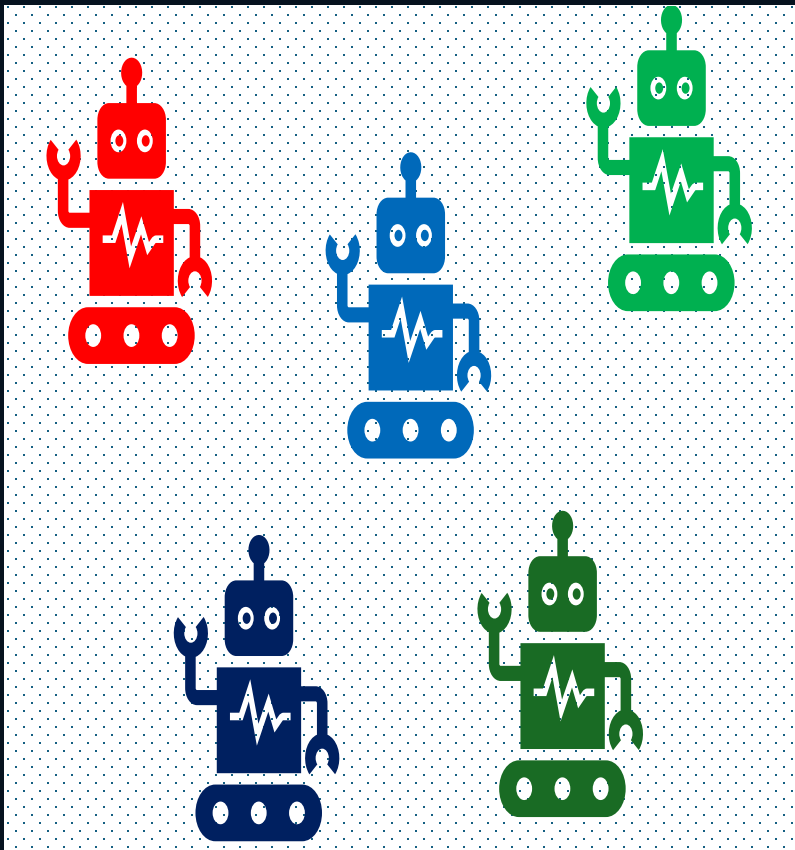# Revolutionizing Data Engineering & Analytics with Agentics AI

Cloud Data Driven User Group

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Agenda

What is Agentic AI?

Autonomous Agents

- Copilot is a special agent
  - Human in the loop
  - Natural language interface
  - One step at a time
- Agents can be autonomous
  - Self-directed, human optional
  - Structured message interface
  - Execute workflow end-to-end
  - **Collaborate with other agents**
- Agents can be the "system two" of a copilot
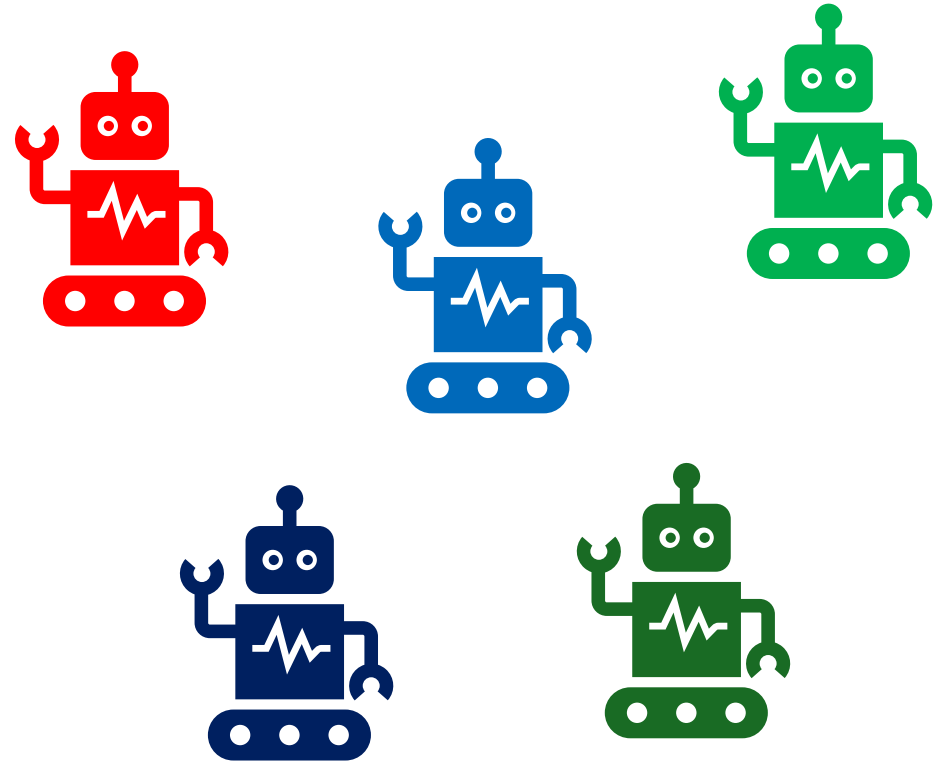
When to leverage Agentic AI?

