Task – 3

Research Agent Workflow

```
                    ┌─────────────────┐
                    │   User Query    │
                    └─────────────────┘
                            │
                            ▼
                ┌───────────────────────────┐
                │   Research Controller      │
                │ (Main Orchestrator Agennt) │
                └───────────────────────────┘
                            │
        ┌───────────────────┼───────────────────┐
        ▼                   ▼                   ▼
┌─────────────────┐ ┌─────────────────┐ ┌─────────────────┐
│  Sub-Questions  │ │     Search      │ │ Document Reader │
│ Generator Agent │ │     Agent       │ │     Agent       │
│                 │ │ (Web / API Query)│ │  (PDF / HTML)   │
└─────────────────┘ └─────────────────┘ └─────────────────┘
        │                   │                   │
        └───────────────────┼───────────────────┘
                            ▼
                ┌───────────────────────────┐
                │   Evidence Aggregator      │
                │  (Combine all findings)    │
                └───────────────────────────┘
                            │
                            ▼
                ┌───────────────────────────┐
                │      Search Results        │
                └───────────────────────────┘
                            │
                            ▼
                ┌───────────────────────────┐
                │      Extracted Text        │
                └───────────────────────────┘
                            │
                            ▼
                ┌───────────────────────────┐
                │    Final Answer Writer     │
                │ (Summary, citations, formatting)│
                └───────────────────────────┘
                            │
                            ▼
                ┌───────────────────────────┐
                │         Output             │
                │ (Research Report / Summary / QA)│
                └───────────────────────────┘
```
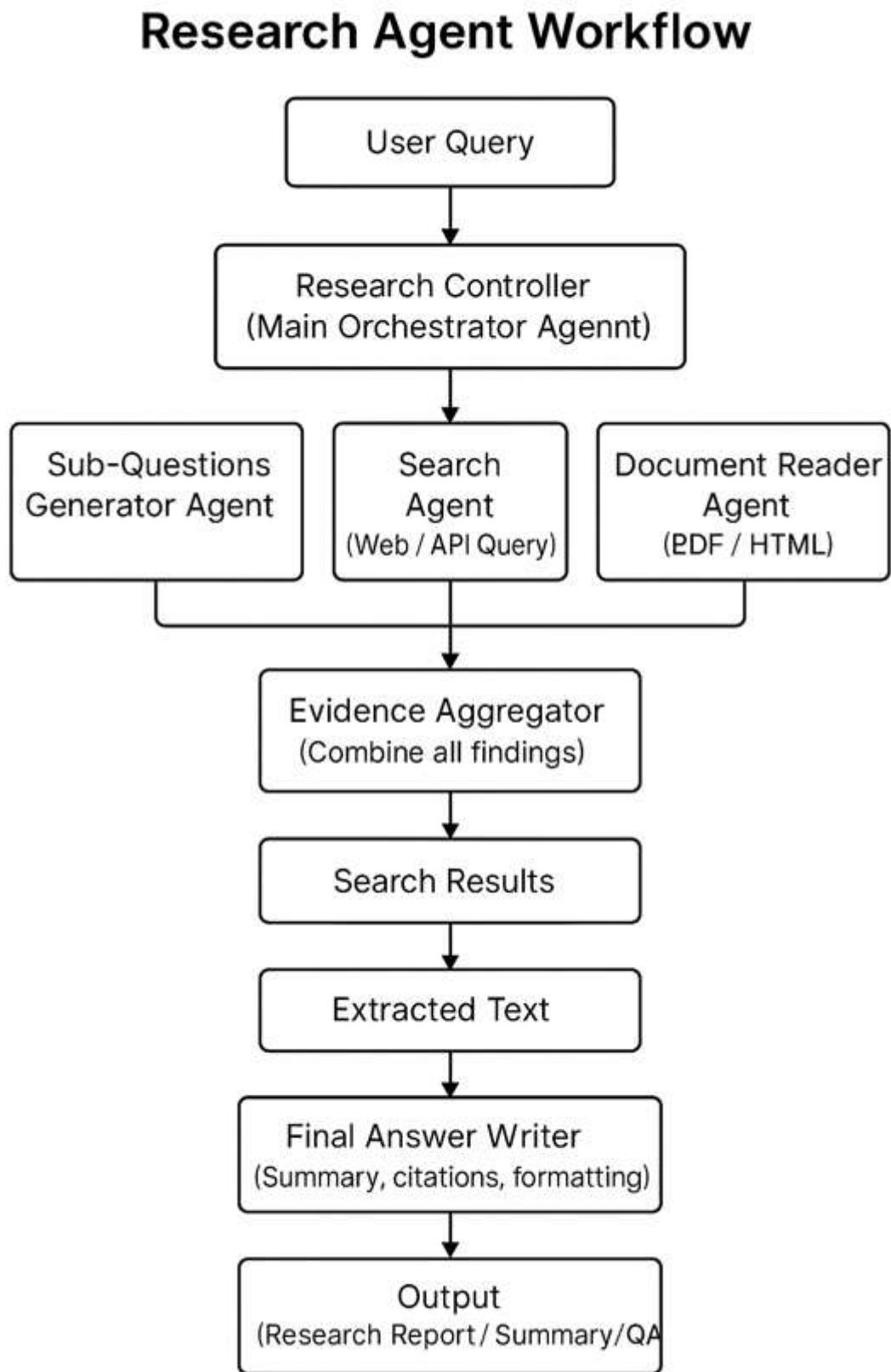
Description of Architecture:

Use 5 horizontal layers:

Layer 1 — Input Layer

      User

      Provides main research question

Layer 2 — Orchestration Layer

      Research Controller (Main Agent)

      Breaks problem into steps

      Delegates tasks to specialized agents

      Monitors progress and merges outputs

Layer 3 — Worker Agent Layer

      A. Sub-question Generator

            Breaks the main problem into smaller researchable questions

      B. Search Agent

            Calls external search APIs

            Retrieves webpages, documents, datasets

      C. Document Reader Agent

            Extracts text from PDFs, HTML, articles

Layer 4 — Processing Layer

      Evidence Aggregator

            Combines all findings

            Removes duplicates

            Maintains citations

      Reasoning Engine

            Analyzes evidence

            Synthesizes insights

            Performs logical reasoning

Layer 5 — Output Layer

      Answer Writer

Writes the final summary

Ensures clarity, structure, and citations

Final Output

Research Report

Executive Summary

Answer to Question