

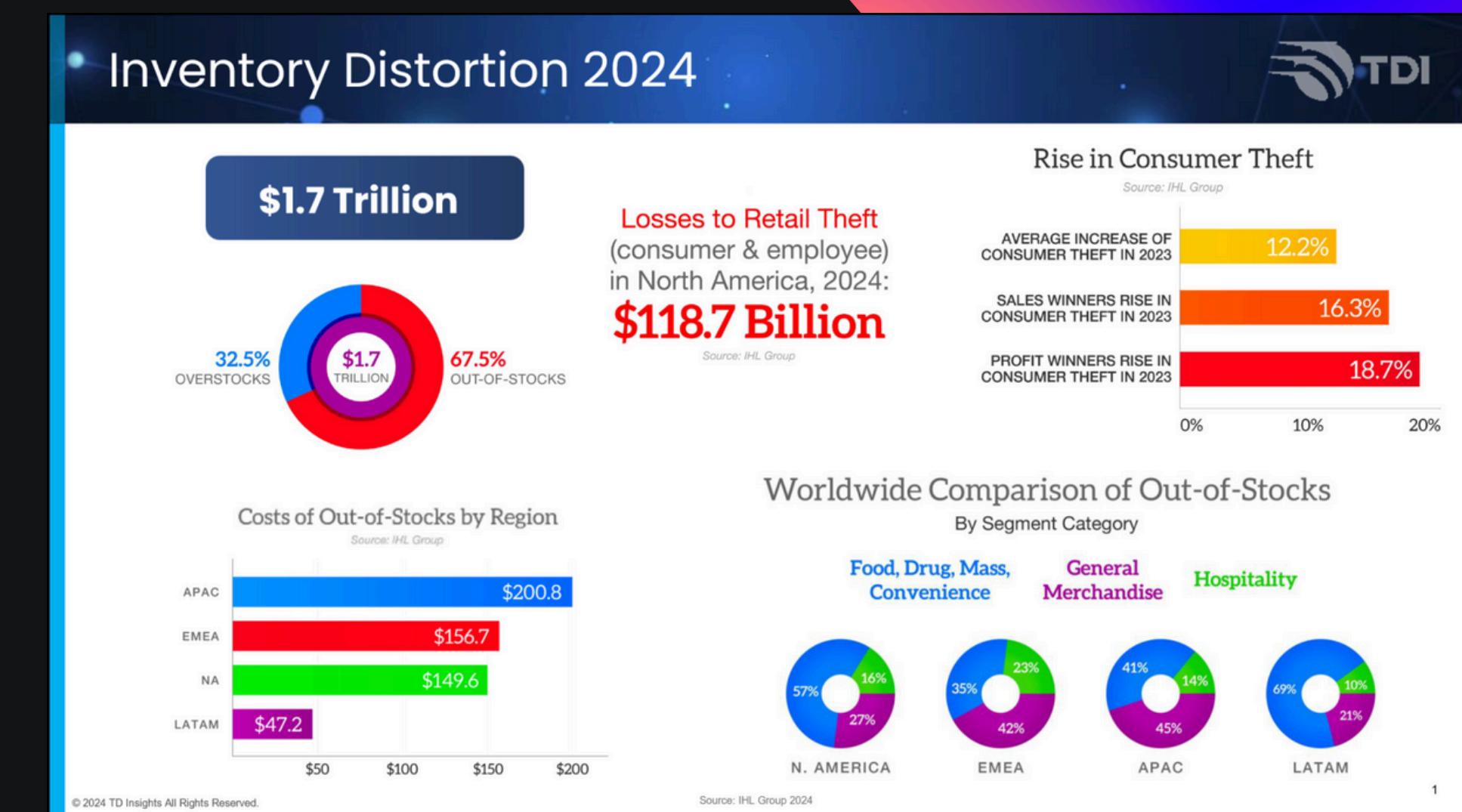
Bootcathon

2025

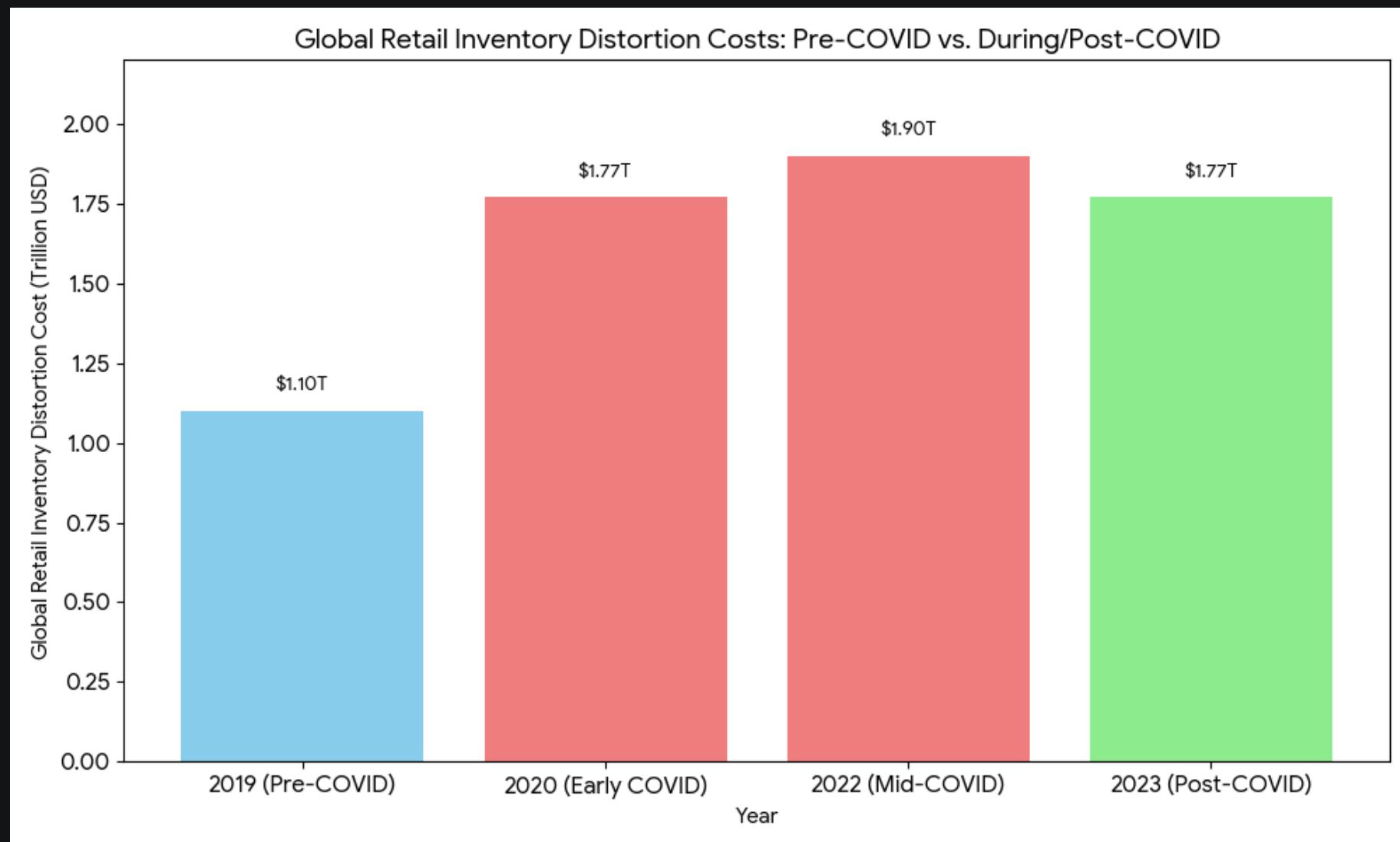
Team: พีชส่งมา

2023 Global Retail Inventory Distortion Costs

\$1.77 Trillion

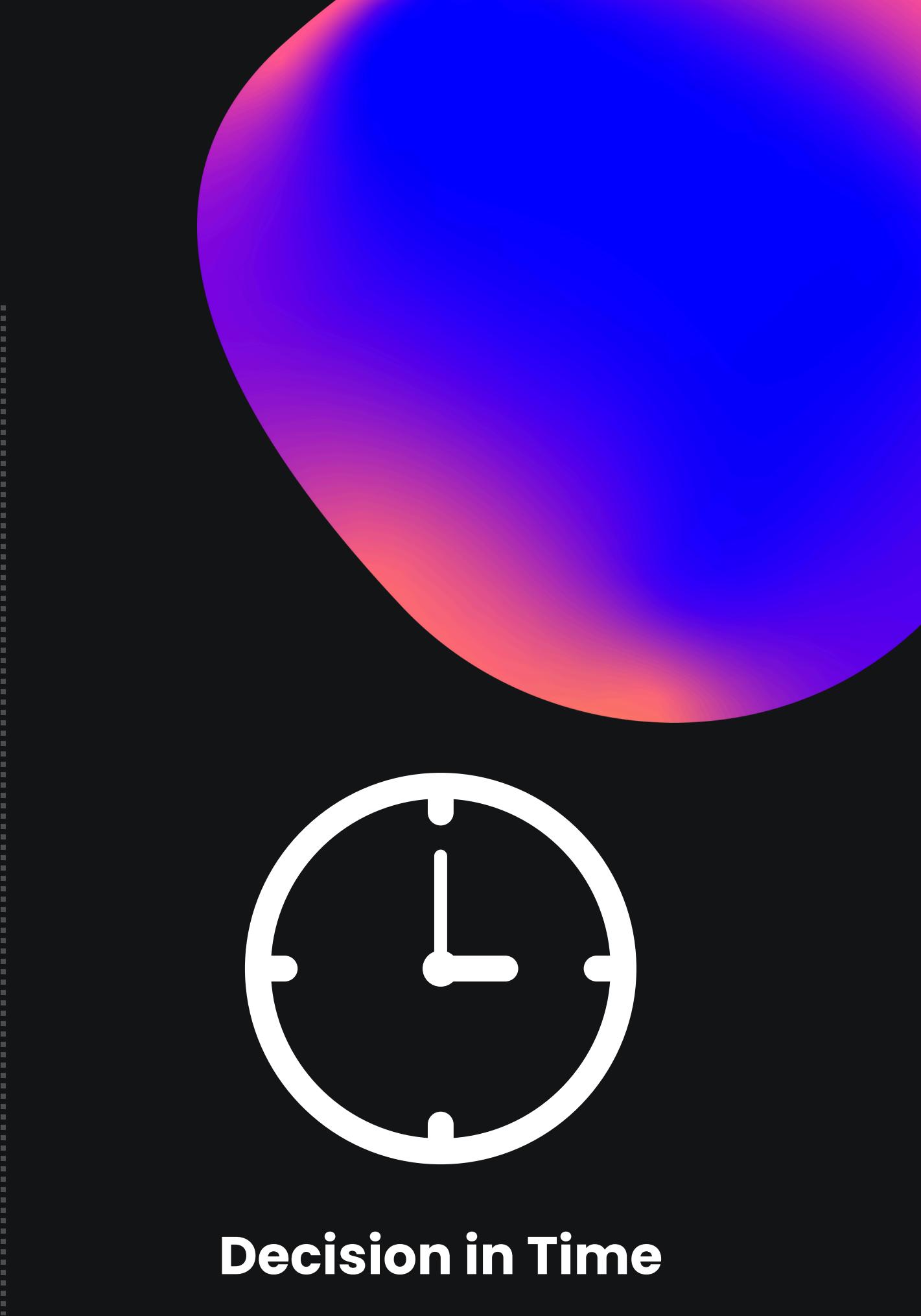


Bullwhip Effect & Inventory Issues



«Customer Change Behavior»

