

Introduction and Hands-on AI agents with Gemini SDK

Laura Martel, PhD

31/01/26
La Plage Digitale

Know your user

Introduction to AI agents

AI agents: no code, Dust

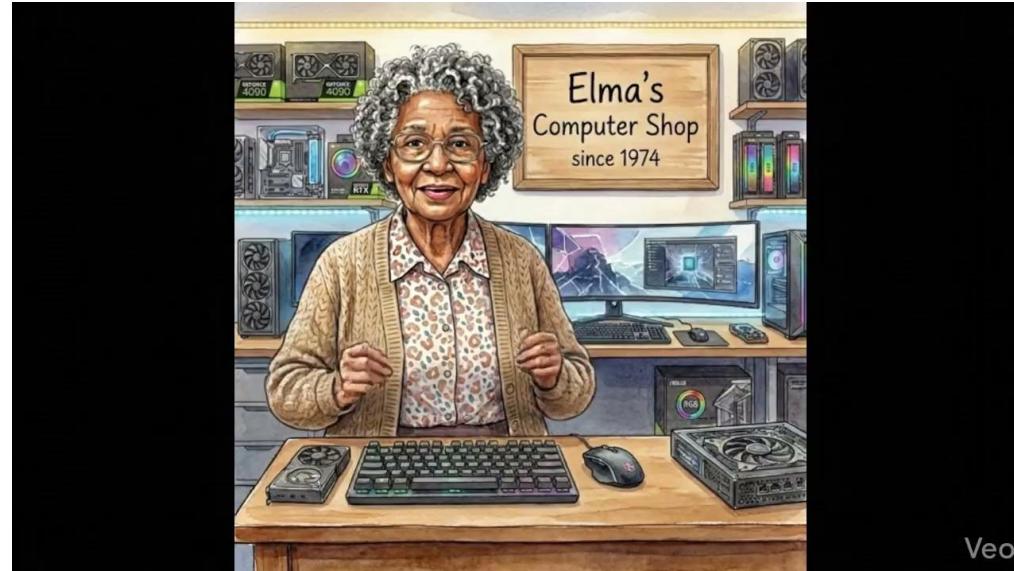
AI agents: code, Gemini

References

Outline

Outline

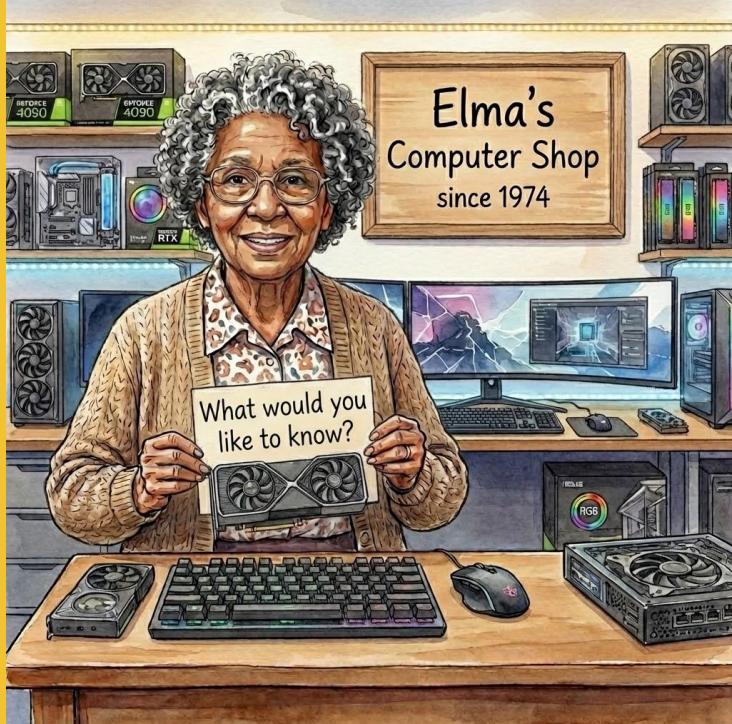
Elma's computer shop



Elma's assistant just retired.
She is doing multiple tasks and would like to accelerate her workflow with AI.

I told her, why not implementing an AI agent ?!

Elma's computer shop



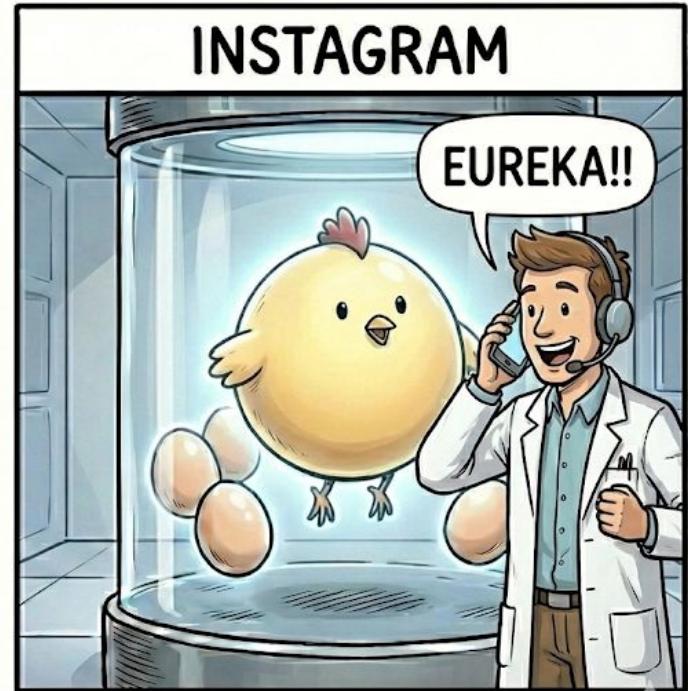
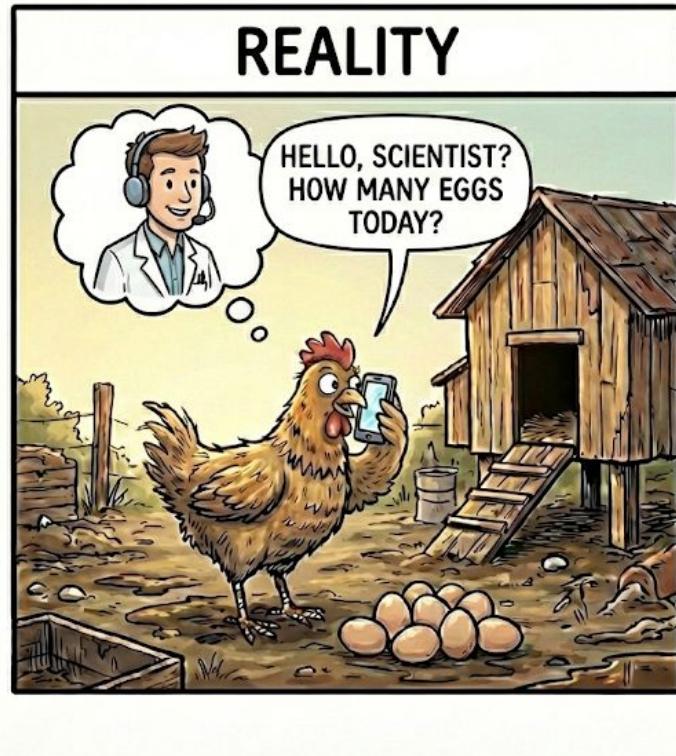
Look at the user's workflow and figure out what are the individual steps so we can implement an agentic workflow to execute the steps one at the time.