- Automation of Complex Tasks

- Decision Support

- Personalized Experiences

- Problem Solving

- Innovation and Research

- Data-Intensive Tasks

Core components of agentic AI systems

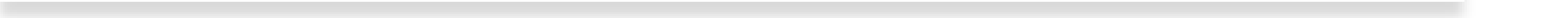**MEMORY**

PLANNING (LLMS)

TOOLS

Understand

Think

Act

LLMs & Agentic AI Key Differences

- Core Functionality
- Autonomy
- Learning
- Environment Interaction
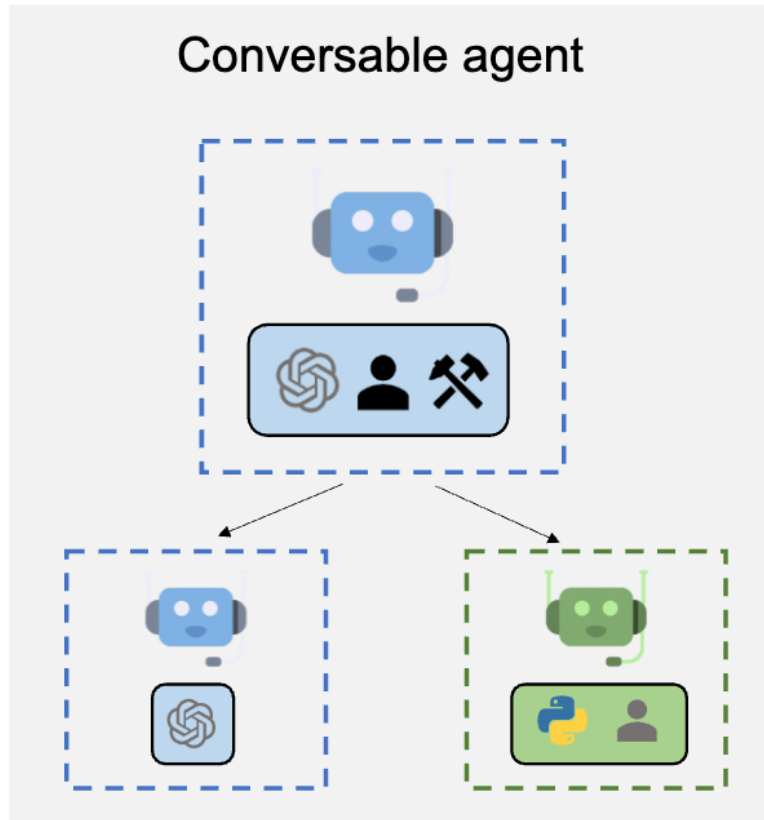
Top Frameworks for Building Agentic AI

