Generative AI Agents – Task Automation with LLM Reasoning

LAB Assignment on ADK

Assignment-1: Symptom Checker with Context Sharing

Design an AI health assistant using Google ADK that helps a patient understand their symptoms by using multiple tools and **sharing context**.

- The agent should use at least two tools:
    1. **Symptom Lookup Tool** – maps patient's symptom (e.g., "fever + cough") to possible conditions.
    2. **Medication Suggestion Tool** – recommends over-the-counter medicines or care instructions based on the condition.
- The **symptom context** gathered from Tool 1 must be shared with Tool 2.
    o Example: If Tool 1 detects "flu-like symptoms", Tool 2 should suggest "rest, hydration, paracetamol" instead of unrelated advice.

Expected Features:

- Define and register the two tools.
- Implement context sharing (condition identified → passed as input to medication suggestion).
- Final response should summarize: *Symptom → Possible Condition → Recommended Action*.

Deliverables:

- ADK-based code showing tool registration and execution.
- Demo run: input = "I have a fever and sore throat", output = "Possible condition: Flu → Suggested care: Rest, fluids, paracetamol".
- Explanation of how **context passing across tools** improves the user experience.

Assignment-2: Student Quiz Assistant with Callbacks

Develop an AI-powered **Quiz Assistant** using Google ADK that administers quizzes to students and uses **callbacks** to log every question-answer interaction.

- The agent should use at least two tools:
    1. **Question Bank Tool** – retrieves a question from a subject/topic (e.g., Math, History).
    2. **Answer Checker Tool** – validates the student's answer and gives feedback (correct/incorrect, with explanation).
- Implement a <u>callback function</u> that records every quiz step:
    o Question asked
    o Student's response
    o Result (correct/incorrect + explanation)
- At the end of the quiz, the agent should present a <u>summary log</u> of all interactions.
    o Example:
        ▪ Q1: "What is 5 + 7?" → Student: "12" → Correct
        ▪ Q2: "Who was the first President of India?" → Student: "Mahatma Gandhi" → Incorrect (Correct: Rajendra Prasad)

Expected Features:

- Use ADK callbacks to capture inputs/outputs for every tool execution.
- Execution history should be maintained in memory.
- At the end, the log should summarize student performance.

Deliverables:

- ADK code with callback integration.
- Sample run of a short 3-question quiz.
- Explanation of how callbacks enable <u>learning analytics and performance tracking</u> in education applications.