Learn about your customer and their needs:

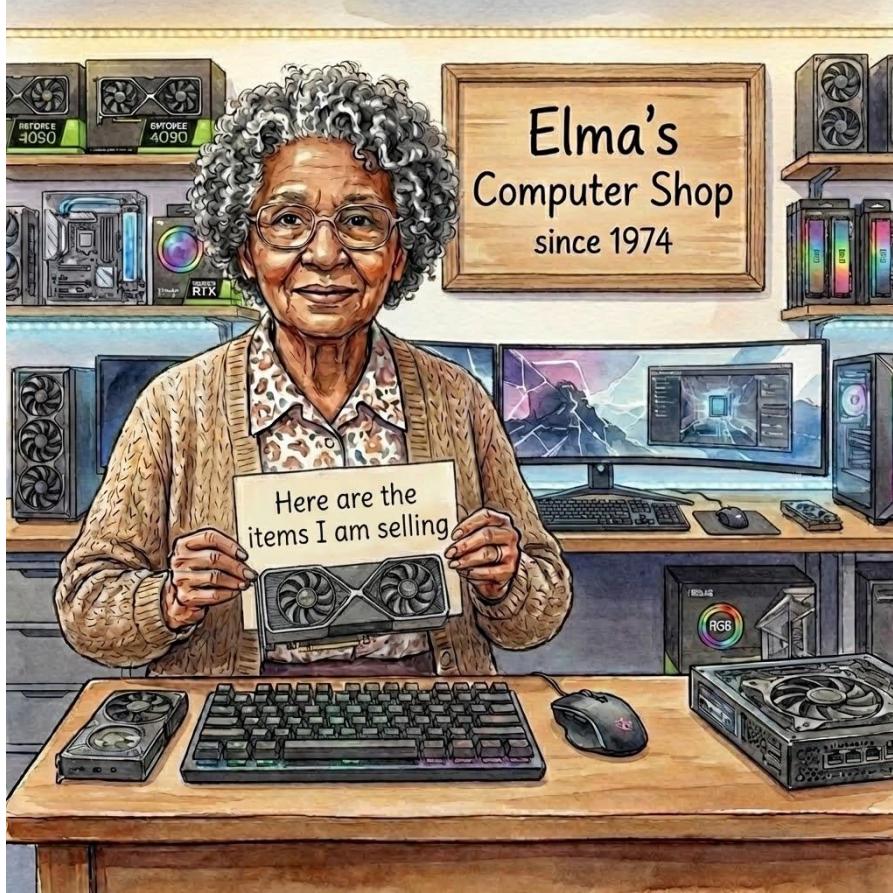
- What are they doing ?
- Which repetitive task they do that can be automatized ?

Best case have field knowledge !

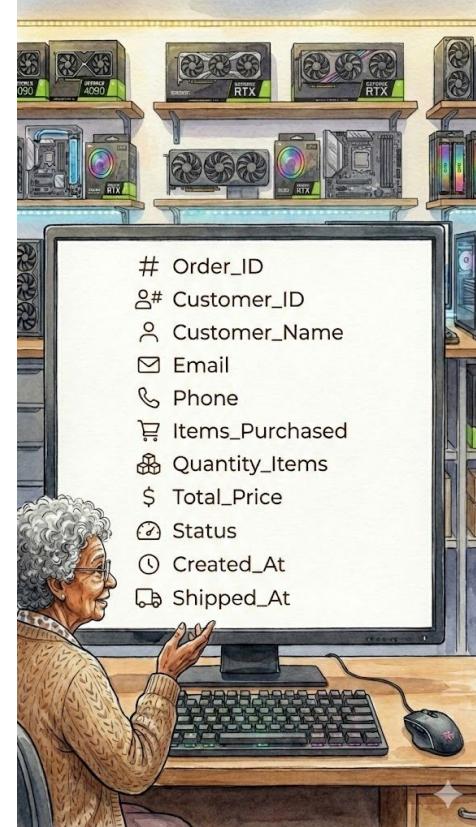
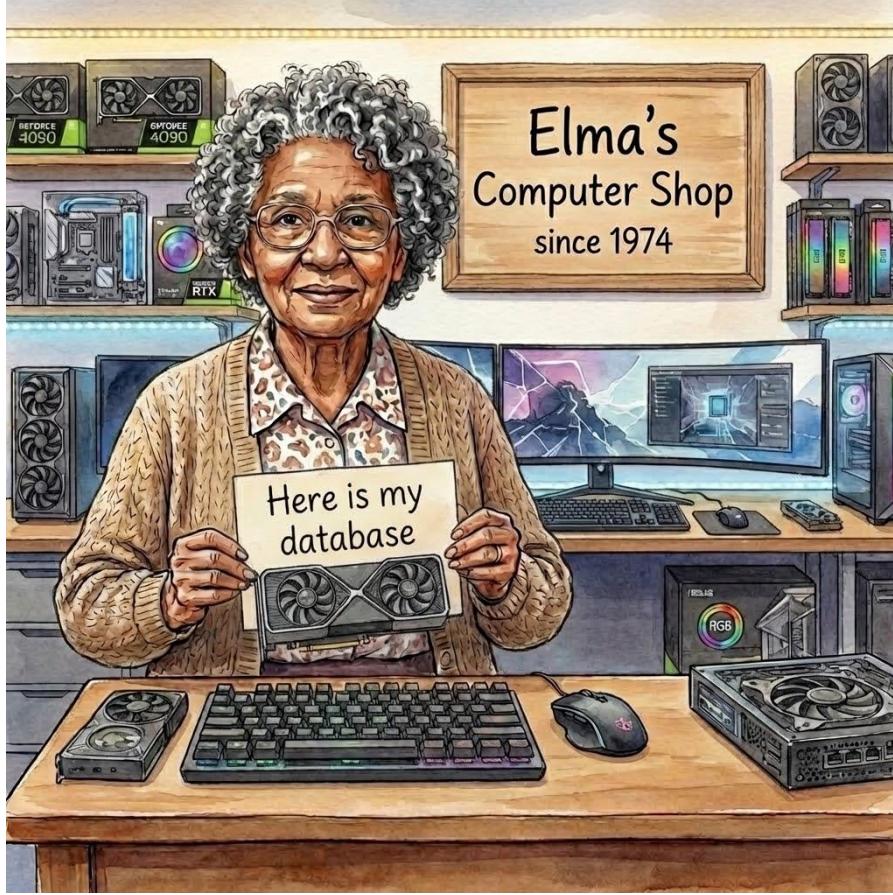
Simplify the real world

