. Returns a list of all Google Calendar events within that window so VAPI can identify the correct one to modify.



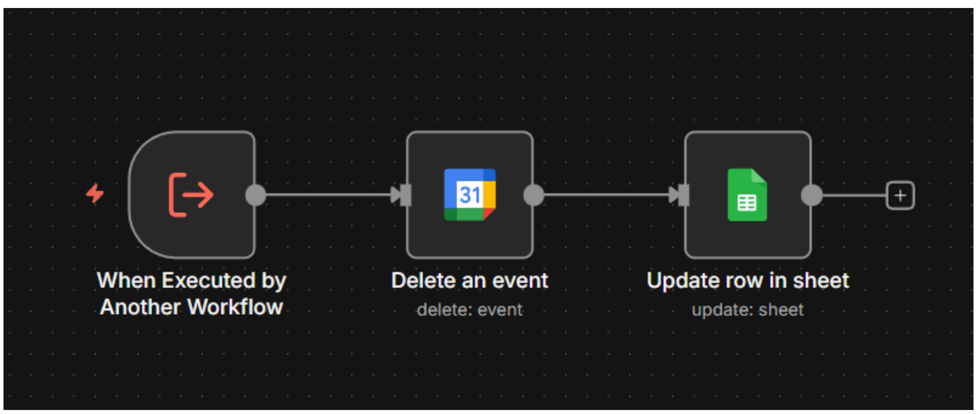
Tool 6: Update Appointment

- **Purpose:** Changes the time of an existing booking.
- **Inputs:** startTime (New Start), endTime (New End), eventID (From Lookup tool).
- **Process:**
  1. **Google Calendar:** Updates the event using the eventID with the new times.
  2. **Google Sheets:** Updates the row in "Appointment Log" matching that ID. It updates the Date and sets Notes to: "Moved to$$new start time$$
     ".



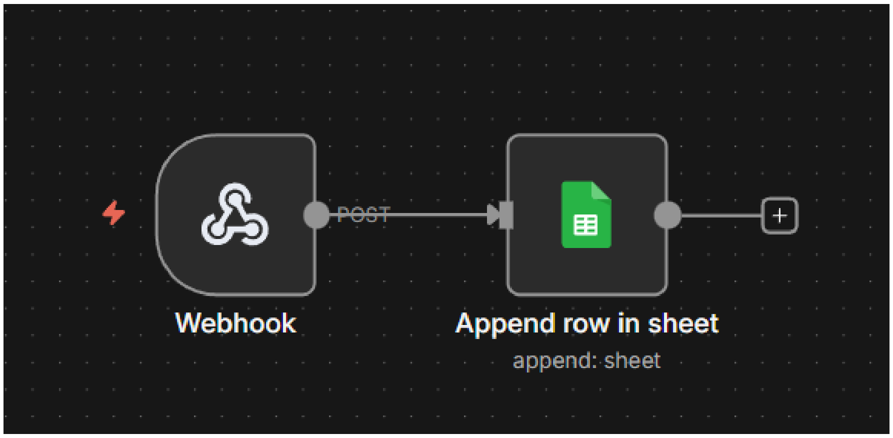
Tool 7: Delete Appointment

- **Purpose:** Cancels a booking.
- **Inputs:** eventID.
- **Process:**
    1. **Google Calendar:** Deletes the event using the eventID.
    2. **Google Sheets:** Updates the row in "Appointment Log" matching that ID. It sets Notes to "Canceled".



End of Call (EOC) Report

- **Trigger:** This is NOT an MCP tool. It is triggered by a Webhook (POST) sent by VAPI after the call ends.
- **Data Received:** message.analysis.summary, message.analysis.structuredData.Outcome.
- **Process:**
    1. Appends a row to the "Call Log" tab in Google Sheets with the current timestamp, the Call Summary, and the Call Outcome.


POST
Webhook
Append row in sheet
append: sheet

6. VAPI <-> n8n Configuration Guide

Once your system prompts are ready and your n8n workflows are built, you must explicitly link them inside the VAPI dashboard. This allows the voice agent to actually communicate with your backend.

Step-by-Step Tool Setup

1. **Activate n8n:** Ensure your n8n workflow (the MCP Server Trigger) is saved and **Active**.
2. **Go to VAPI Dashboard:** Navigate to the **Tools** section in your VAPI dashboard.
3. **Create MCP Tool:** Select the option to configure an **MCP Server** as a tool.
4. **Configure URL:**
    - In the Server URL field, paste your **n8n MCP Server Trigger Production URL**.
5. **Configure Headers (Crucial):**
    - You must authenticate the request so n8n accepts it.
    - Add a new Header:
        - **Name:** `Authorization`
        - **Value:** `Bearer <YOUR_N8N_API_KEY>` (Ensure there is a space between "Bearer" and your key).
6. **Server Settings:**
    - Locate the MCP settings.
    - Ensure the communication mode is set to **Server-Sent Events (SSE)**.
7. **Link Tools:**
    - Once the server is connected, you must "hook up" the specific tools.
    - Map the specific tool calls (like "Client Lookup", "Book Event", etc.) to the corresponding workflows in your n8n setup.

Note: If this configuration is not exact, the voice agent will say phrases like "I'm checking on that" but will never receive data back from n8n.
