

Building Agentic AI Workflows with xAI on Vertex AI: " From Code to Action " - Agent DEMO

"Imagine this agent is a marketing assistant. It watches customer activity in real time (mock API). It predicts if the customer is likely to engage with a promotion (model). If yes, it sends an automated email. If no, it updates the CRM to try a different strategy. And it explains why it made that decision using SHAP plots so marketers can trust it."

1/ What this agent does (step by step)

1. Collects information

- Pulls data from an “external source” (mock API)
- Example in real life: market prices, sensor readings, customer events

2. Analyzes the data

- Uses a trained model (vertex_model.pkl) to predict an outcome
- Example: decide whether the next action should be “email customer” or “update record”

3. Explains its reasoning

- Uses **SHAP (xAI)** to show which input features influenced the decision
- This makes the agent **transparent** and trustworthy

4. Acts autonomously

- Based on prediction, executes a simulated action
- Examples:
 - Send an email
 - Update a database record
 - Trigger an alert

5. Logs its actions

- Every decision, prediction, and action is saved in an **audit record**
- Important for compliance and accountability

2/ Why it's an “Agentic AI” system

Agentic AI means an AI that can:

- **Perceive:** Gather information (API or sensors)
- **Reason:** Make decisions based on rules or learned models
- **Act:** Take steps autonomously without human intervention
- **Explain:** Provide interpretable reasoning (xAI)
- **Audit:** Keep records for accountability

This demo hits all of these points ; just in a local environment for presentation purposes.

3 /Key takeaways about this agent

- **Input → Reason → Explain → Act → Log**
- Demonstrates the **full lifecycle of an autonomous AI system**
- Shows **explainability in action**
- Can be scaled to real cloud systems (Vertex AI, APIs, pipelines)
- Acts as a **template for building real agentic AI workflows**