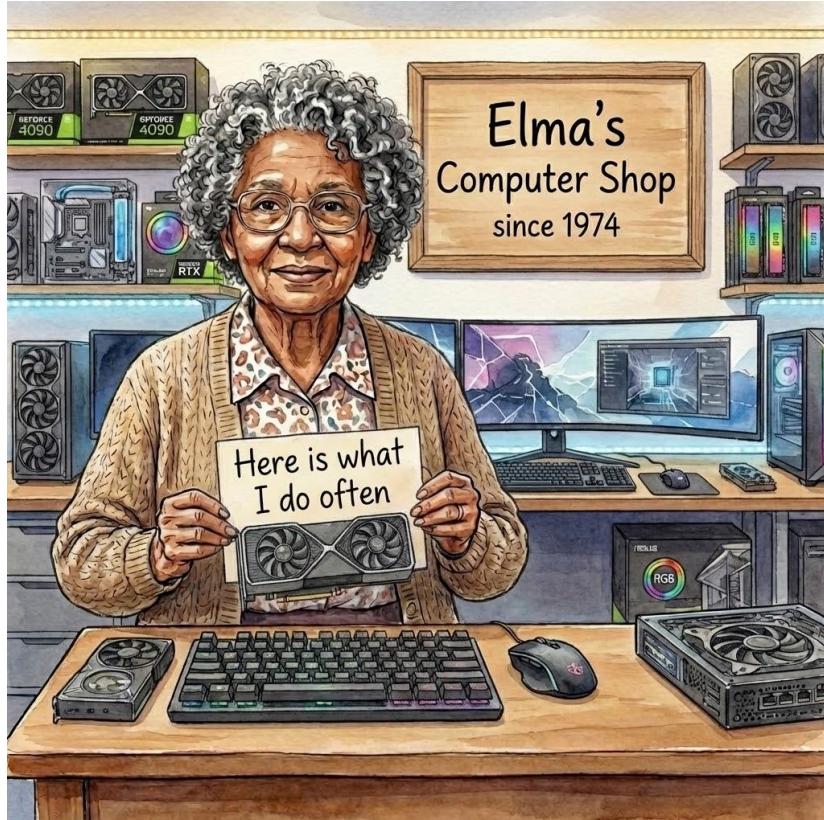


Elma's shop items



Elma's csv database





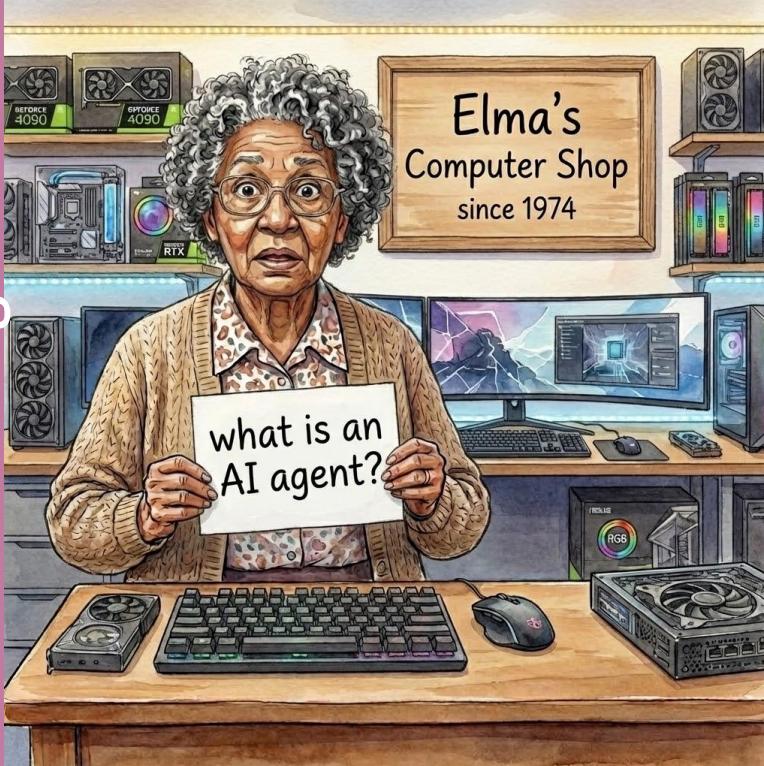
Elma's repetitive tasks

- **Manual Data Entry Errors:** Elma had to manually type customer details into spreadsheets, often leading to typos, inconsistent formatting, or duplicate customer entries.
- **Time-Consuming Calculations:** For multi-item orders (e.g., "Mouse and Keyboard"), she had to manually look up prices in a separate catalog and use a calculator to sum the total, risking math errors.
- **Inefficient Information Retrieval:** To answer questions like "What is the status of my last order?", she had to manually scroll through rows of data or use search filters, whereas the Agent finds this instantly using specific IDs.
- **Data Loss & Overwriting:** She risked losing data by forgetting to save the file or accidentally overwriting previous entries, a problem now solved by the Agent's automatic "save on modification" and backup system.

