

Task 5 Report

1) Workflow Design Followed

In this assignment, I designed a multi-agent AI workflow using LangChain to simulate a complete market research pipeline. The workflow is broken down into three key stages, handled by individual agents, each responsible for a specific subtask:

Input Stage:

- The user provides an input query in the format –
- "Generate a market research report on Tata Motors"
- This initiates the workflow by passing the topic to the first agent.

Agent 1 – Research Agent:

- Goal: Gather detailed information about the company/industry.
- Tools Used:
 - search_and_fetch_articles: Uses Serper API and BeautifulSoup to extract real-time content.
- calculator_tool: Allows basic arithmetic calculations.
- Output: A structured and comprehensive collection of insights on the company, including:
 - i. Company overview and history
 - ii. Market size and growth
 - iii. Competitors
 - iv. Industry trends
 - v. Product offerings
 - vi. Latest developments

Agent 2 – Analysis Agent:

- Goal: Analyze and summarize key findings from the data gathered by Agent 1.
- Tools Used:
 - calculator_tool for numeric calculations.
- Output: A detailed business analysis which includes:
 - i.Key findings
 - ii.SWOT analysis
 - iii.Market projections
 - iv.Competitive landscape
 - v.Strategic recommendations

Agent 3 – Report Writer Agent:

Goal: Convert the analysis into a professionally formatted report in Markdown.

Output: A fully formatted market research report containing:

- i. Executive summary
- ii. Table of contents
- iii. Market overview
- iv. Industry trends
- v. Competitive landscape
- vi. Consumer analysis
- vii. Financial projections
- viii. SWOT analysis
- ix. Strategic recommendations
- x. Methodology section

The report is saved as market_research_report.md.

Agent Collaboration

- Each agent in the system works sequentially and passes its output to the next agent, forming a linear pipeline. Here's how they interact:
- The Research Agent (Agent 1) performs the initial data collection using web search and content extraction.
- The collected data is passed to the Analysis Agent (Agent 2), which interprets the raw data, performs calculations if necessary, and extracts actionable insights.
- The Report Writer Agent (Agent 3) takes the output from Agent 2 and formats it into a clean, structured Markdown report ready for use or sharing.
- This clear separation of responsibilities ensures modularity and better maintenance of the overall workflow.

Final Report Structure

The final report follows a professional market research format with the following sections:

- i. Executive Summary
- ii. Table of Contents
- iii. Market Overview
- iv. Industry Trends
- v. Competitive Landscape
- vi. Consumer Analysis
- vii. Financial Projections
- viii. SWOT Analysis