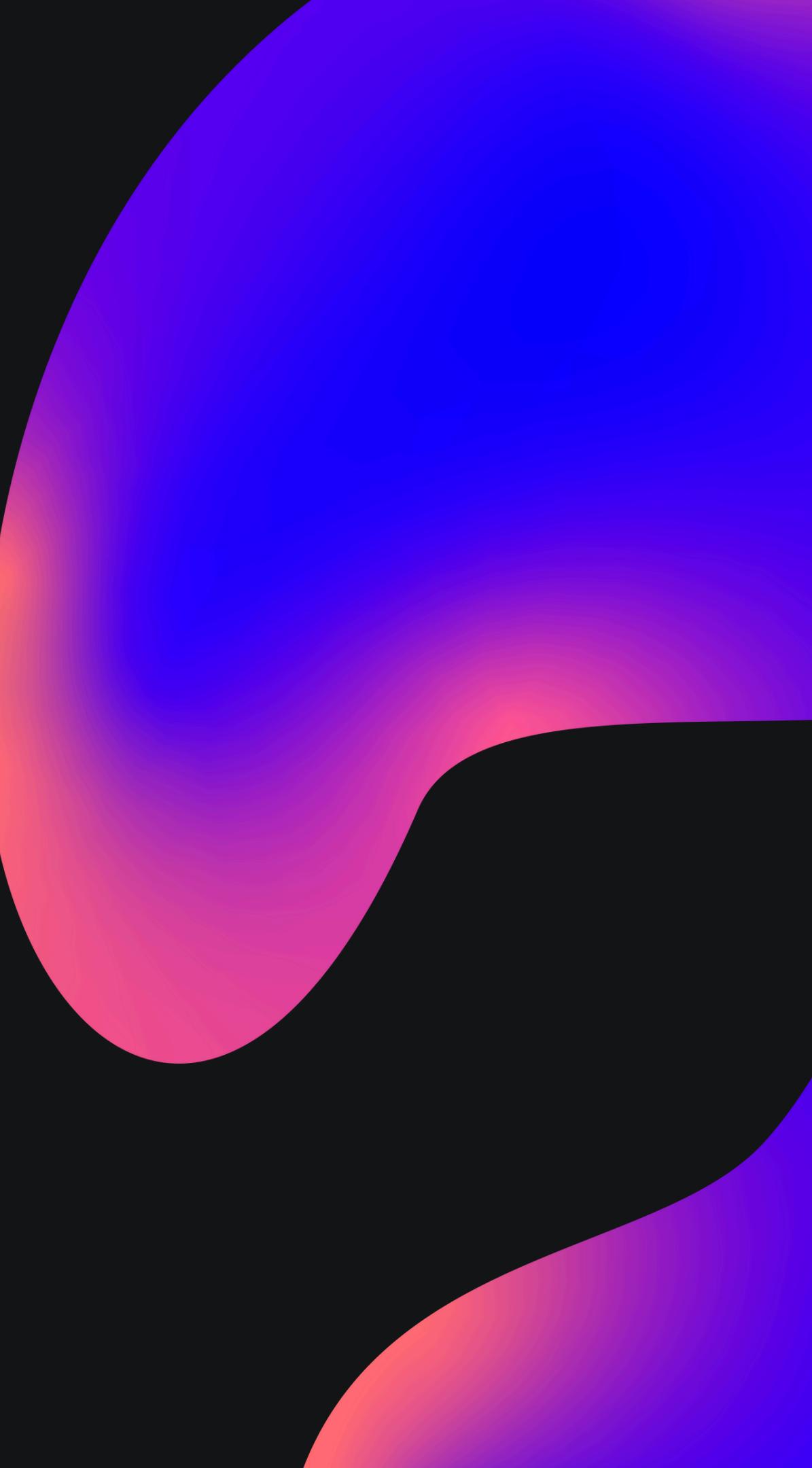
Decision in Time



PROBLEM

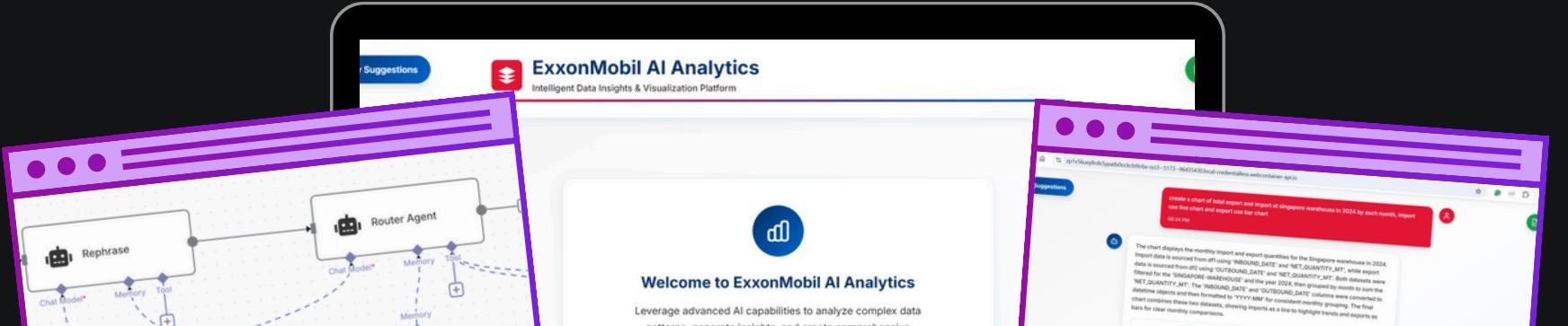
- Data Overload
- Time Consumption
- Lack of Accessibility
- Missed Opportunities/Risk

OUR SERVICES



OUR SERVICES

Chat with Data



Chat with Data

Data reasoned. Insights explained ✨

The central smartphone screen shows the **ExxonMobil AI Analytics** platform, an "Intelligent Data Insights & Visualization Platform". The interface includes a "Suggestions" button, the platform logo, and a welcome message: "Welcome to ExxonMobil AI Analytics". It encourages users to "Leverage advanced AI capabilities to analyze complex data patterns, generate insights, and create comprehensive visualizations for informed decision-making." A call-to-action button says "Try the 'Query Suggestions!' button to explore sample warehouse data visualizations". Below this is a search bar with the placeholder "Ask about data insights, trends, or request visualizations...".

To the left of the smartphone is a diagram illustrating the AI architecture. It features a "Router Agent" at the top, connected to a "Chat Model" and a "Memory" component. A "Rephrase" block is also connected to the Router Agent. Below the Router Agent is a "Tool" block. At the bottom is a "Simple Memory" block, which is connected to a "Simple Memory1" block. A "Google Gemini Chat Model" block is shown at the bottom left, connected to the "Simple Memory" block via a "Model" node.

To the right of the smartphone is a data visualization window showing monthly import and export trends. The chart displays "Total Import (MT)" in blue bars and "Total Export (MT)" in red bars from January 2024 to December 2024. The chart area includes a detailed description of the data source and processing logic:

create a chart of total export and import at singapore warehouse in 2024 by each month, import use line chart and export use bar chart
08:24 PM

The chart displays the monthly import and export quantities for the Singapore warehouse in 2024. Import data is sourced from d1f using 'INBOUND_DATE' and 'NET_QUANTITY_MT', while export data is sourced from d12 using 'OUTBOUND_DATE' and 'NET_QUANTITY_MT'. Both datasets were filtered for the 'SINGAPORE-WAREHOUSE' and the year 2024, then grouped by month to sum the 'NET_QUANTITY_MT'. The 'INBOUND_DATE' and 'OUTBOUND_DATE' columns were converted to datetime objects and then formatted to 'YYYY-MM' for consistent monthly grouping. The final chart combines these two datasets, showing imports as a line to highlight trends and exports as bars for clear monthly comparisons.

Month	Total Import (MT)	Total Export (MT)
2024-01	~12000	~8000
2024-02	~11000	~10000
2024-03	~10000	~11000
2024-04	~11000	~8000
2024-05	~10000	~9000
2024-06	~10000	~12000
2024-07	~11000	~13000
2024-08	~10000	~14000
2024-09	~11000	~13000
2024-10	~10000	~15000
2024-11	~11000	~14000
2024-12	~10000	~9000

O

S

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D

The screenshot shows a web browser window with the URL `zp1v56uxy8rdx5ypatb0ockb9tr6a-oci3--5173--96435430.local-credentialless.webcontainer-api.io`. The page title is **ExxonMobil AI Analytics**, described as an **Intelligent Data Insights & Visualization Platform**. A blue button labeled **Query Suggestions** is visible on the left.

A red callout box contains the query: **create a chart of total export and import at singapore warehouse in 2024 by each month, import use line chart and export use bar chart**. Below it, the timestamp **08:06 PM** is shown.

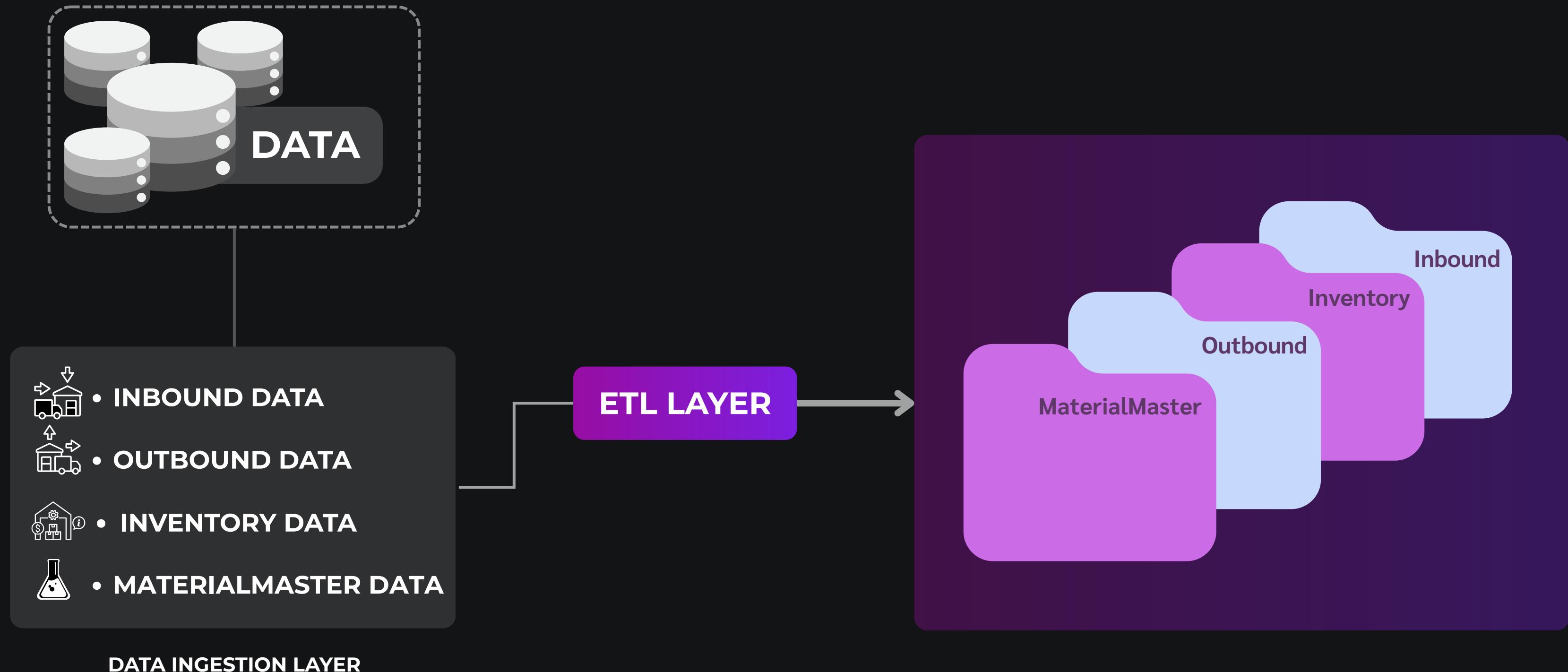
A blue circular icon with a document symbol is followed by a detailed description of the chart: **The chart displays the monthly import and export quantities for the Singapore warehouse in 2024. Import data is sourced from df1 using 'INBOUND_DATE' and 'NET_QUANTITY_MT', while export data is sourced from df2 using 'OUTBOUND_DATE' and 'NET_QUANTITY_MT'. Both datasets were filtered for the 'SINGAPORE-WAREHOUSE' and the year 2024, then grouped by month to sum the 'NET_QUANTITY_MT'. The 'INBOUND_DATE' and 'OUTBOUND_DATE' columns were converted to datetime objects and then formatted to 'YYYY-MM' for consistent monthly grouping. The final chart combines these two datasets, showing imports as a line to highlight trends and exports as bars for clear monthly comparisons.** This description is timestamped **08:06 PM**.

At the bottom, there is a search bar with the placeholder text **Ask about data insights, trends, or request visualizations...** and a blue send button with a white arrow icon.