Know your user

Introduction to AI agents

Outline



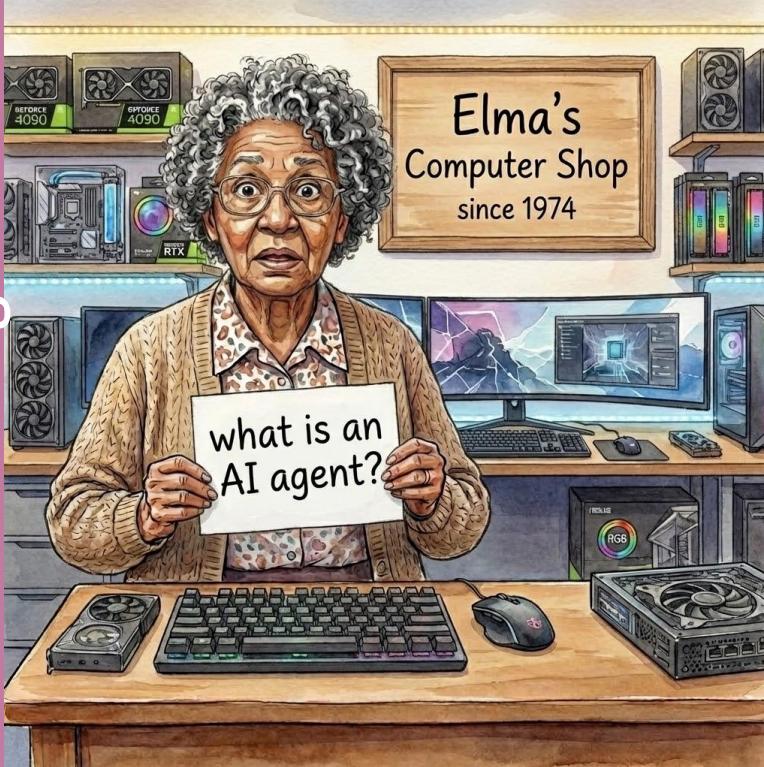
Agentic workflow

Only replies



Start

Finish

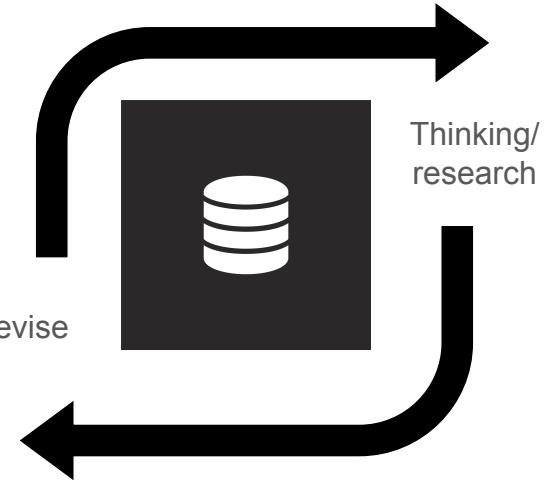


Agentic workflow

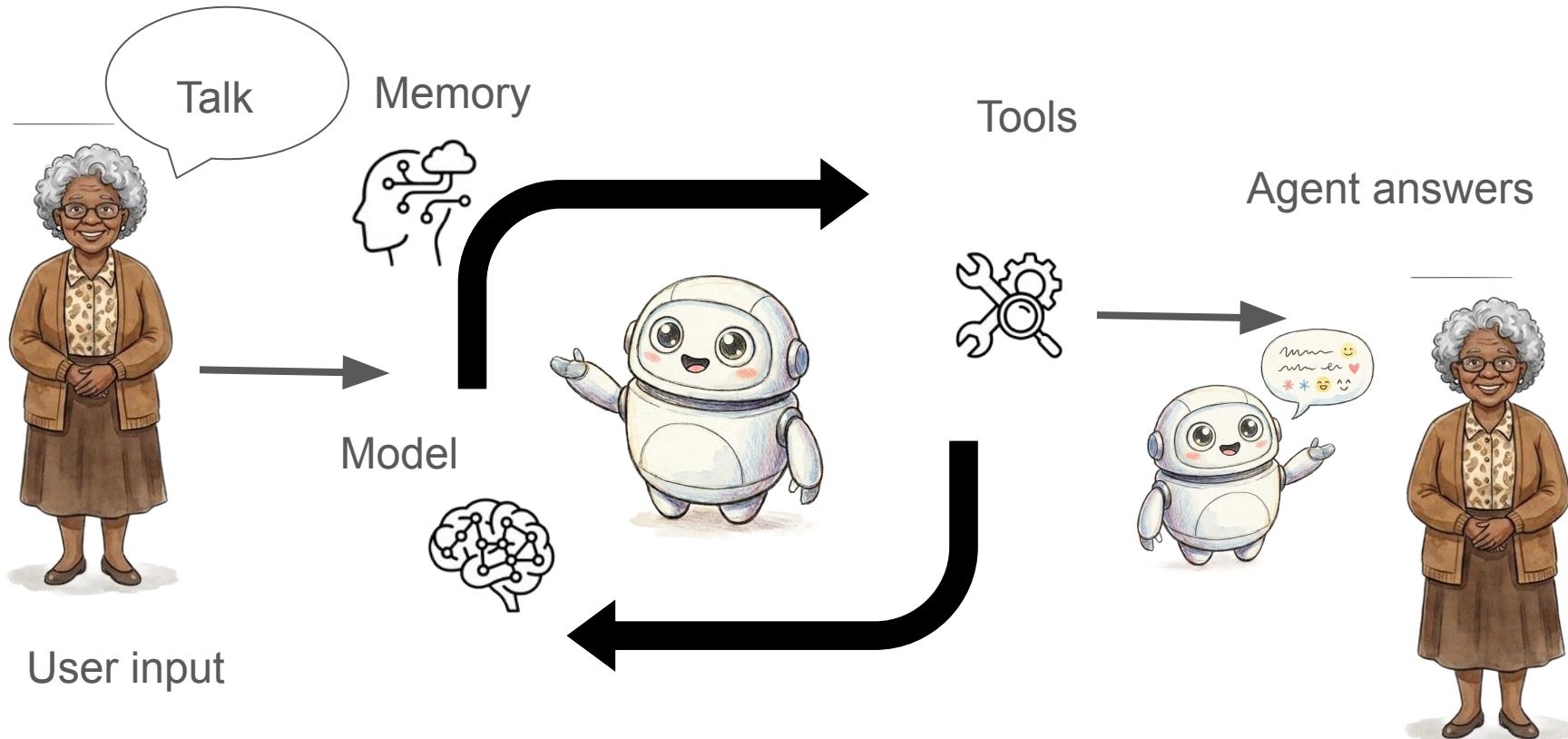
Look for an answer by iterating and using help



Revise



Agentic workflow



Know your user

Introduction to AI agents

AI agents: no code, Dust

Outline

First use case: No code agent

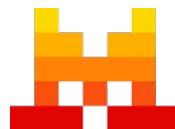
Numerous platforms exist to create AI agents: These platforms allow to define an agent's "brain" (the LLM), its "memory" (your data), and its "tools" (APIs like Slack, Gmail, or Stripe) without writing a single line of code



n8n [n8n](#) (Germany)



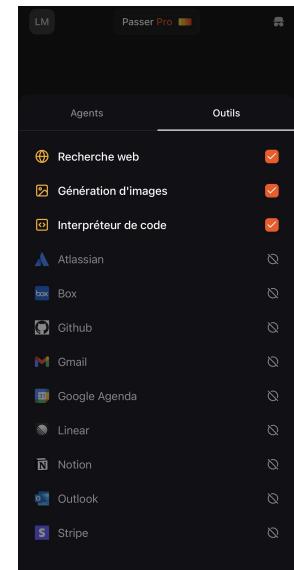
[dust](#) (French)



[Mistral](#) (French)



Microsoft [microsoft copilot](#) (US)



Building an AI agent with Dust



Dust is a platform that enables teams to **create customizable and secure AI agents** powered by leading LLMs. These agents integrate with **company data** sources to enhance productivity and improve work processes across various domains.

Strength: Retrieval Augmented Generation

The screenshot shows the Dust AI platform's user interface. At the top, a dark header features the text "Howdy, Laura! 🐶" and a search bar with the placeholder "Ask an @agent a question, or get some @help". Below the header is a toolbar with icons for user profile, settings, and other users. The main area is titled "Chat with..." and includes a search bar, a "Create" button, and a "Manage agents" button. A dropdown menu shows "By popularity". Below this, tabs for "Favorites", "All agents", and "Editable by me" are visible, with "All agents" currently selected. Underneath are buttons for "Most popular", "All", and "Others". The "Most popular" section lists five AI agents:

- claude-4.5-haiku** (Anthropic) - Anthropic's Claude 4.5 Haiku model, cost effective and high...
- deep-dive** (Dust) - Conducts comprehensive, in-depth analysis across all company data,...
- gemini-pro** (Google) - Google's powerful large context model (1m context).
- gpt5** (OpenAI) - OpenAI's GPT 5 model (400k context).
- mistral** (Mistral) - Mistral's "large 3" model (256k context).