Microsoft Autogen

CrewAI

Swarm

LangGraph

AutoGen Framework for Agents
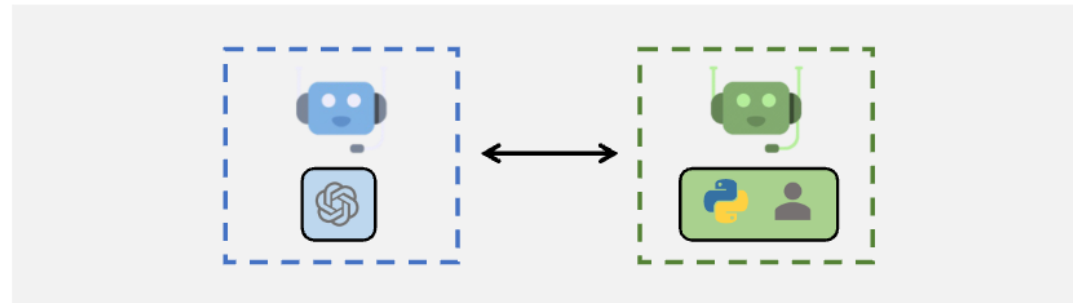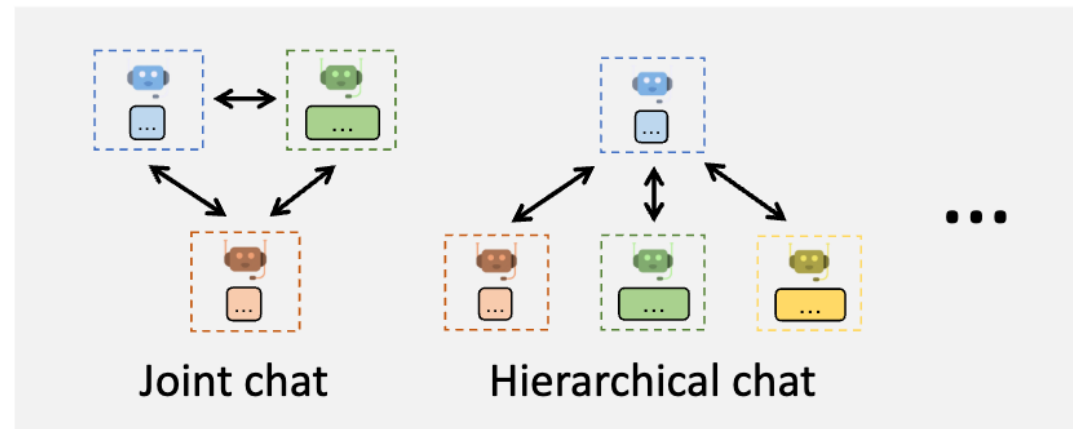
Open-Source
Framework &
Samples

Customizable
Conversable
Agents, LLMs

Research-Driven
Tools & Patterns

**No-Code and
Code-First**
Development

Docs: **https://aka.ms/autogen/website**   **Discord:** **https://aka.ms/autogen/discord**

Microsoft Autogen: Key Concepts

- Agent
- Proxy
- Chat Group
- Group Manager

Job requirements

We will be receiving this CSV file for all of our tenants. The table schema definition is the same across all files, but the contents differ.

Contoso Bicycle Inc. IT Consultant

First requirements: Grouping Sales data by Country, and Category.

It returns the total number of orders and the total purchase price for each group.

If a specific country is provided, the process should filters the data for that country. Otherwise, it returns data for all countries.

The results are ordered by Country in ascending order and Total Purchase Price in descending order.

Second requirements: Get Bicycle Sale Details

Groups the sales data by country, category, and color, and counts the quantity of each color.

Knowledge Transfer from Human to User Proxy.

Step 1: Import CSV Files into SQL Server

Create Schemas and Tables:

- Create two schemas: one for staging and one for production.

- Create tables within these schemas.

Create Stored Procedures:

- One stored procedure to load the CSV file into the staging table.

- Another stored procedure to transfer data from the staging table to the production table.

Step 2: Perform Data Analysis

Create Stored Procedure to Group Sales Data by Country and Category:

- This procedure will group sales data and return the total number of orders and total purchase price for each group.

Create Stored Procedure to Get Bicycle Sale Details:

- This procedure will group sales data by country, category, and color, and count the quantity of each color.

- **Note**: Ensure that schemas for staging and production tables are created beforehand.

Step 3: Error Handling, Indexing, and Robustness

Parameter-Driven Procedures:

- Ensure all procedures are parameter-driven for flexibility.

Error Handling and Process Tracking:

- Implement error handling and process tracking within your procedures.

Indexing Considerations:

- Add indexes to improve query performance, especially on frequently used columns.

Live
Demonstration

Key takeaway

Thank You!

Natural Language Interface to Databases A New Paradigm for Data-Driven Development

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Cloud Data Driven

ONLINE USER GROUP MEETING
DELIVER FREE CONTENT RELATED
TO
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DataOps, AI, Data Science & Machine Learning, Business Intelligence and Analytics