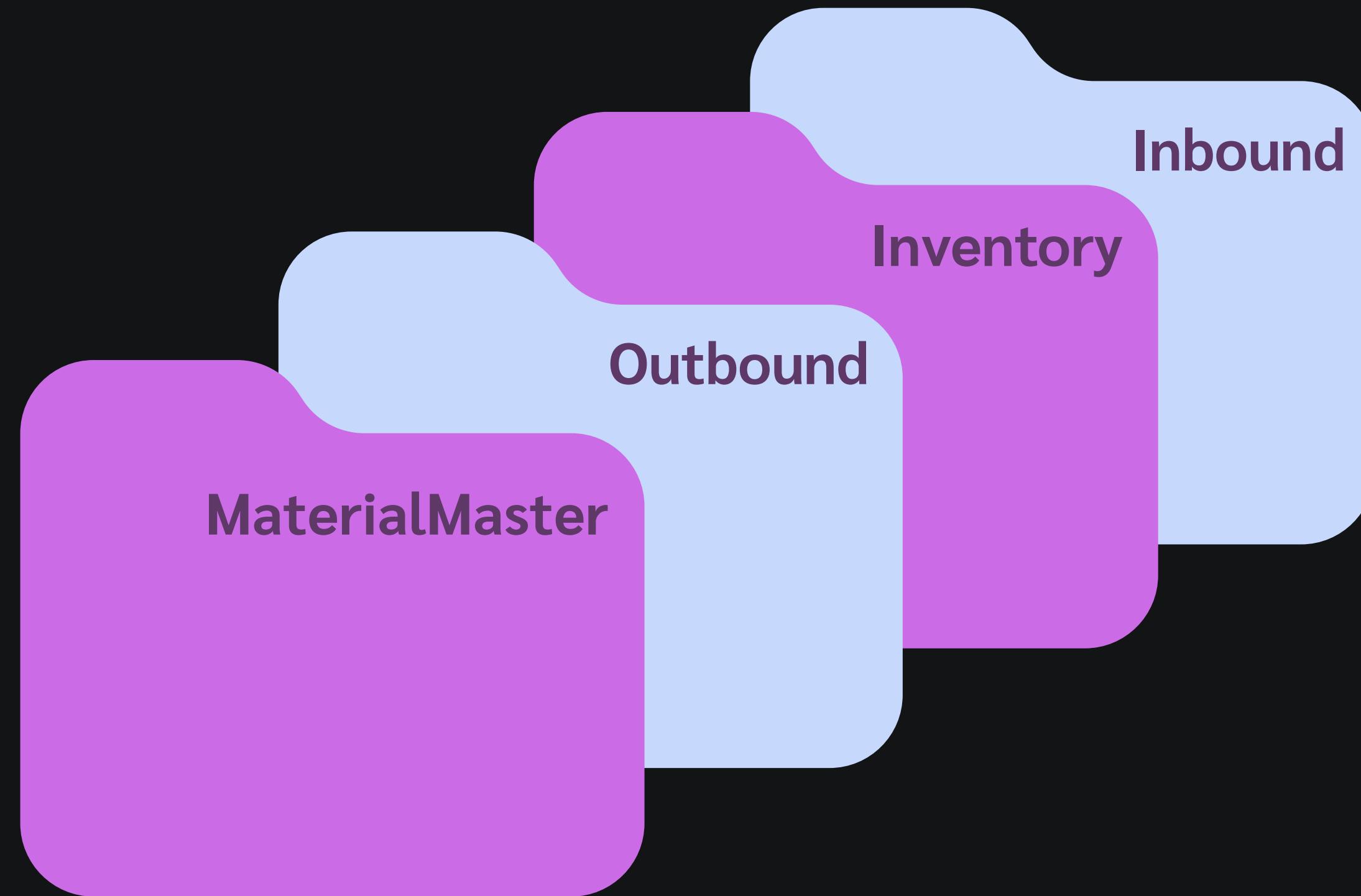
DATA

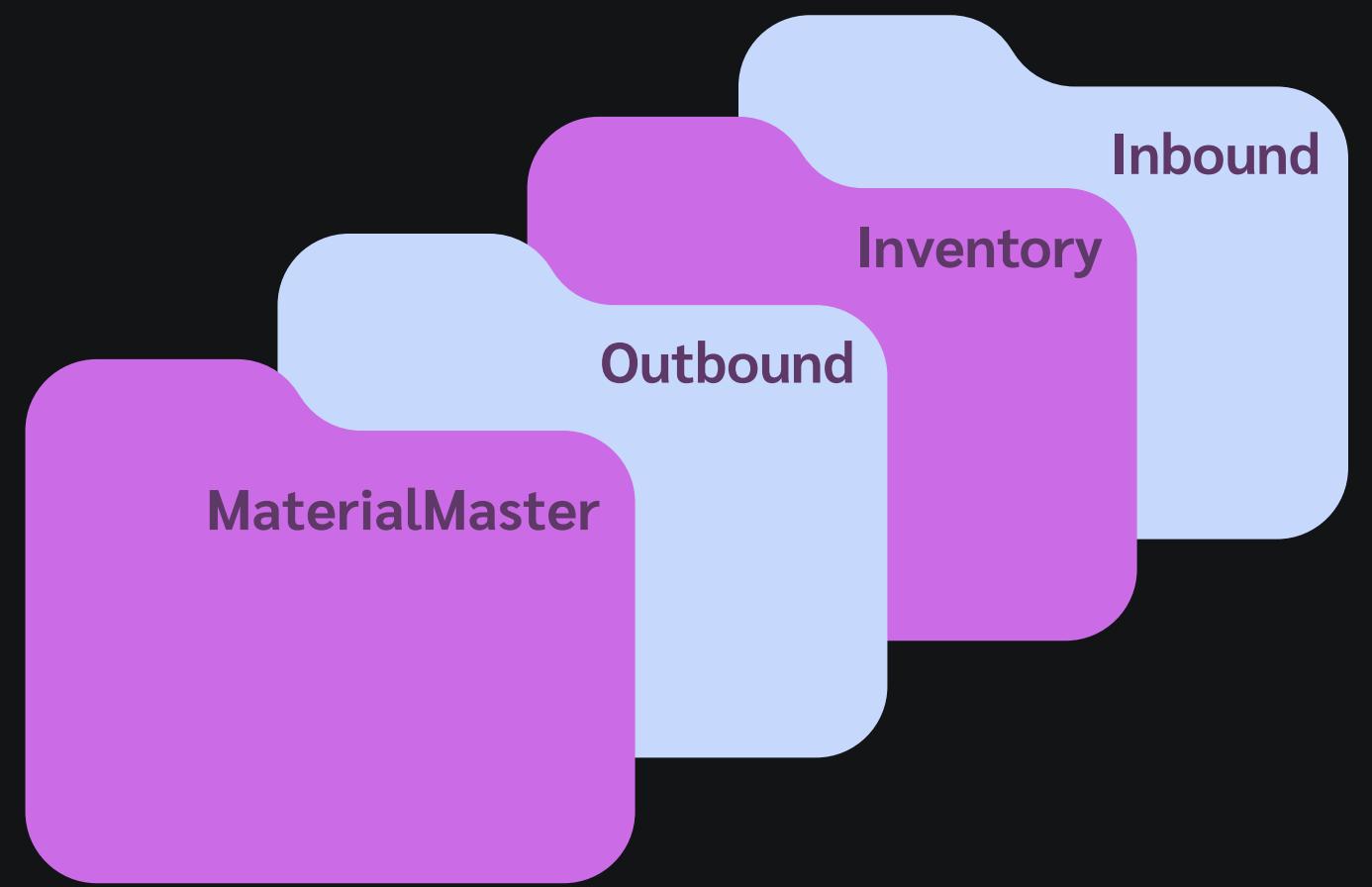


Enhanced Data Pipeline

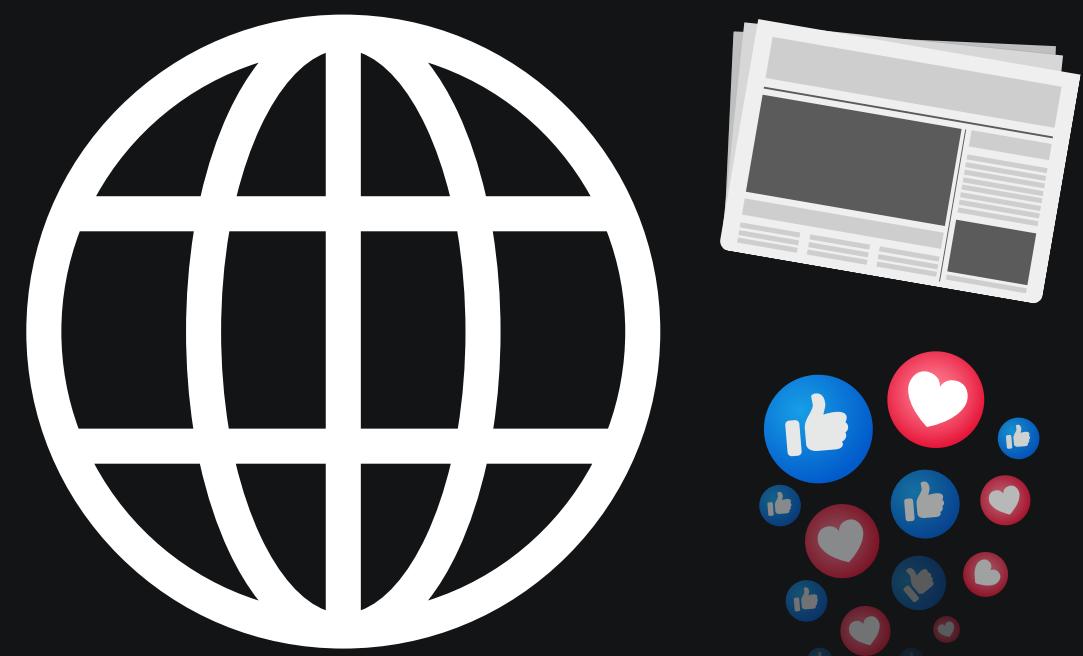


CSV Data





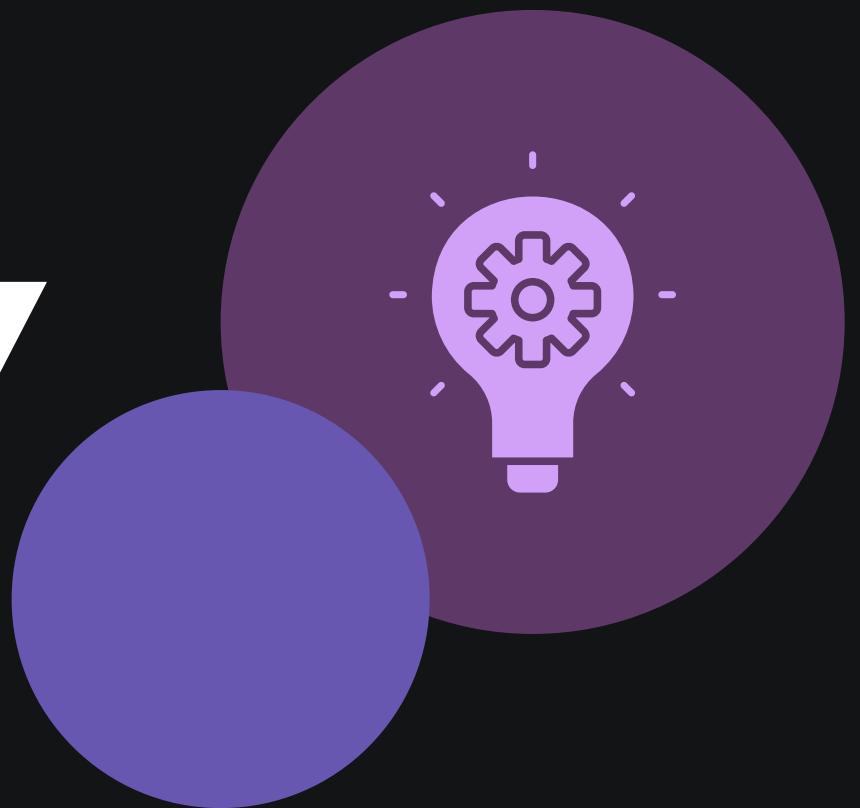
CSV Data



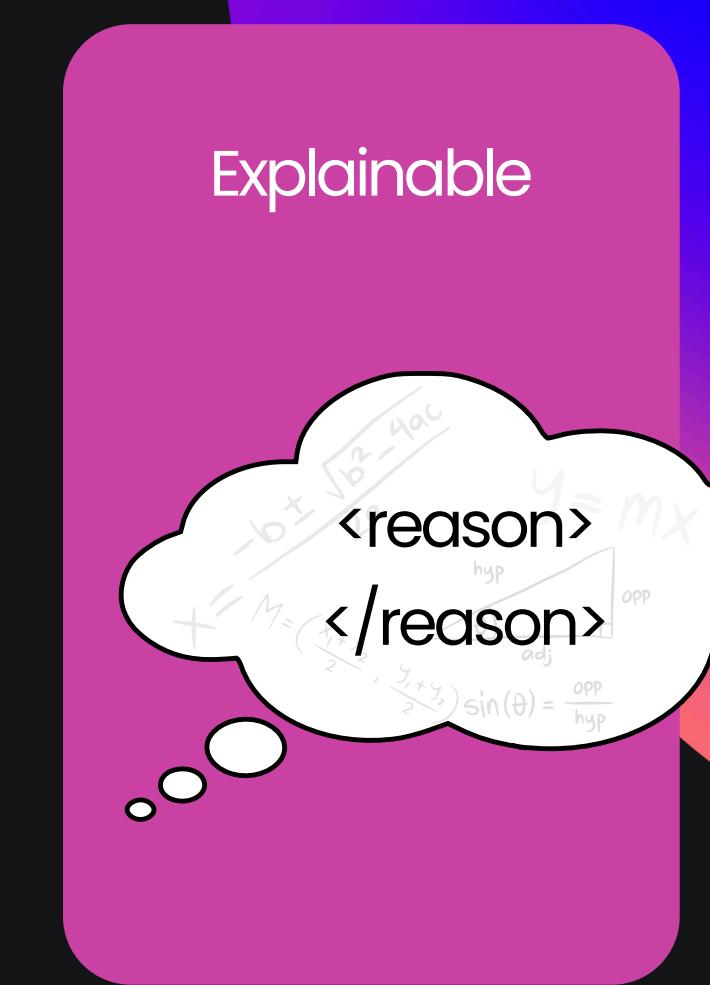
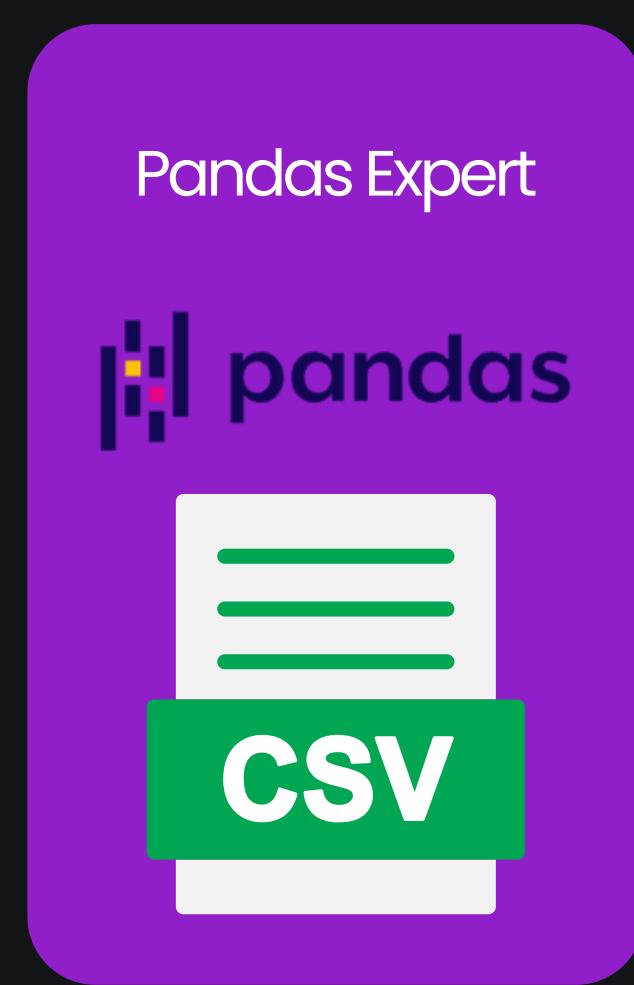
External Data