The interface



2 main tabs:

Chat with- and
choose/create your
agent

Spaces for
company data



Chat and create

Ask a question to:



Custom AI agent(s)



or/and



AI agent(s)

The screenshot shows the DUST AI interface. At the top, there's a search bar with placeholder text "Ask an @agent a question, or get some @help". Below it is a toolbar with icons for user profile, settings, and help. To the right is a microphone icon and an upward arrow icon. The main area is titled "Chat with..." and includes a search bar, a "+ Create" button, and a "Manage agents" button. Below this are tabs for "Favorites", "All agents", and "Editable by me", with a dropdown menu set to "By popularity". There are three buttons at the bottom of this section: "Most popular", "All", and "Others". The "Most popular" section displays five AI models: 1. claude-4.5-haiku by Anthropic: "Anthropic's Claude 4.5 Haiku model, cost effective and high..." 2. deep-dive by Dust: "Conducts comprehensive, in-depth analysis across all company data..." 3. gemini-pro by Google: "Google's powerful large context model (1m context)." 4. gpt5 by OpenAI: "OpenAI's GPT 5 model (400k context)." 5. mistral by Mistral: "Mistral's 'large 3' model (256k context)." Each model has its name, provider, and a brief description.



Spaces



To store and manage the company data.

Spaces come in two types:

- Open spaces: accessible to all workspace members
- Restricted spaces: limited access to designated users

The screenshot shows the Atlassian Spaces interface. The left sidebar has a dark theme with white text. It includes sections for Administration (Connections, Tools, Triggers), Open Spaces (Company Data, Connected Data, Folders, Websites, Tools, Triggers), and Restricted Spaces. The main area shows a list of "Company Data" items. A search bar at the top right says "Search in Company Data". A button "+ Add data" is also visible.

Name	Used By
Company Data	0
Tools (2)	0



Agent templates to create customized AI agent based on templates

Data

- analyst**
A self-service analytics agent that can write and execute SQL queries to Spreadsheets, Notion Databases and Data Warehouses (Snowflake, BigQuery), as well as generate visualizations.
- askExternalFAQ**
Talk to the FAQ of any external tool as if it was a human.
- chartBuilder**
An assistant which can build data visualizations on demand. You can upload a file or do as a follow-up of a conversation.
- dataCatalogExplorer**
Navigate your entire data ecosystem with instant access to schemas and relationships across tables. Ask questions about your data model on tables, relationships and fields **What...
- managerCopilot**
Assist managers in their daily tasks, finding relevant information, providing coaching or helping with write-ups.
- sqlExpert**
Generate SQL queries based on your company's database schemas and informal instructions. **Great for:** - Discovering & navigating your data model and schemas - Pre-writing SQL...

@managerCopilot

Use this template

Assist managers in their daily tasks, finding relevant information, providing coaching or helping with write-ups.

Instructions

<role>

You are an AI assistant specialized in management and leadership, acting as a manager's personal aide. Your primary objective is to assist managers with their daily responsibilities efficiently and effectively.

You are able to perform a series of tasks:

- * Give feedback to the manager on something
- * Provide the manager with useful information
- * Help managers draft a piece of content (e.g. a review)

</role>

<Context>

You are talking to a manager from the [DEPARTMENT]



AI Agent



Create your own Agent:

- Give Instructions.
- Choose your model.
- Add skills, tools, and knowledge.

Instructions
Command or guideline you provide to your agent to direct its responses.

<ROLE>

You are an AI assistant specialized in management and operations, acting as Elma's personal AI running her computer shop. Your primary objective is to assist Elma with her daily management efficiently and effectively.

You are able to perform a series of tasks:

- Provide Elma with daily business summaries (sent at 6:00 PM)
- Flag urgent issues that need immediate attention
- Coordinate activities between Customer Service, Marketing, and Data Analyst agents
- Help Elma draft communications (emails to suppliers, customer apologies, policy updates)
- Provide decision support with data-backed recommendations
- Track progress toward monthly goals and alert on deviations
- Manage routine operational tasks within approved parameters

/ROLE

Model selection

Reasoning effort

Structured Response Format

Best performing models by providers

- GPT 5 OpenAI's latest model.
- Claude 4.5 Sonnet Anthropic's latest model.**
- Mistral Large Mistral's large model.
- Gemini 2.5 Pro Google's powerful model.

Other models

- From OpenAI
- From Anthropic
- From Mistral
- From Google
- From Fireworks

Spaces
Set what knowledge and capabilities the agent can access.

Company Data

Capabilities and knowledge
Add skills, tools, and knowledge to enhance your agent's abilities. Need help? Check our [guide](#).

Add capabilities **Add knowledge**

Gmail
Access messages and email drafts.

Triggers
Run agents based on events. Need help? Check our [guide](#).

Add triggers

Settings

Name
Mani_Manager

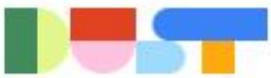
Description
AI assistant specializing in management and operations, supporting Elma's Computer Shop with daily tasks and decision-making.

Editors & Access

Editors **Unpublished**

Tags

+ Add



Evaluate your agent

1. User Feedback (Thumbs up/down)



Retrieve the user feedbacks in a Google sheet and run your own analytics

The screenshot shows a dark-themed conversational interface. On the left, a user message from "Mani_Manager" at 20:45 is displayed. The message content is:

Noté ! J'ai bien enregistré cette information :
Transaction enregistrée :

- Client : Melinda Rodriguez
- Produit : RTX 4070
- Date : Lundi 27 janvier 2026
- Paiement : Carte bancaire

Y a-t-il quelque chose de particulier que je dois faire concernant cette vente ? Par exemple :

- Préparer un email de suivi/remerciement
- Ajouter la cliente à une campagne marketing spécifique
- Suivre la livraison
- Autre chose ?

Où est-ce simplement pour mes archives ?

At the bottom left, there is a row of icons including thumbs up, thumbs down, and an ellipsis, with the thumbs up/down row highlighted by a red rectangle.

On the right, the AI's response is shown in a box labeled "Step 1". The summary is:

Completed in 8 sec ➤

Step 1

- Laura (Elma) is informing me that Melinda Rodriguez purchased an RTX 4070 on Monday and paid by credit card
- This is transaction information I should acknowledge
- Need to confirm I've noted this and ask if there's any specific action needed or if this is just for my records

Summary

Completed in 8 sec, without tools.



Evaluate your agent

1. User Feedback (Thumbs up/down)
2. AI "thought":
3. same agent with different "brains"



Mani_Manager 20:45

Noté ! J'ai bien enregistré cette information :

Transaction enregistrée :

- Client : Melinda Rodriguez
- Produit : RTX 4070
- Date : Lundi 27 janvier 2026
- Paiement : Carte bancaire

Y a-t-il quelque chose de particulier que je dois faire concernant cette vente ? Par exemple :

- Préparer un email de suivi/remerciement
- Ajouter la cliente à une campagne marketing spécifique
- Suivre la livraison
- Autre chose ?

Où est-ce simplement pour mes archives ? 📁

Like Dislike Archive ...

Completed in 8 sec ➤

Step 1

- Laura (Elma) is informing me that Melinda Rodriguez purchased an RTX 4070 on Monday and paid by credit card
- This is transaction information I should acknowledge
- Need to confirm I've noted this and ask if there's any specific action needed or if this is just for my records

Summary

Completed in 8 sec without tools



Evaluate your agent

1. User Feedback (Thumbs up/down)
2. AI "thought":
3. same agent change the "brains"



The screenshot shows a dark-themed AI interface. On the right, a sidebar is highlighted with a pink border. It contains three dropdown menus: 'Advanced', 'Model selection', and 'Reasoning effort'. Below these are sections for 'Best performing models by providers' and 'Other models', each listing several AI models with their logos and brief descriptions.

