Generative AI Agents – Task Automation with LLM Reasoning

LAB Assignment on ADK

Assignment 1: Build a Math Assistant Agent

- **Problem Definition:**
  Create an LlmAgent that can solve basic math problems by using a Calculator Tool instead of relying on the LLM alone. (Understand how an LlmAgent interacts with external tools + Learn basic task routing between agent reasoning vs. tool execution)

- Implement a CalculatorTool that can perform addition, subtraction, multiplication, and division.
- The agent should parse user queries like *"What is 12 × 15?"* or *"Add 56 and 89"*.
- If the query is a math expression, the agent must delegate the computation to the CalculatorTool.
- Otherwise, the agent should respond with a polite fallback message (e.g., *"I can only help with math problems for now."*).

Assignment 2: Multi-Tool Travel Assistant

- **Problem Definition:**
  Build an LlmAgent that helps users plan simple travel-related queries using multiple tools (Practice multi-tool orchestration with an agent + Learn simple decision-making for tool invocation).
- Implement two tools:
  1. **WeatherTool** → returns weather for a given city (use mock data or an API).
  2. **FlightTool** → returns dummy flight information between two cities.
- The agent should decide which tool(s) to call depending on the user's request.
- Example interactions:
  - *"What's the weather in Paris tomorrow?"* → WeatherTool.
  - *"Find me a flight from Delhi to Bangalore"* → FlightTool.
  - *"Plan a weekend trip to Goa"* → use both tools (weather + flights) and summarize.