MODEL & METHODOLOGY

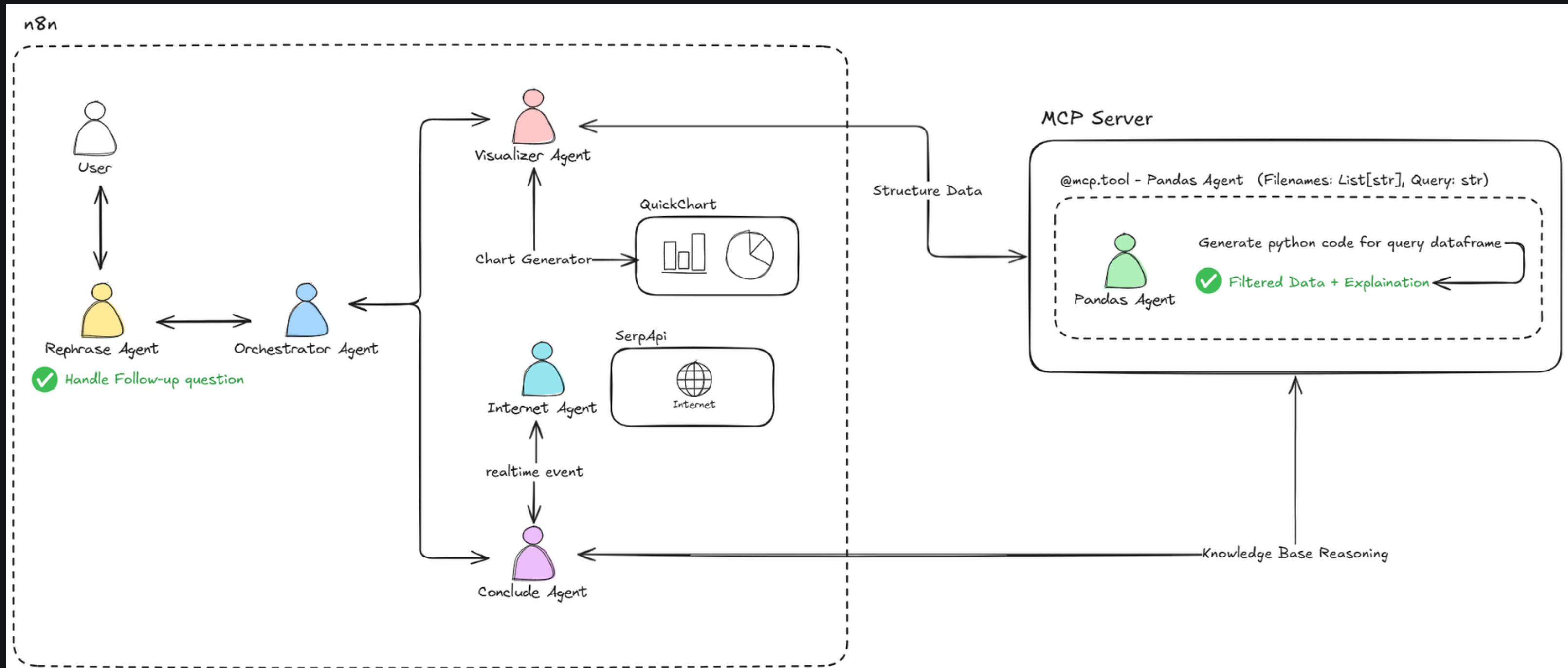
HOW CAN WE TALK WITH DATA



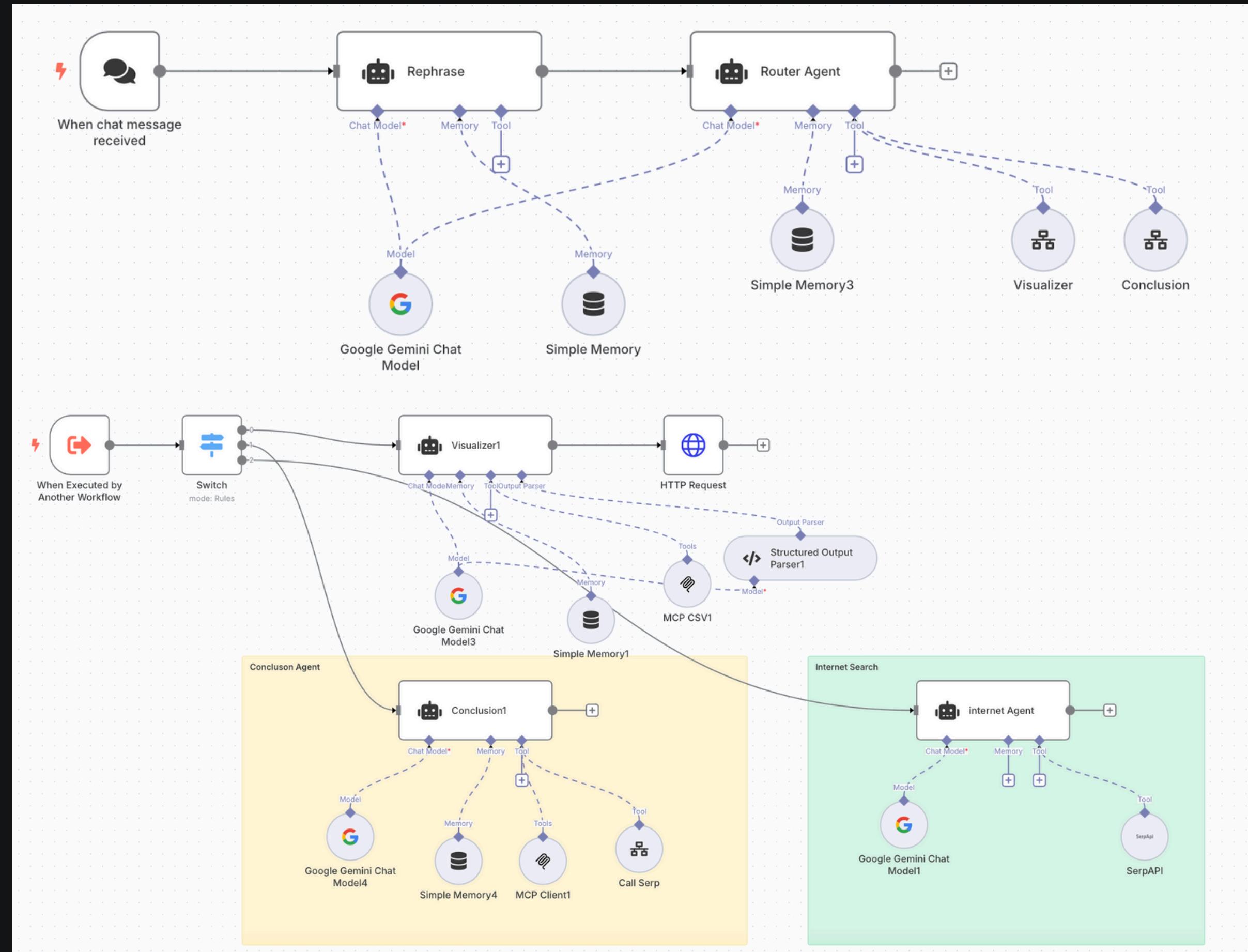
Tech Solutions



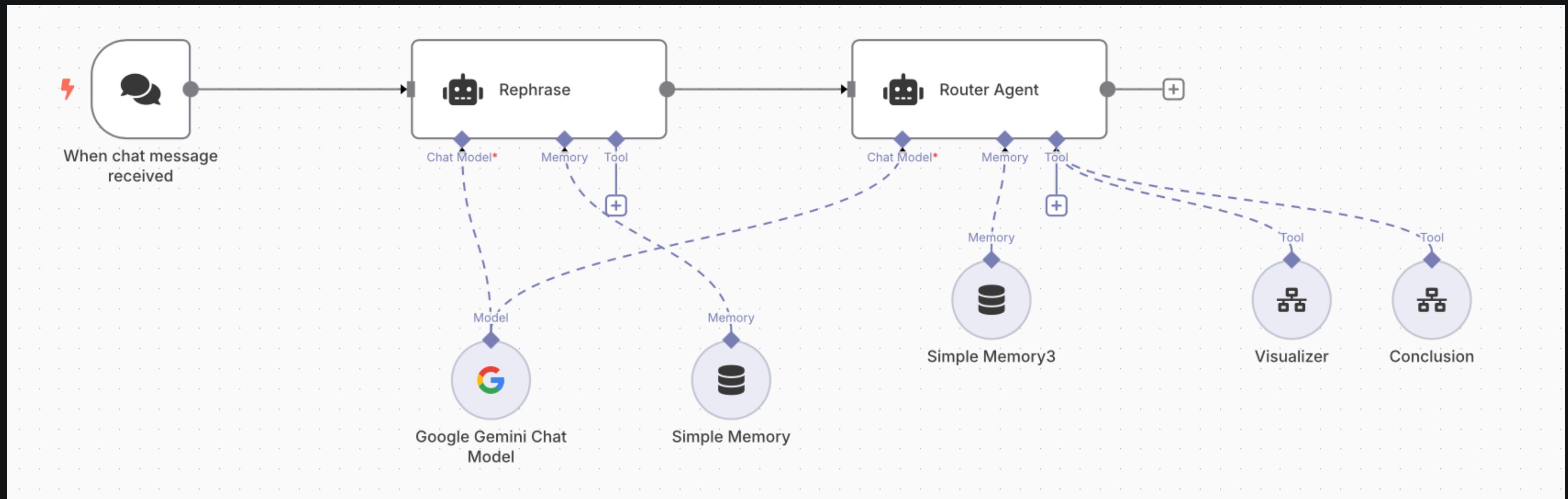
SYSTEM DESIGN



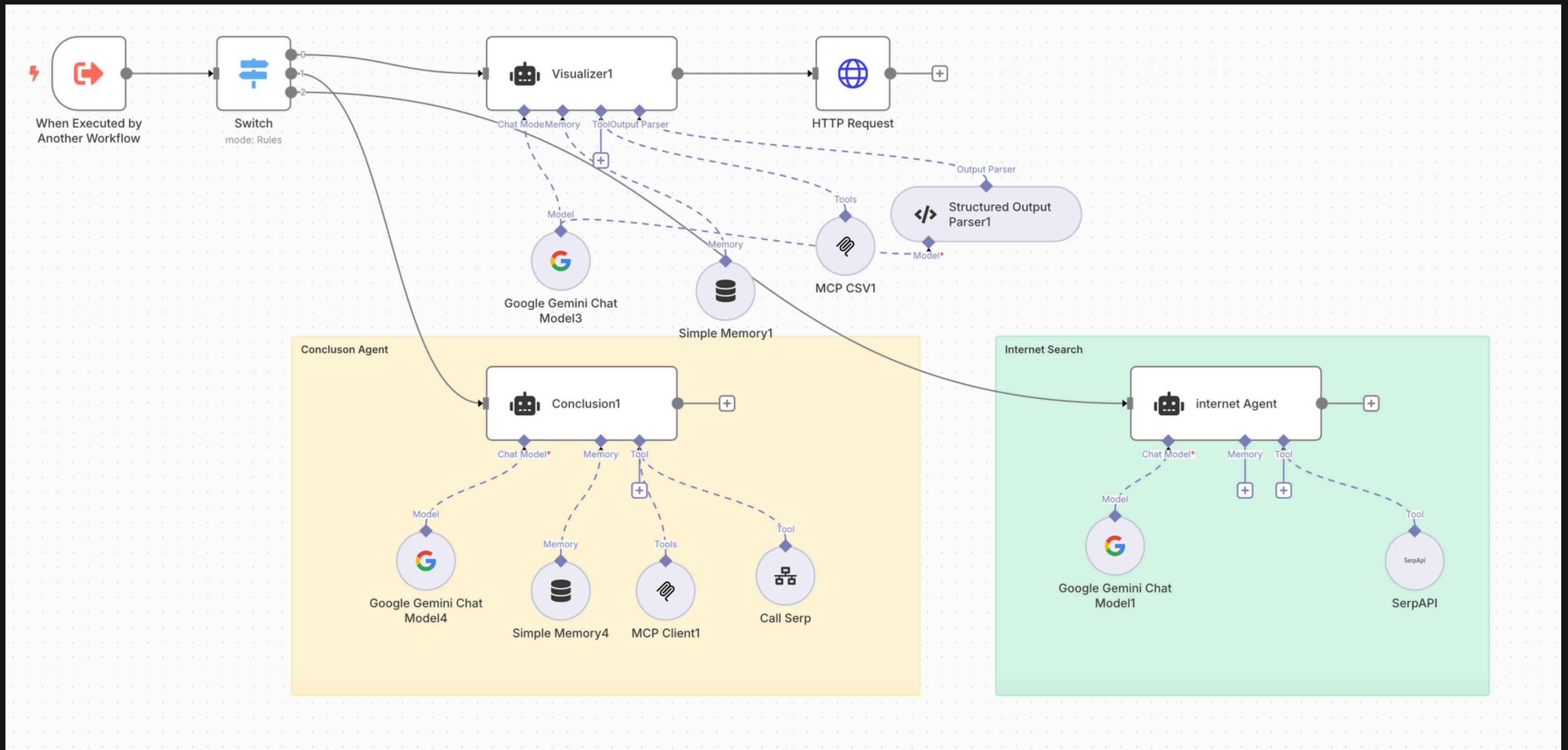
n8n workflow



n8n workflow



n8n workflow



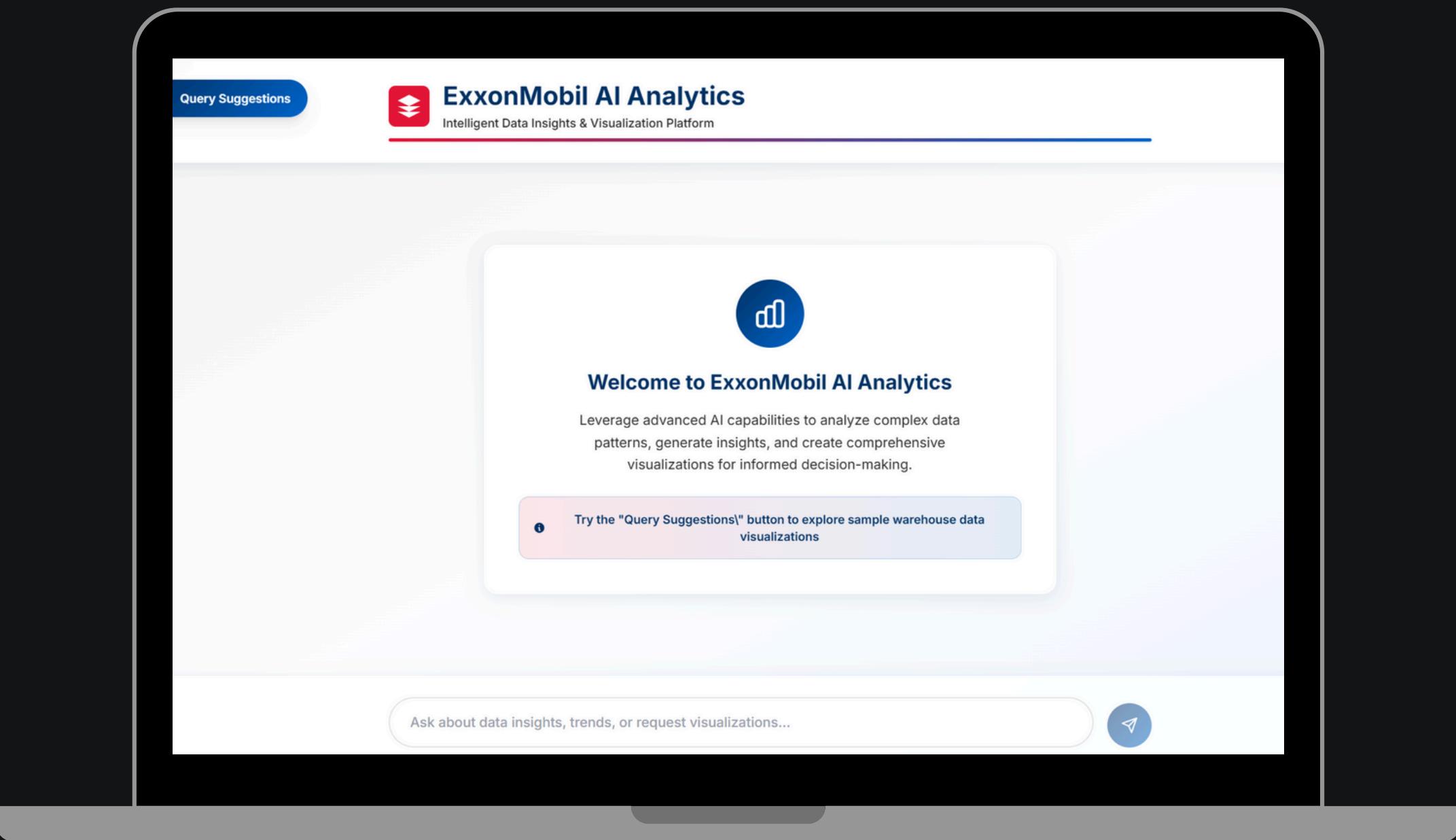
Core Technique

How we Tackle Each Challenges

Challenges	Solution
Chat with Data	Visualization & Narrative, NL2Code
Lack in Generalization	CoT, Multi-Agent, External Data
Balancing Accuracy and Cost	Prompt Chaining

Chat with Data