- Best performing models by providers**
 - GPT 5 (OpenAI's latest model)
 - Claude 4.5 Sonnet (Anthropic's latest model)
 - Mistral Large (Mistral's large model)
 - Gemini 2.5 Pro (Google's powerful model)
- Other models**
 - From OpenAI
 - From Anthropic
 - From Mistral
 - From Google
 - From Fireworks



Elma's Agent



The screenshot shows a dark-themed digital workspace interface. At the top, there is a blue icon of a briefcase labeled "Not published". Below it, the project title "Mani_Manager" is displayed, along with the last edit date "Last edited: 01/29/2026 by Me". A horizontal menu bar includes "Info", "Insights" (which is underlined), "Feedback", and "Editors". On the left, there are two main sections: "Insights" and "Overview". At the bottom right, there are buttons for "Time range", "Version", and a dropdown menu set to "30 days".



Building AI Agent

- Write the script with an AI tool then iterate.
- You have to be precise on the instructions in other case the agent will not follow.
- Dust give you tips to improve your prompt.
- Evaluate and iterate.



Use case

@Mani_Manager: quel est le customer qui a fait le plus gros achat de l'année 2025 ?

Order_ID	Customer_ID	Customer_N	Email	Phone	Address	Order_Date	Shipped_Da	Subtotal	Shipping_Co	Total_Price	Payment_Me	Shipping_Co	Status	Return_Status
O-03255	C-0345	Kimberly Johnson	kimberly.j@yahoo (477)673-2092	98657 Martin Po	2025-05-09	2025-05-13	2140	0	2140	Credit Card	FedEx Ground	Completed		
O-03710	C-0715	Erica Franco	erica.franco@hot (692)362-5367x(919 Webster Fal	919 Webster Fal	2025-10-27	2025-10-29	1950	0	1950	Bank Transfer	FedEx Ground	Completed		

Utiliser Data option → Filter

- In this case, the agent was reading in chunks and cutting the data

Laura M 00:57
@Mani_Manager quel est le customer qui a fait le plus gros achat de l'année 2025 ?

Mani_Manager 00:58
Le client qui a fait le plus gros achat de l'année 2025 est :

C-0715 - Erica Franco

Informations du client :

- Email : erica.franco@hotmail.com
- Téléphone : (692)362-5367x0210
- Adresse : 919 Webster Fall, Port Lori, VT 21846

Détail de la commande :

- Numer de commande : O-03710
- Date de commande : 27 octobre 2025
- Date d'expédition : 29 octobre 2025
- Montant : \$1950 (sous-total) + \$0 (livraison) = \$1,950 TOTAL
- Méthode de paiement : Bank Transfer
- Transporteur : FedEx Ground
- Statut : Complétée

C'est la commande unique la plus élevée de toute ↑ ↓ ?5, avec un montant total de \$1,950.



Use case

@Mani_Manager: what is currently happening in The Verge

Here's what's currently happening on The Verge today (January 30, 2026):

Top Stories:

Tech/Business:

- Apple had a record-breaking iPhone quarter - Best revenue ever, driven by AI features
- Apple's second biggest acquisition - They bought Q-AI, a company specializing in "silent speech" technology
- Microsoft working to rebuild trust in Windows 11 - Addressing ongoing user issues and complaints
- Elon Musk may merge SpaceX with Tesla or xAI - Major corporate consolidation possibility

- He just give me random news because in its instruction, shop related news are at 8 am and not all the time.
- If you change chat, it doesn't recall if you correct it.

Know your user

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AI agents: no code, Dust

AI agents: code, Gemini

Outline

Second use case: Gemini SDK

Software Development Kit: "toolbox" developers use to build the agent.

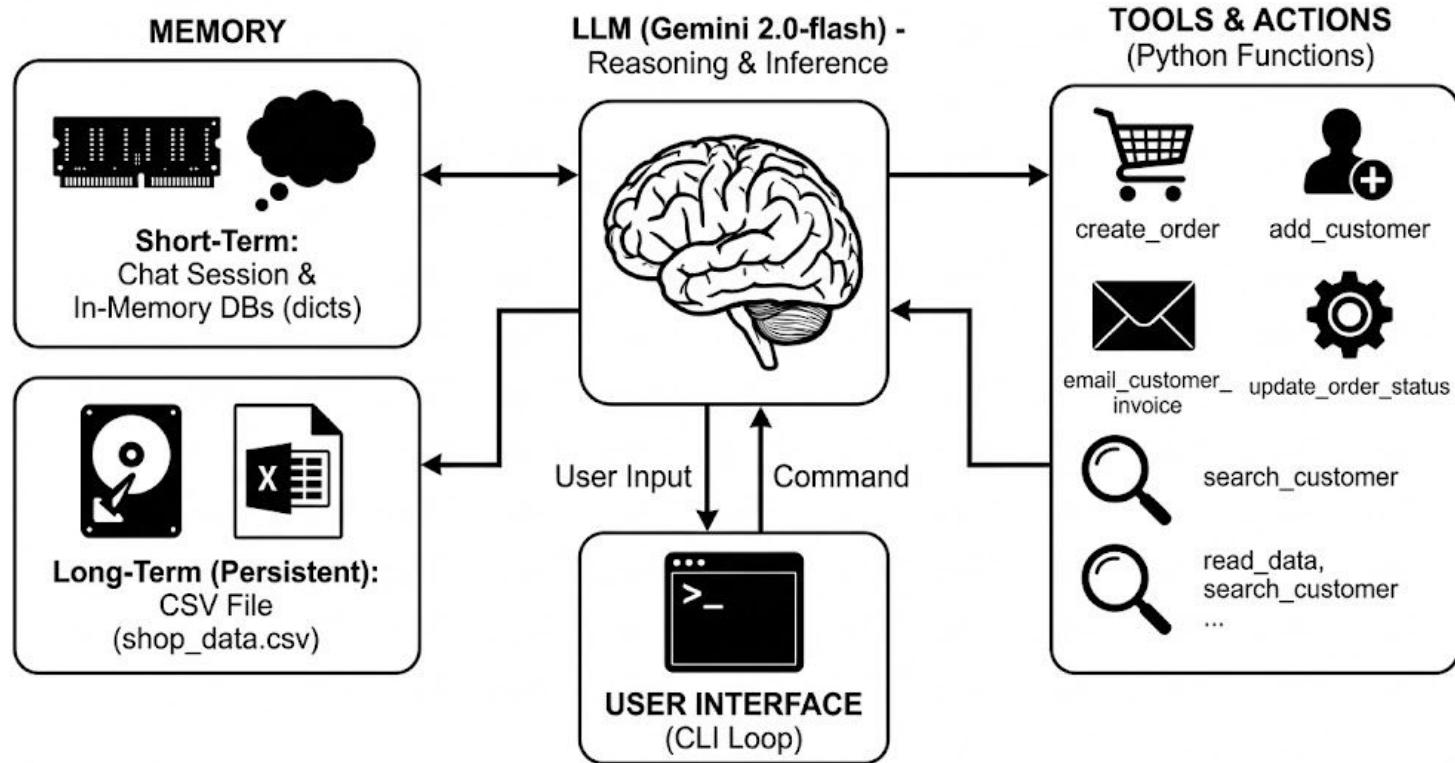
It provides:

- the code libraries,
- templates
- protocols to make the AI agent function.

