Resources

- This presentation depends on two projects
- 1. https://aka.ms/contoso-sales-agent-repo
  - Docs: https://aka.ms/contoso-sales-agent-docs
- 2. https://aka.ms/aitour/WRK552/repo

- **Check out all resources on**: aka.ms/aitour/brk443

- **Check out the full workshop:**
- https://microsoft.github.io/build-your-first-agent-with-azure-ai-agent-service-workshop/

Microsoft

Microsoft AI Tour

Microsoft

Build AI Agents in Azure

Azure AI Agent Service

BRK443

Dave Glover | Microsoft

Final

Build AI Agents in Azure

Azure AI Agent Service

Dave Glover

Principal AI Cloud Developer Advocate | Microsoft

LinkedIn: https://www.linkedin.com/in/gloveboxes

GitHub: https://github.com/gloveboxes

Chapter 1

Setting the scene

Use case

Working for an e-commerce selling camping equipment

Want to analyze sales data

Agent

Semi-autonomous software that can be given a goal and will work to achieve that goal without you knowing in advance exactly how it's going to do that or what steps it's going to take.

An agent needs to accomplish 3 things:

Reason over a provided business process

Retrieve context to complete the process

Perform an action for the end-user

How can an agent help us?

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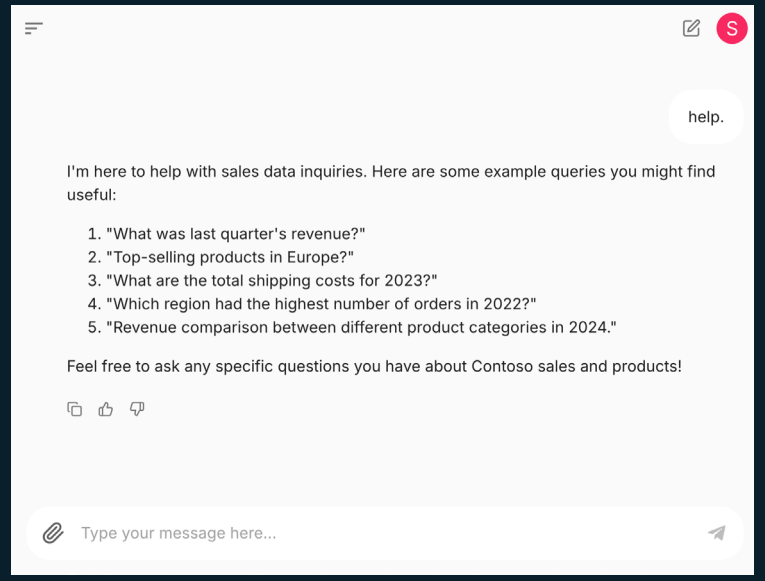
Demo – Contoso Sales Agent

An agent built with Chainlit and the Azure AI Agent Service (Demo 1)



Chapter 2

How does the Contoso Sales Assistant work?