Empower Natural-Language Data Exploration



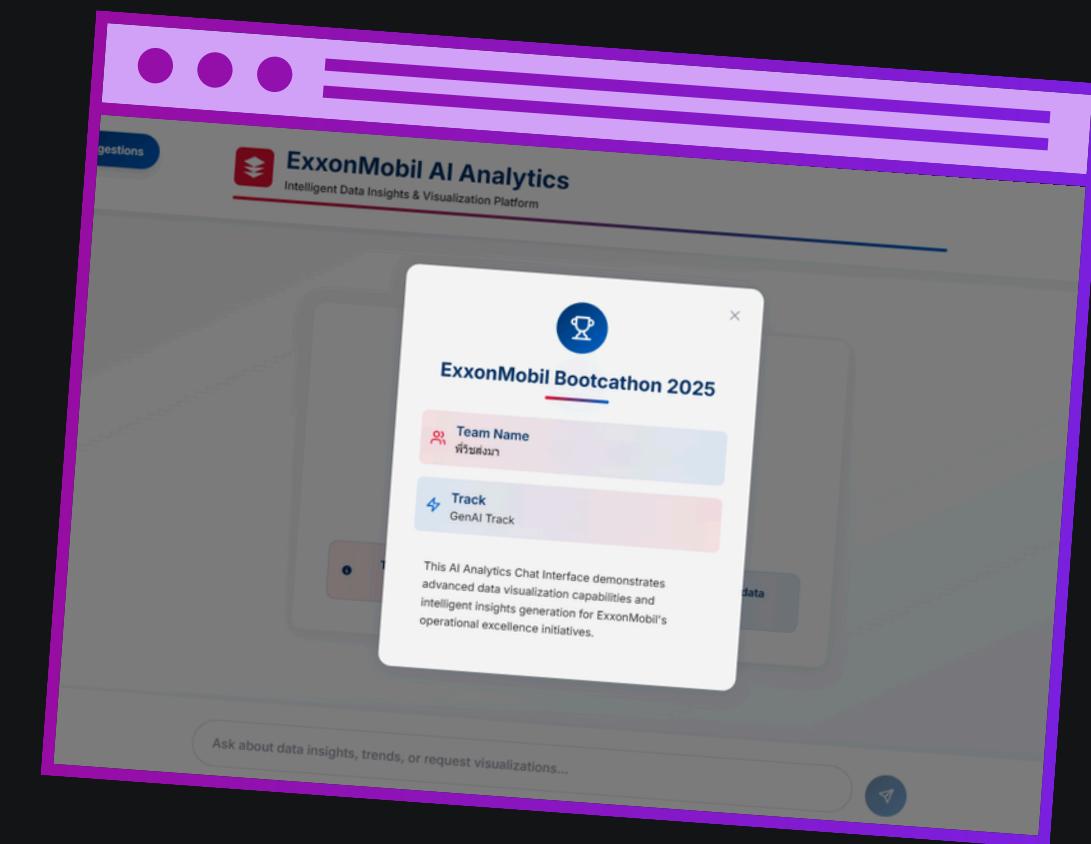
Key features:

Visualization & Narrative

Dynamically generates charts and clear, step-by-step narratives for each data query

NL2Code

Encapsulates logic into isolated code modules to safeguard agent expertise.



Generalization

Handle Catastrophic Forgetting & Memory Consolidation



Key features:

CoT

Preserves reasoning steps, reducing knowledge overwriting.

Multi-Agent

Isolates knowledge in agents to prevent forgetting.

External Data

Augments reasoning with live, domain-specific sources.