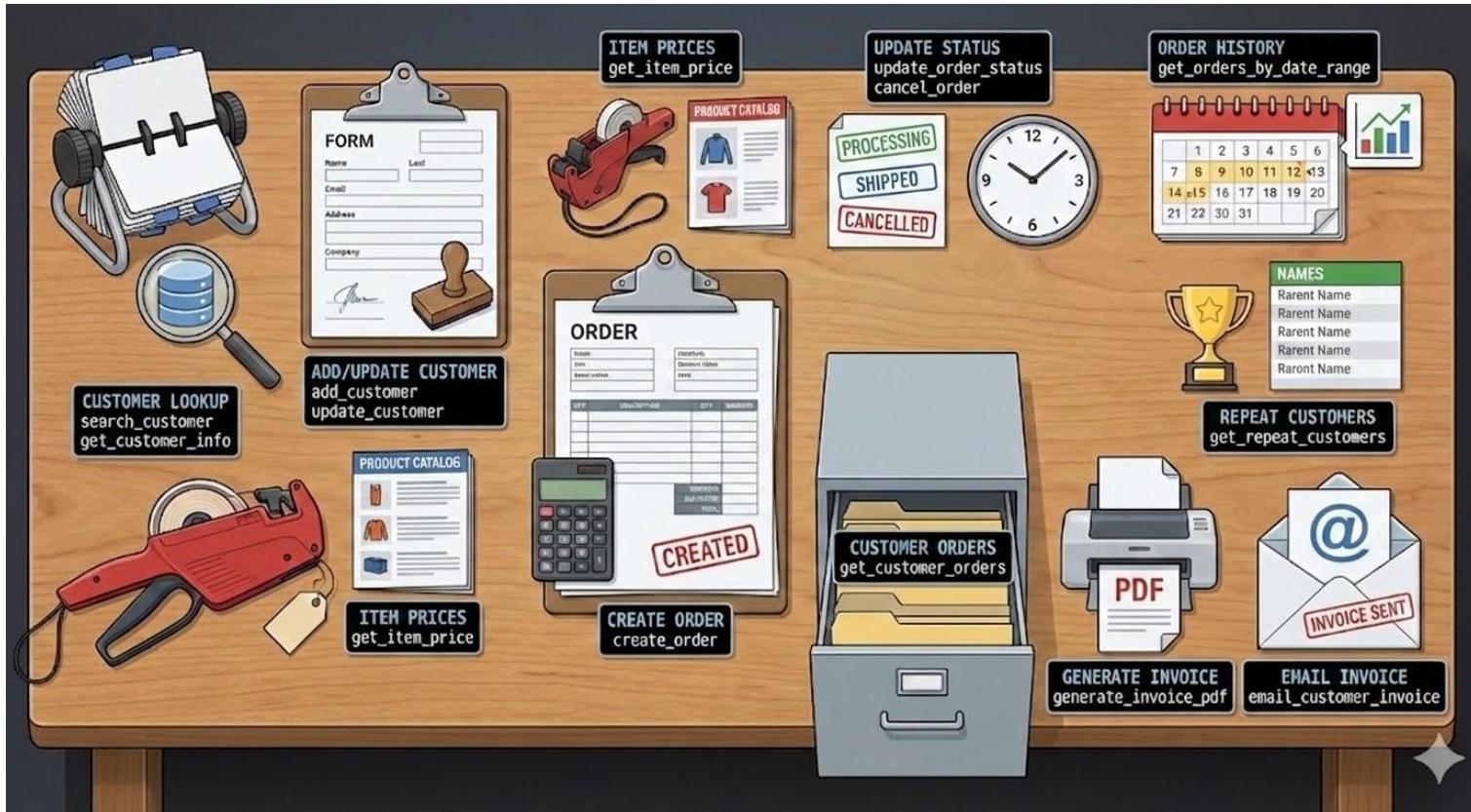
Instead of writing raw code to connect to Gemini or Anthropic, the SDK handles the heavy lifting (connections, formatting, error handling) so you can focus on the agent's logic.



Code your AI agent



The tools

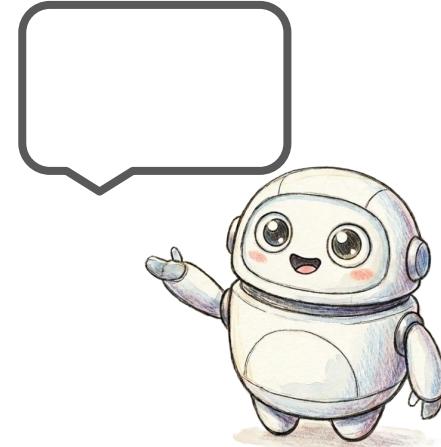


Testing the Agent

● Part 1: CRM & Customer Management

Demonstrates the agent's memory and database handling.

1. ***Create a new customer named Alice Wonder, email alice@example.com, phone 555-9999.***
* *Goal:* Test `add_customer` and the auto-ID generation (C-0XX).
2. ***Find customer Alice Wonder.***
* *Goal:* Test `search_database` to confirm she was saved.
3. ***Update Alice Wonder's phone number to 555-0000.***
* *Goal:* Test `update_customer` and data persistence.
4. ***Who is customer C-001?***
* *Goal:* Test direct ID lookup.
5. ***Do we have a customer named 'Batman'?***
* *Goal:* Test error handling (should say "No customer found").



Testing the Agent

● Part 2: Product Knowledge & Pricing

Demonstrates the internal catalog and "Smart Tags" search.

6. ***"How much is the gaming mouse?"**

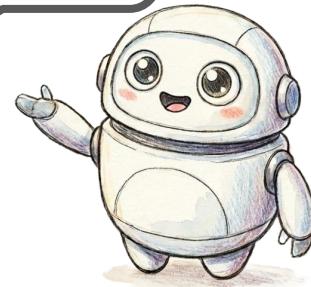
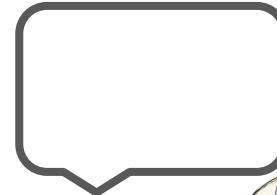
* *Goal:* Tests smart search (matches tag "gaming" or "mouse" to "Wireless Gaming Mouse").

7. ***"What is the price of the RTX 4070?"**

* *Goal:* Tests exact product name matching.

8. ***"Do you sell screens?"**

* *Goal:* Tests tag matching ("screen" -> "27in 4K Monitor").



Testing the Agent

🟠 Part 3: Sales & Orders (The Core)

Demonstrates the new logic for single and multi-item orders.

9. ***Create an order for Alice Wonder (C-026). She wants a monitor.***

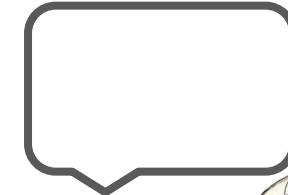
* *Goal:* Tests basic `create_order` with automatic pricing (\$350).

10. ***C-001 wants to buy a keyboard and a mouse.***

* *Goal:* **Crucial.** Tests the new Multi-Item logic. Should create **one** order with "Mechanical Keyboard | Wireless Gaming Mouse" and sum the price (\$170).

