Generative AI Agents – Task Automation with LLM Reasoning

LAB Assignment on CrewAI
Use CLI tool of CrewAI to build the following crews.
Update the definitions of the agents and tasks in the YAML files as needed.
Check the *crewai_tools* for the available tools. Create custom tools as needed.

Assignment-1: Code Assistant Crew

Problem Statement:

You need to build a **Code Assistant Crew** using CrewAI that can help with problem-solving in programming. The crew should simulate a **coding support workflow**.

1. **Create a crew with the following agents:**
   o **Problem Setter Agent**: Takes a user query (e.g., "Implement bubble sort in Python") and reformulates it into a clear programming problem statement.
   o **Coder Agent**: Generates Python code to solve the problem.
   o **Reviewer Agent**: Reviews the code for correctness, readability, and optimization, then provides feedback.
2. The crew should take a programming problem input from the user during runtime of the crew.
3. Configure the crew so that:
   o The **Problem Setter** defines the problem.
   o The **Coder** produces a solution.
   o The **Reviewer** validates and improves the code.
4. Run the crew and save both the **generated code** (*solution.py*) and the **review feedback** (*review.txt*).

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Assignment – 2: Travel Planner Crew

Problem Statement:

You are tasked with building a Travel Planner Crew using CrewAI that helps users design a travel itinerary based on their preferences.

1. **Create a crew with the following agents:**
   o **Destination Expert Agent:** Suggests top destinations based on user input (e.g., "I want a 5-day budget-friendly trip in Europe").
   o **Itinerary Planner Agent:** Creates a day-by-day plan with activities, food options, and cultural experiences.
   o **Budget Advisor Agent:** Estimates the total cost of the trip and provides a budget breakdown (accommodation, food, transport, activities).
2. **The crew should take two inputs from the user via CLI:**
   o Preferred region/destination (e.g., "Europe", "Japan")
   o Type of trip (e.g., "budget-friendly", "luxury", "adventure", "cultural")
3. **Configure the crew so that:**
   o The Destination Expert selects possible destinations.
   o The Itinerary Planner designs a schedule.
   o The Budget Advisor finalizes the cost estimate.
4. **Save the final itinerary and budget** in a file named *trip_plan.txt*.