Generalization

Handle Catastrophic Forgetting & Memory Consolidation

```
# Enhanced system prompt with DataFrame context
ENHANCED_SYSTEM_PROMPT = """You have access to pandas dataframes with the following structure:

{df_context}

Given a user question about the dataframes, write Python code to answer it.

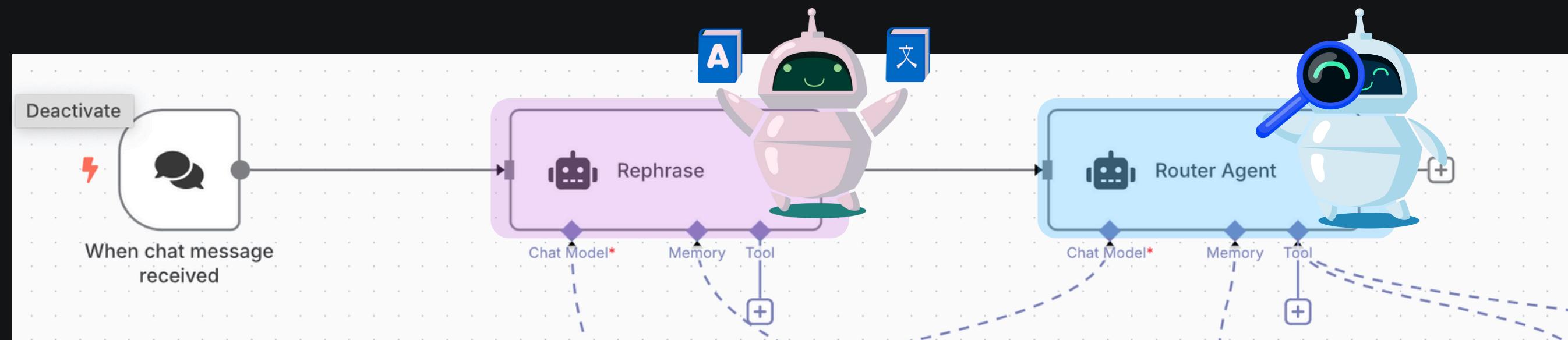
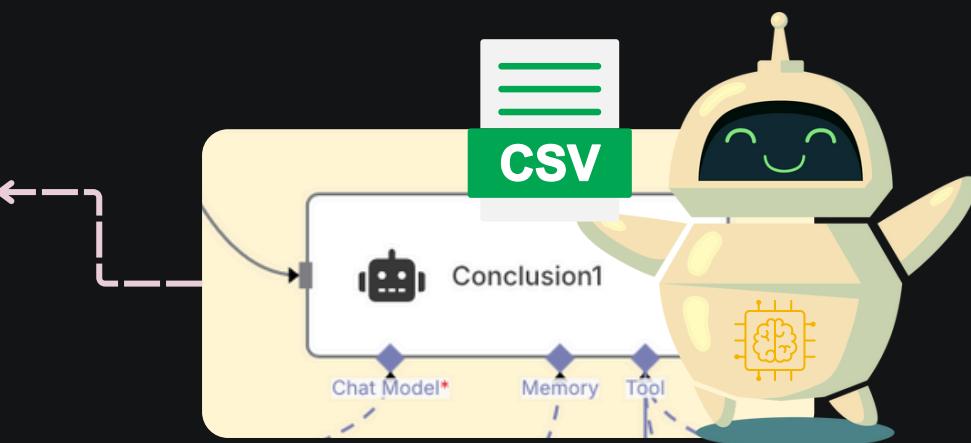
IMPORTANT RULES:
1. Use only the dataframe variables shown above (inbound_df, outbound_df, inventory_df)
2. Don't assume you have access to any libraries other than pandas and built-in Python
3. Always store your final answer in a variable called 'result'
4. Always print(result) at the end
5. Write concise code without comments
6. Use only the existing dataframes - do not create mock data
7. Handle date filtering carefully using pandas datetime operations
8. For time-based queries, ensure you capture the full requested period

When dealing with time periods:
- Use pd.to_datetime() if dates aren't already datetime objects
- Use proper date filtering with .loc or boolean indexing
- For monthly/weekly aggregations, use .groupby() with appropriate time periods
- Always verify your date filtering logic covers the entire requested period

Data Quality Notes:
- inventory_df has a typo: 'UNRESTRICTED_STOCK' (missing 'T')
- inventory_df currency column may be truncated as 'CURRENC'
- Date formats are typically YYYY/MM/DD
"""

"""

CSV
```



Key features:

CoT

Preserves reasoning steps, reducing knowledge overwriting.

Multi-Agent

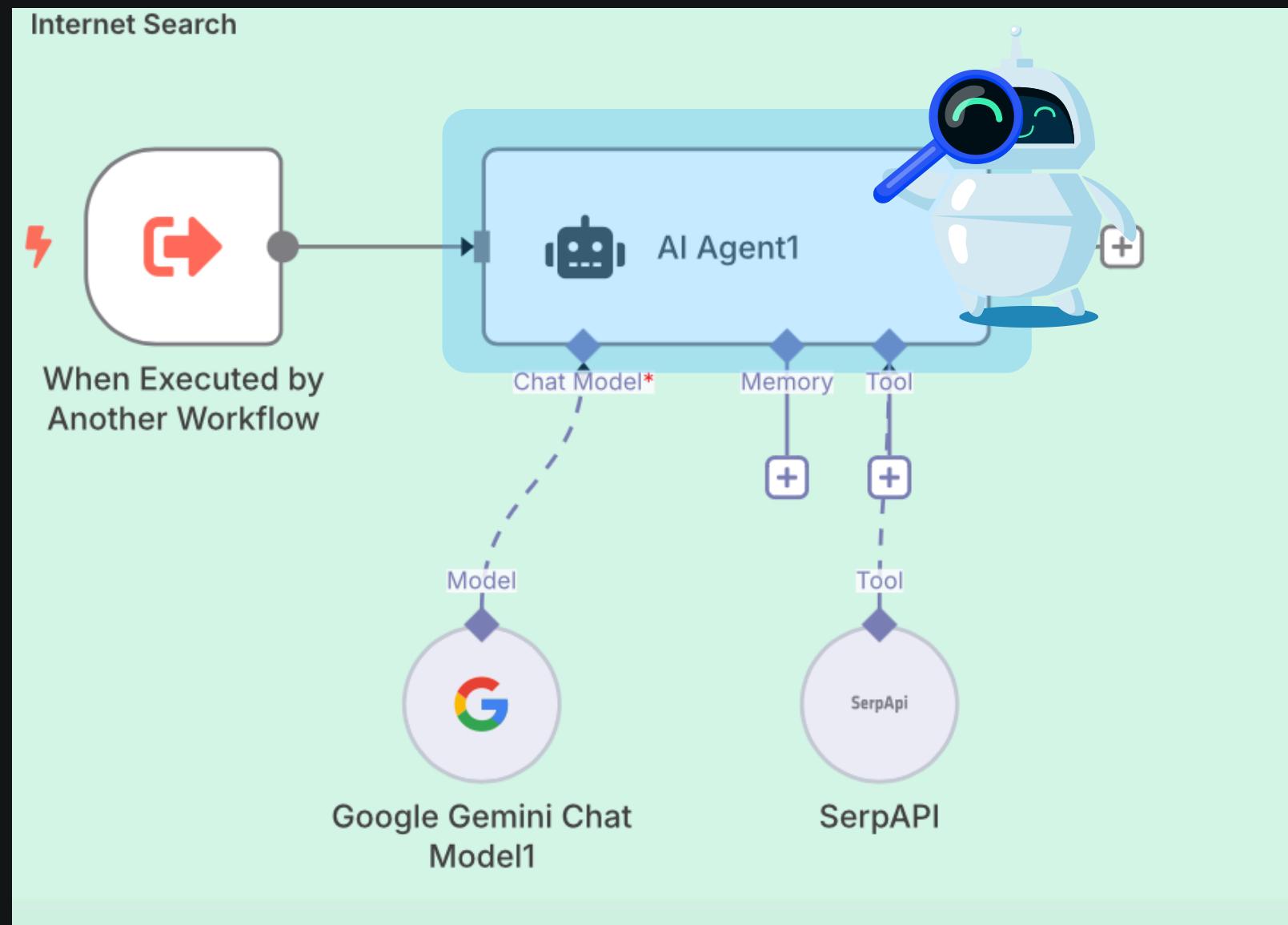
Isolates knowledge in agents to prevent forgetting.

External Data

Augments reasoning with live, domain-specific sources.

Generalization

Handle Catastrophic Forgetting & Memory Consolidation



Key features:

CoT

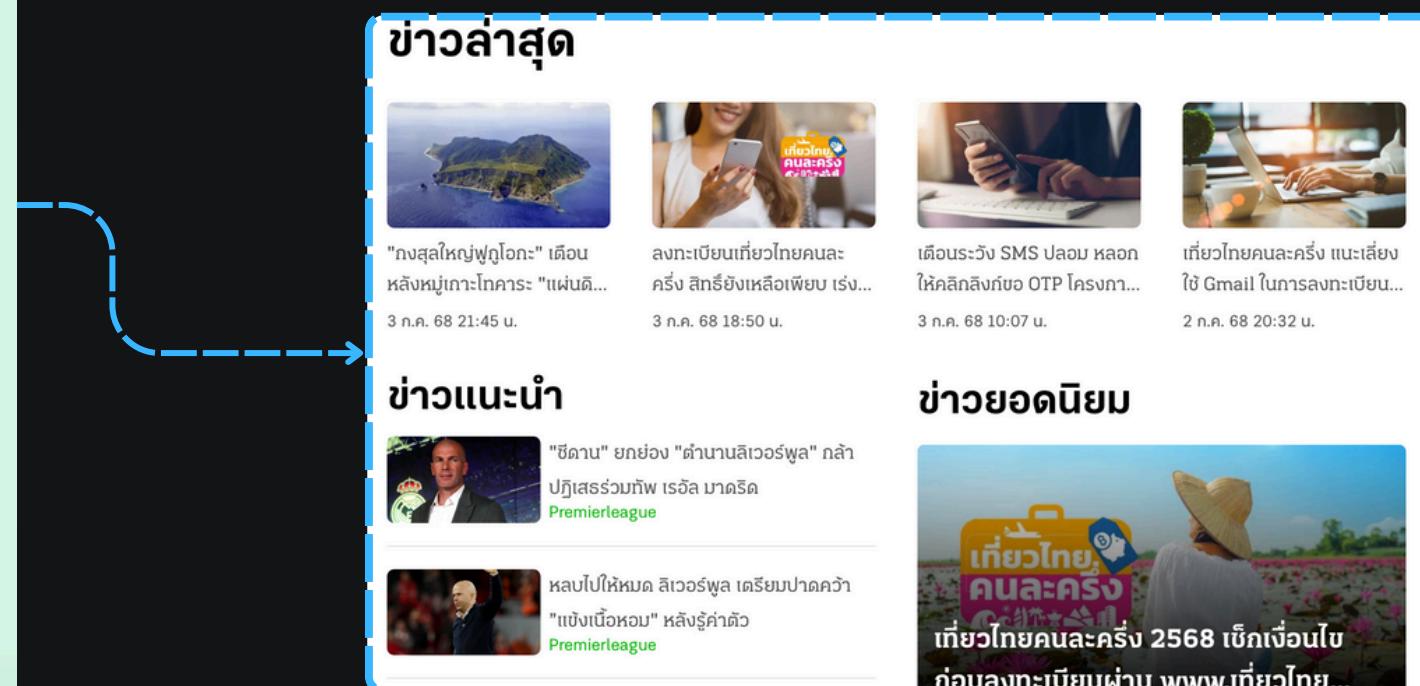
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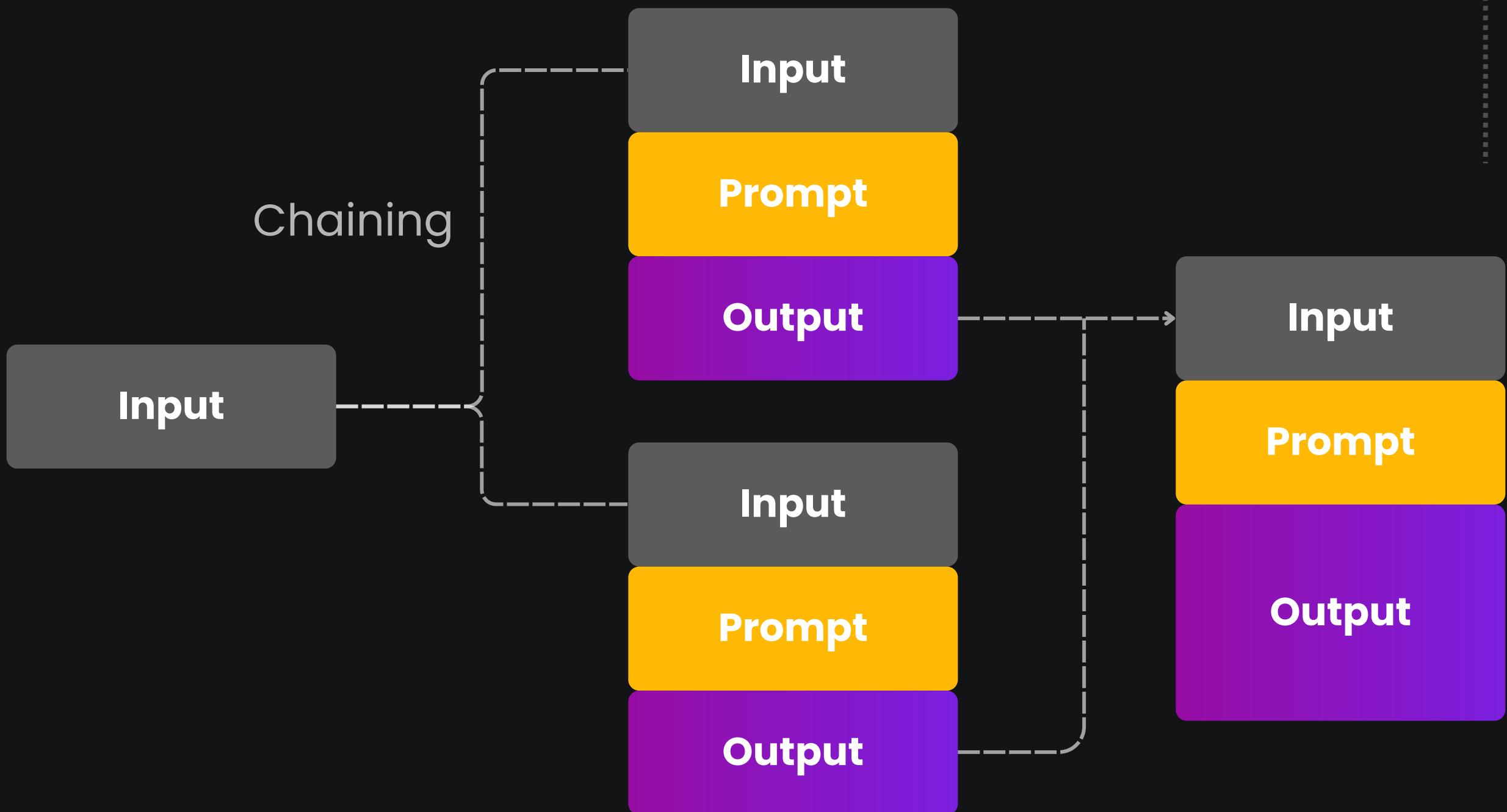
External Data

Augments reasoning with live, domain-specific sources.