@yt qd @HEnt mc qx

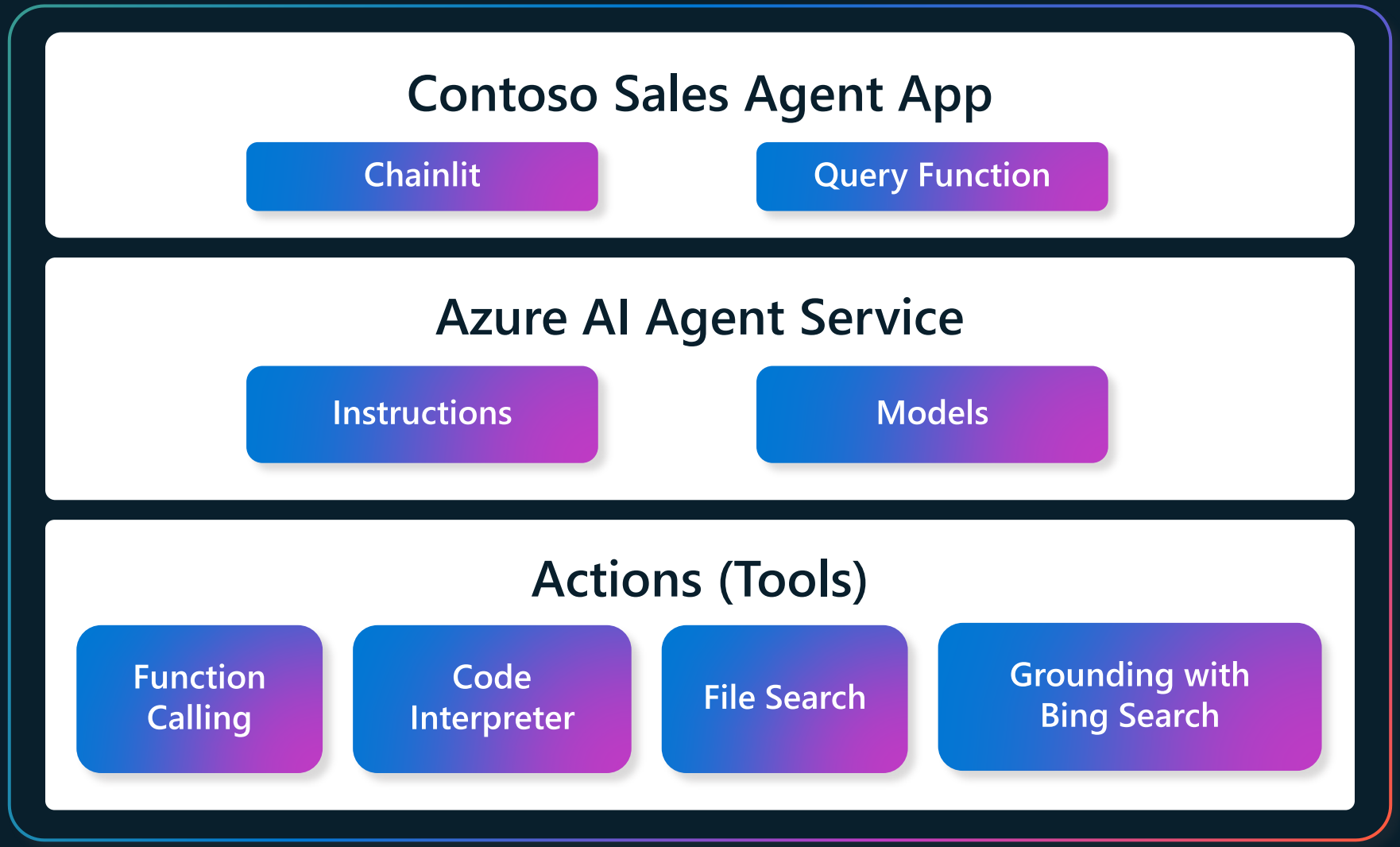
Coming Soon

@yt qd @H@f dms Rdqulbd

Rdbt qdkx at lkc+c dokn x+`mc rb`kd @H`f dmsr v hsg d`rd

Q`ohc cdudkn ol dms `mc `t snl `shmm	Dwsdmr hud c`s` bnmmdbshmmr	Ekdwhakdl nc dk rdkdbshmm	Dmsdqoqhrd,fq`cd rdbt qhsx

Solution Architecture



AI Agent Service in Action

Step 1:
Create an Agent

Step 2:
Create a Thread

Step 3:
Run the Agent

Step 5:
Check the Run status

Step 6:
Display the Agent's Response

Agent
Contoso Sales Agent

Instructions: You are an advanced sales analysis agent for Contoso, specializing in assisting users with sales data inquiries

Model

Your data (optional)
- Azure AI Search
- Files (local or Azure Blob)

Tools (optional)
File Search
Code Interpreter
Function Calling
Bing Search
Microsoft SharePoint
Microsoft Fabric
Azure AI Search
Azure Logic Apps
Azure Functions
OpenAPI 3.0 specified tools

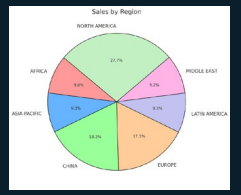
Thread
Sales analysis

User's message
Tell me the total sales by region

Agent's message
Here is the sales:
Europe: $15478.00
America: $78792.00

User's message
Show as a pie chart

Agent's message



Run 1
1. Function Calling Tool
   Query SQLite DB
2. Create message

Run 2
1. Code Interpreter Tool
   Create a pie chart
2. Create message

Function calling

The capability of LLMs to take in user-defined functions as inputs & generate structured outputs.

Function Calling

Instruction

You are a sales analysis agent for Contoso. You get all the sales data from this app using the functions provided. Use the database {metadata} when writing SQL queries.

