

Exercise 5-3: Tool Chaining Challenge

Objective

Test the AI Agent's ability to chain multiple tools together (RAG + Calculator + Search) to answer complex, multi-part questions.

Prerequisites

- **Exercise 5-1** completed (Calculator tool connected)
- **Exercise 5-2** completed (Web Search tool connected)

Setup

Your workflow should already have all tools connected from previous exercises:

- **Pinecone Vector Store** (RAG – retrieves from knowledge base)
- **Calculator** (performs arithmetic)
- **SerpApi** (web search for current information)

No additional setup needed.

Demo Prompt

Try this multi-tool prompt:

“How many monthly app users does the Changi app have? If that number grows by 20% annually, calculate the projected figure for 2028. Then search for the latest download statistics in Singapore to compare.”

This single prompt requires **three tools**:

1. **RAG** – to find the Changi app user statistic from the annual report
2. **Calculator** – to compute the projected figure with 20% annual growth

3. **Search** – to find current download statistics for comparison

Your Task

Create Your Own Multi-Tool Prompt

1. Design a prompt that requires the agent to use **at least 2 tools** to answer
2. The prompt should combine information from the knowledge base with calculation or web search
3. Test your prompt and observe the agent's tool-chaining behavior

Tips for Designing Multi-Tool Prompts

- Start with a fact from the knowledge base (triggers RAG)
- Add a calculation based on that fact (triggers Calculator)
- Or ask for a comparison with current data (triggers Search)

Observe

- Does the agent use the tools in a logical order?
- Does it combine the results coherently?
- Are there cases where it skips a tool it should have used?

What to Submit

1. The bot's response to the demo prompt (note which tools were used)
2. Your custom multi-tool prompt
3. The bot's response to your prompt
4. Which tools the agent chained together and in what order