Cost and Accuracy

Balancing Accuracy and Cost



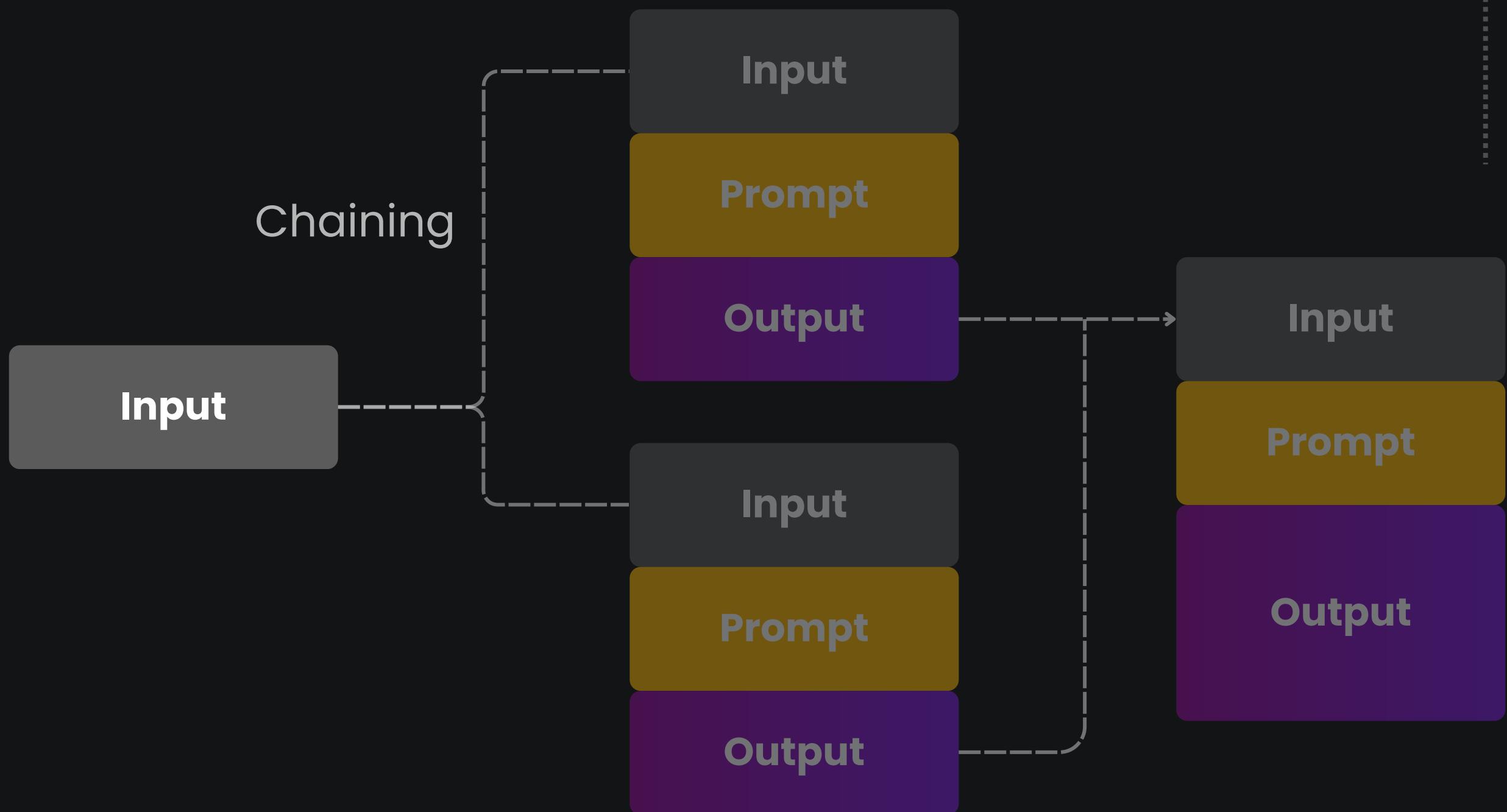
Key features:

Prompt Chaining

sequences parsing, retrieval, summarization, visualization and rephrasing prompts—delivering precise insights with minimal overhead.

Cost and Accuracy

Balancing Accuracy and Cost



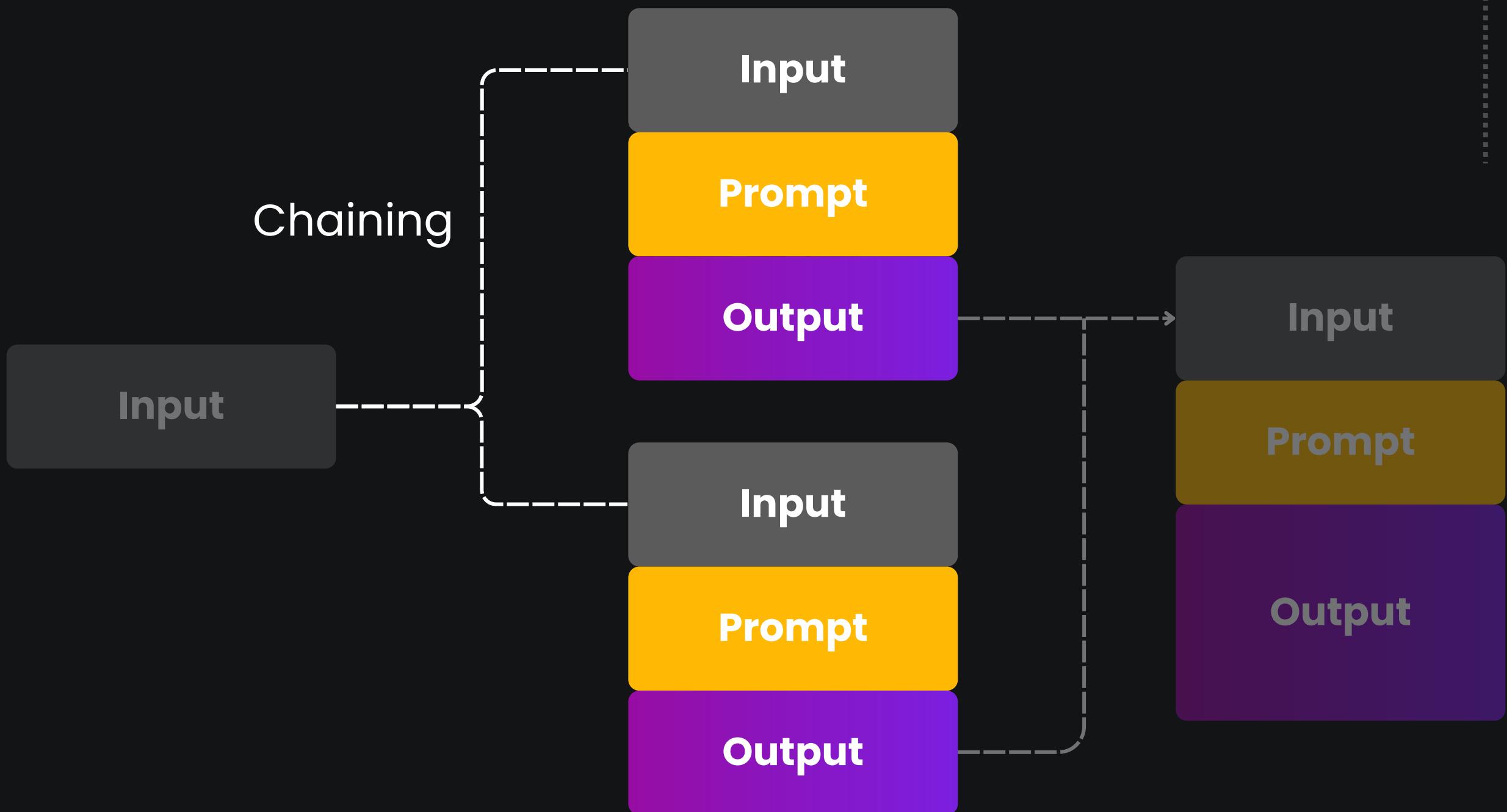
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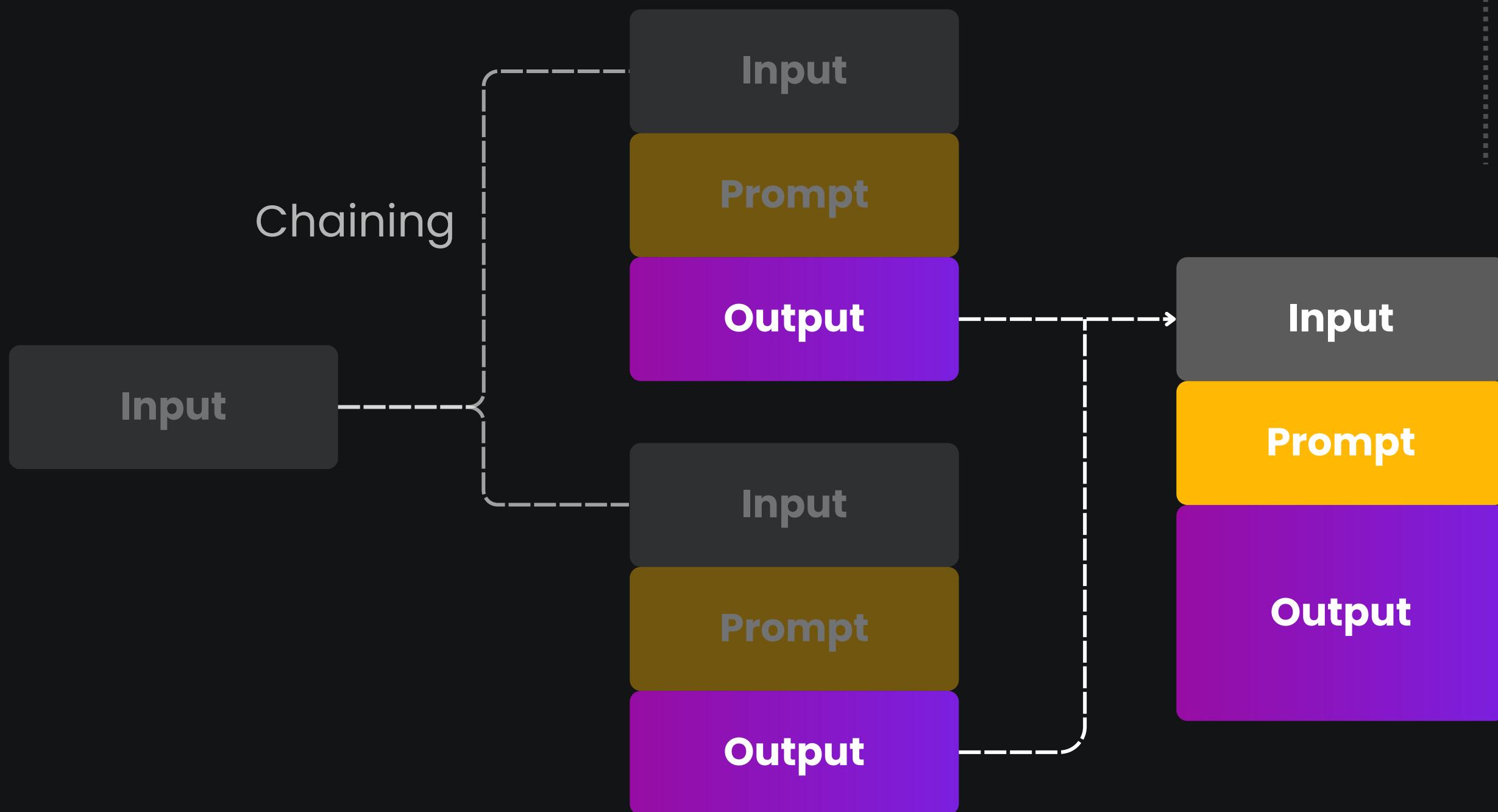
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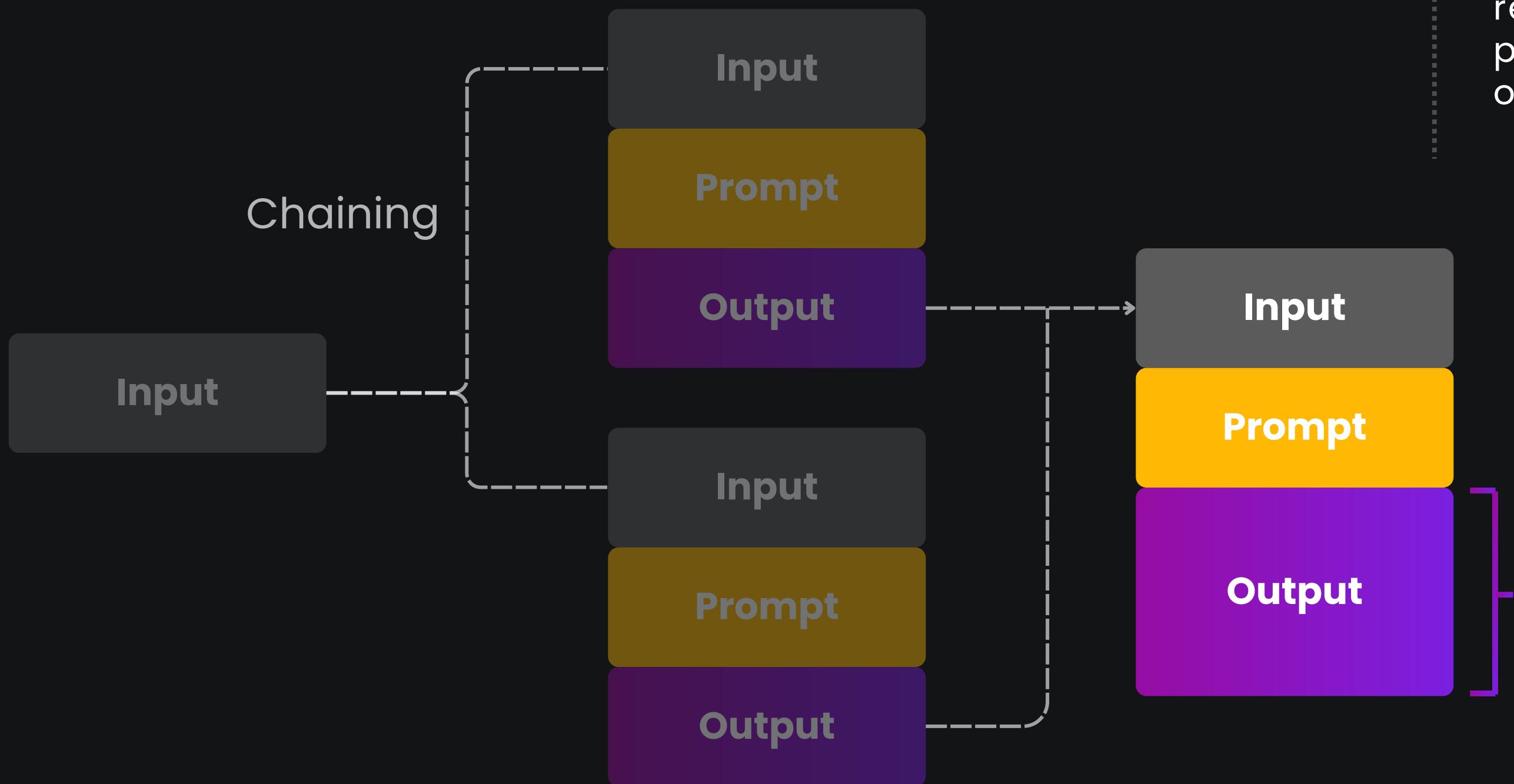
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Target Audience

