# **Session 1 & 2 — Agentic AI: Exercises & Assignments (Handout)**

## **In-Class Labs**

### Lab 1 — Reactive Chatbot

* + Build a simple chatbot that responds using only the LLM.
  + No tools, no memory — purely reactive.
  + Test it with simple Q&A; (e.g., capital cities).

### Lab 2 — Tool-Using Agent

* + Add a weather tool (mock or real).
  + If the query contains 'weather', call the tool.
  + Otherwise, fallback to the LLM.

### Lab 3 — Planning Agent

* + Ask the agent to break down a high-level goal into steps.
  + Output the plan as a numbered list.

### Lab 4 — Memory Demo

* + Store the last 3 user queries in a memory structure.
  + Show memory contents after each new query.

### Lab 5 — Feedback & Retry

* + Simulate a flaky tool that fails randomly.
  + Add retry logic: retry up to 3 times before failing.

## **Take-Home Assignments**

### Assignment 1 — Extend Tool-Using Agent

* + Support two tools (Weather + Wikipedia).
  + Add a rolling memory of the last 3 queries.
  + Demonstrate memory contents after each call.

### Assignment 2 — Mini Planner Agent

* + Break down a goal into steps (e.g., 'Plan a day in Chicago').
  + Execute one step (e.g., fetch weather).
  + Show both the plan and the executed result.

### Assignment 3 — Feedback & Retry (Stretch)

* + Wrap a tool function in a retry decorator.
  + Retry failed calls up to 3 times.
  + Show success or final failure message.