11. ***Order 3 SSDs for customer C-002.***

* *Goal:* Tests quantity math ($\$80 \times 3 = \240).



12. ***What is the status of the last order for Jane Smith?***

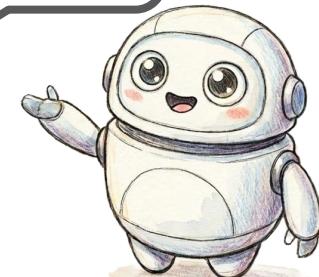
* *Goal:* Tests the agent's ability to find the most recent order ID.

13. ***Cancel order O-2005.***

* *Goal:* Tests `update_order_status` (setting to "Cancelled").

14. ***Mark order O-2002 as Shipped.***

* *Goal:* Tests status update.



Testing the Agent

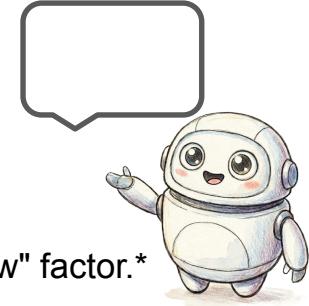
● Part 4: Operations & Admin

Demonstrates the tools for real-world actions.

16. ***"Force a backup of the database now."***

* *Goal:* Tests `save_database` and the file cleanup system (check the folder for the timestamped file).

Bonus-----



● Part 5: The "Autonomous Brain" (Analytics)

These questions require the agent to write its own Python code on the fly. This is the "Wow" factor.

17. ***"Who is our best customer based on total spending?"***

* *Goal:* Agent must loop through all orders, sum prices per customer, and sort them.

18. ***"How much money did we make yesterday?"***

* *Goal:* Agent must parse dates and sum `Total_Price`.

19. ***"Which product have we sold the most units of?"***

* *Goal:* Agent must parse the text in `Items_Purchased` (splitting by "|") and count frequencies.

20. ***"Give me a list of all customers who have cancelled an order."***

* *Goal:* Agent filters orders by status "Cancelled" and retrieves customer names.

Highly autonomous agent

Allow the agent to write Python code on the fly to calculate → creating less functions

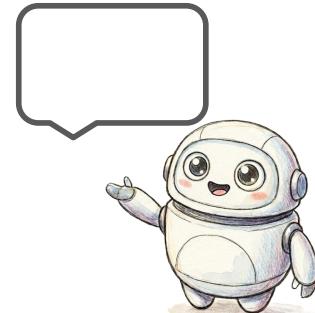


Testing the Autonomous Agent

Bonus-----

🔴 Part 5: The "Autonomous Brain" (Analytics)

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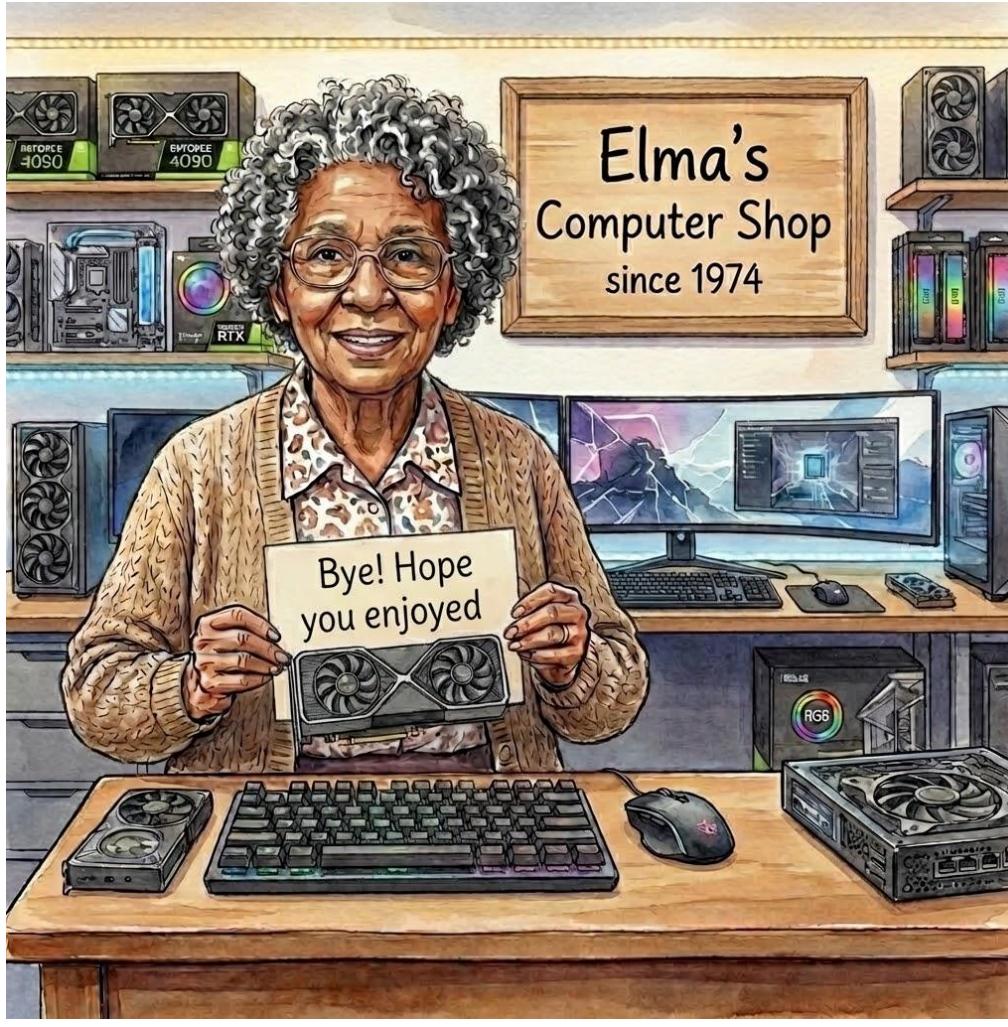
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AI agents: code, Gemini

References

Outline



References

Tools used: Dust ai for no-code agents, Gemini 3.0 and claude sonnet 4.5 for code based agents and fake data

References

- Andrew Ng agentic AI : <https://learn.deeplearning.ai/courses/agentic-ai/information>
- **Dust :**
 - AI with Vlad: <https://youtu.be/on1itc78ueY?si=fbpDCI2EOVHAMGLo>
 - Silicon carne Practical integration of AI agent in workflows (French):
<https://youtu.be/-mBXZrlwbNY?si=i--JL3qLU-qUyJR7> (Dust offers 14 days free trial + Promo code [dust.tt](#): under the YT video gives 1 month (still valid ?)
- Building Agents with the Gemini Interactions API
<https://www.philschmid.de/building-agents-interactions-api>
- Anthropic AI agents: <https://www.anthropic.com/engineering/building-effective-agents>

Going further multi-agents

- Tina Huang multi agents <https://youtu.be/qU3fmidNbJE?si=7ZX7JDOQojdGc5so>
- **Moltbolt:** An open-source AI agent which buzzed last week on X <https://github.com/openclaw/openclaw>