Logistics & Supply Chain Managers

- ↳ To optimize routes, track shipments, identify bottlenecks.

Finance Departments

- ↳ For expenditure tracking, budget analysis, identifying cost savings.

Operations Teams

- ↳ To monitor production, inventory, and identify operational inefficiencies.

Procurement

- ↳ To analyze supplier performance and inbound material costs.

Sales & Marketing

- ↳ To analyze supplier performance and inbound material costs.

Executives

- ↳ For high-level overviews and strategic decision-making.

FUTURE PLAN



Large Scale Data

Handle Big Data Query



Pandas Agent



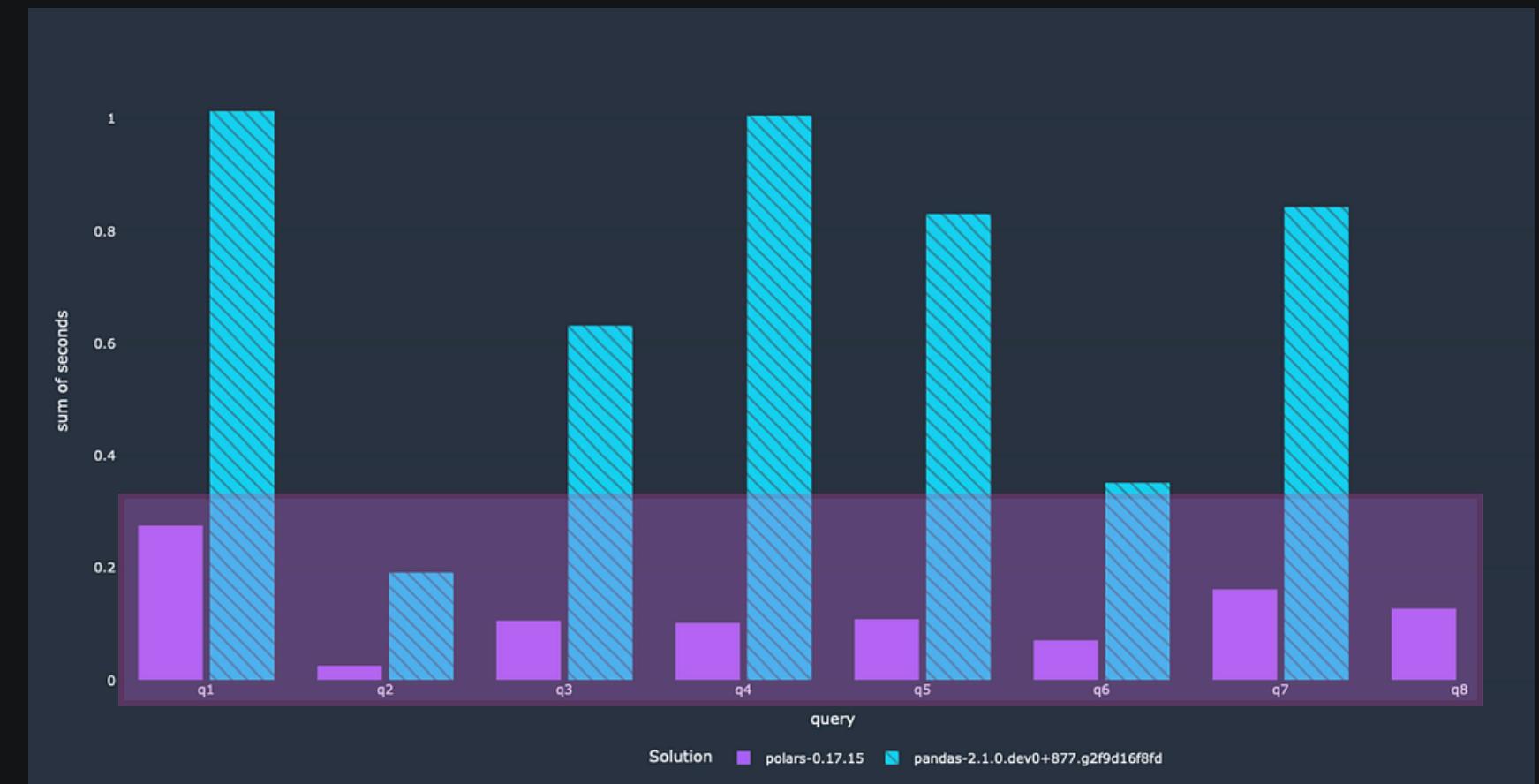
Polars Agent

Large Scale Data

Handle Big Data Query



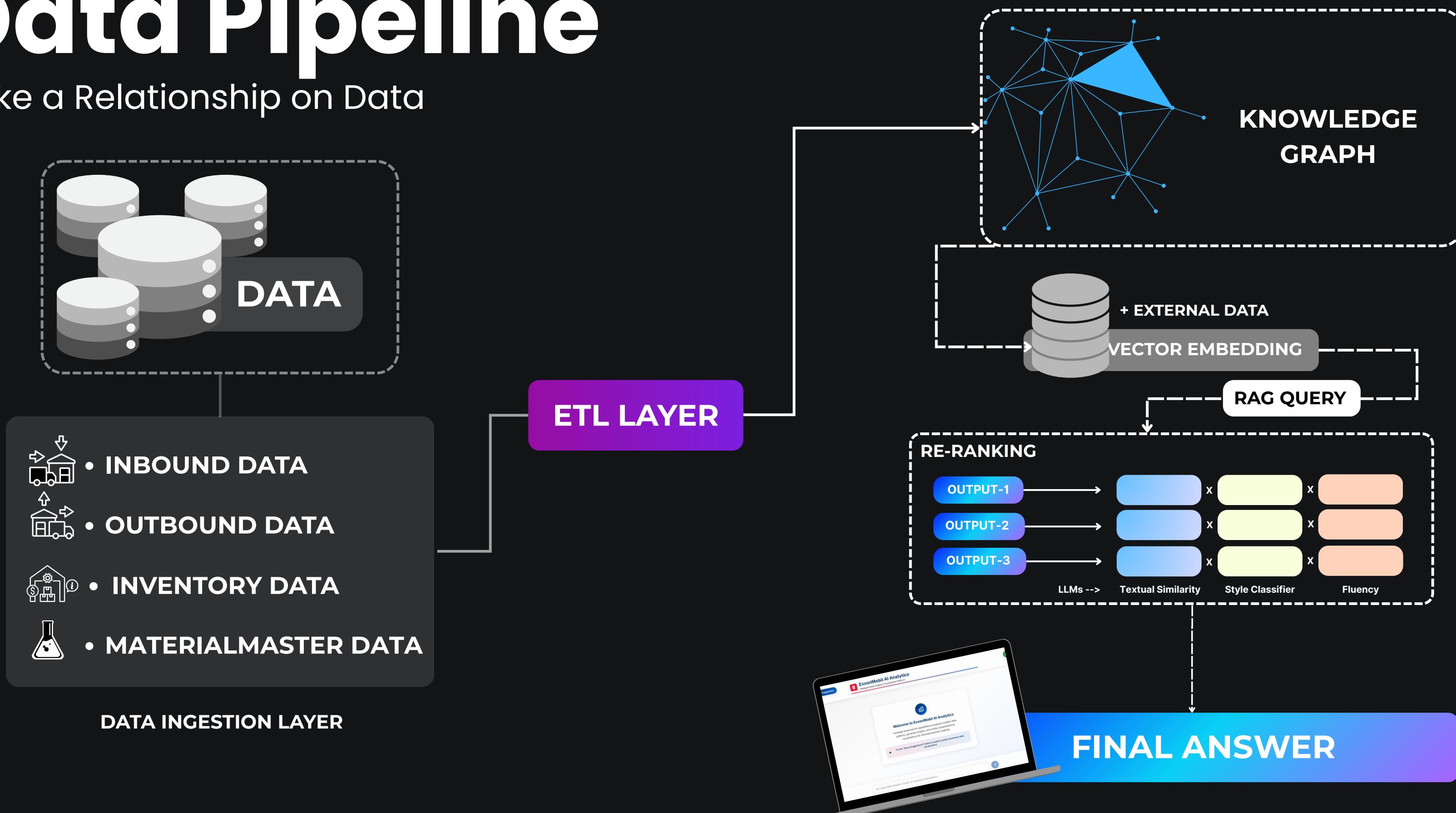
Pandas Agent



Polars Agent

Data Pipeline

Make a Relationship on Data



OUR TEAM

Team: พิชส่งมา



Pawit
Rungthan-udom



Watin
Promfiy



Achiravit
Vanasinchai



Boonwarat
Prasanpan



Jittaraboon
Sapsinthaweelap