Agent State Transition Demo (Short)

This example shows how the agent state evolves when a user asks:

> "tell me about the apple news"

State 1 — Initial User Input

```
HumanMessage: "tell me about the apple news"
```

Agent has only the user query. No tools used yet.

State 2 — Agent Decides to Use Tool

```
AIMessage -> function_call: web_search({"query": "Apple Inc. news"})
```

Agent reasons that it needs external data and chooses the `web_search` tool.

State 3 — Tool Executes

```
ToolMessage: WebSearchResult([...])
```

The tool returns raw news articles and metadata from the web.

State 4 — Agent Processes Tool Output

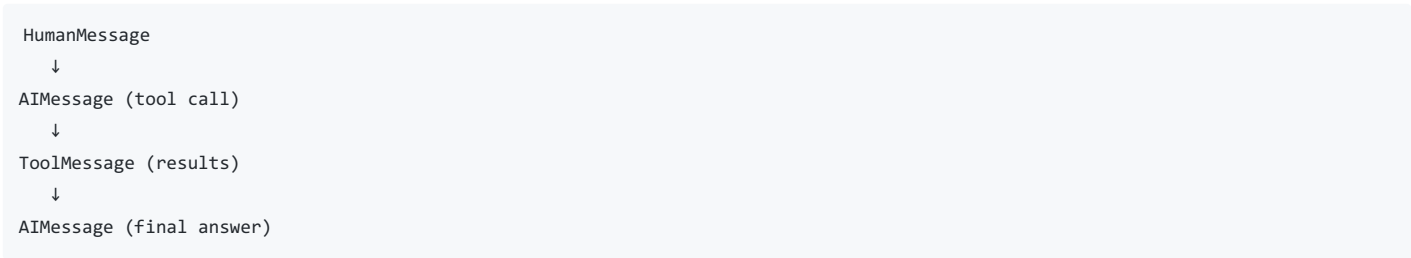Agent reads the tool output, extracts key points:

- Chip head Johny Srouji is staying at Apple
- Several other executives have left
- Apple is increasing US manufacturing investment

State 5 — Final Answer

```
AIMessage: "Here's a summary of recent Apple news..."
```

Agent converts raw data into a clean, human-readable summary.

Summary of State Flow

```
HumanMessage
    ↓
AIMessage (tool call)
    ↓
ToolMessage (results)
    ↓
AIMessage (final answer)
```

This demonstrates how the agent moves through different states instead of answering in one step.