Function

```python
async def async_fetch_sales_data_using_sqlite_query(self: "SalesData", sqlite_query: str) -> str:
    """
    This function is used to answer user questions about Contoso sales data by executing SQLite
    queries against the database.

    :param sqlite_query: The input should be a well-formed SQLite query to extract information
    based on the user's question. The query result will be returned as a JSON object.
    :return: Return data in JSON serializable format.
    :rtype: str
    """

    print(f"\n{tc.BLUE}Function Call Tools: async_fetch_sales_data_using_sqlite_query{tc.RESET}
    \n")
    print(f"{tc.BLUE}Executing query: {sqlite_query}{tc.RESET}\n")

    try:
        # Perform the query asynchronously
        async with self.conn.execute(sqlite_query) as cursor:
            rows = await cursor.fetchall()
            columns = [description[0] for description in cursor.description]
```

+

User

What were the sales for April 2023?

=

LLM

name = async_fetch_sales_data_using_sqlite_query'

args = {
"query":
"SELECT Revenue FROM sales WHERE month = 4 and year = 2023"
}

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Lab 1 Demo

Function Calling and Dynamic SQL Generation

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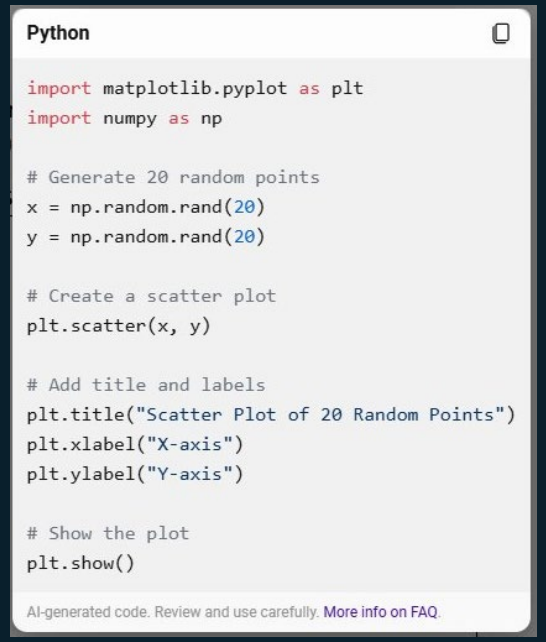
Lab 2 Demo

Code Interpreter



Python

```python
import matplotlib.pyplot as plt
import numpy as np

# Generate 20 random points
x = np.random.rand(20)
y = np.random.rand(20)

# Create a scatter plot
plt.scatter(x, y)

# Add title and labels
plt.title("Scatter Plot of 20 Random Points")
plt.xlabel("X-axis")
plt.ylabel("Y-axis")

# Show the plot
plt.show()
```

AI-generated code. Review and use carefully. More info on FAQ.

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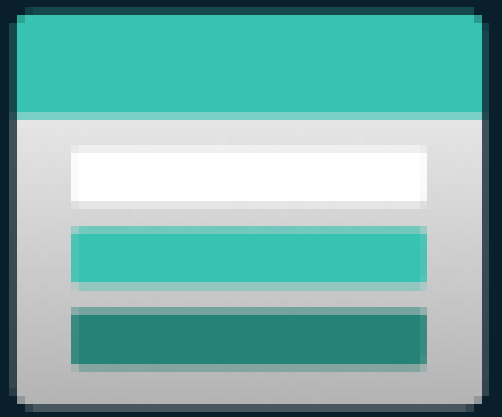
Lab 3 Demo

Grounding with File Search



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Lab 4 Demo

Grounding with Bing Search

Chapter 4

Takeaways

Learnings and next steps

- Do more with LLMs using function calling
- Take it to the next level with AI AI Agent Service to get function calling, code generation, file search, and more
- Explore frameworks like Azure AI Agent service, Semantic Kernel and Autogen to implement advanced functionalities
- Use UI or code to build your agent

Thank you

https://aka.ms/aitour/brk443

https://aka.ms/aitour/WRK552/repo

Feedback

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...or use the QR code.

For more information or questions, please visit us in the Hub

Scan QR code to respond

What other sessions should I join?

		Date	Location
BRK440	The foundation of generative AI in Azure	Date	Location
BRK441	From Concept to Creation with Azure AI Studio	Date	Location
BRK442	Infusing an eCommerce app with AI	Date	Location
BRK443	Build AI Agents in Azure	Date	Location
BRK450	Prompty, AI Studio and practical E2E development	Date	Location
BRK451	Code-first LLMOps from prototype to production	Date	Location
BRK452	Operationalize AI responsibly with Azure AI Studio	Date	Location
BRK453	Explore cutting-edge models: LLMs, SLMs and more	Date	Location
Workshop	Interacting with Large Language Models	Date	Location
Workshop	Build a retail copilot code-first on Azure AI	Date	Location
Workshop	Build a multi-tasking assistant with Azure OpenAI	Date	Location

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