

# Documentation for Multi-Agent Finance and Web Search System

## Introduction

The Multi-Agent Finance and Web Search System is an AI-powered project that integrates multiple agents to perform specialized tasks. This system uses the `phi` framework to provide insights through web searches and financial data analysis. It is designed to showcase the power of collaborative agents working together for comprehensive and accurate outputs.

## Features

1. **Web Search Agent:**
  - a. Searches the web for information related to user queries.
  - b. Includes sources in the response for credibility.
2. **Finance Agent:**
  - a. Fetches real-time stock prices.
  - b. Provides company fundamentals, analyst recommendations, and news.
  - c. Uses tables for structured data presentation.
3. **Multi-Agent Collaboration:**
  - a. Combines the functionalities of the Web Search Agent and Finance Agent.
  - b. Processes complex queries for integrated outputs.

## System Architecture

The system comprises three main components:

1. **Agents:**
  - a. Web Search Agent: Uses DuckDuckGo for web searches.
  - b. Finance Agent: Utilizes YFinanceTools for financial data retrieval.
2. **Model:**
  - a. Powered by the Groq model (`llama3-groq-70b-8192-tool-use-preview`).
3. **Environment:**
  - a. Environment variables handle API keys securely using a `.env` file.

## Installation and Setup

### Prerequisites

- Python 3.8 or above.
- Dependencies listed in `requirements.txt`.

### Steps

1. Clone the repository:

```
git clone https://github.com/vaibhavgaikwad2/AI-ProjectVault
```

2. Install dependencies:

```
pip install -r requirements.txt
```

3. Create a `.env` file based on `.env.example`:

```
GROQ_API_KEY = "YOUR_GROQ_API_KEY"
```

```
PHI_API_KEY = "YOUR_PHI_API_KEY"
```

4. Run the project:

```
python main.py
```

## Usage

1. **Input:** The user enters a company name or a specific query.
2. **Processing:** The system uses the relevant agent(s) to process the query.
3. **Output:** Displays results in Markdown format with structured tables and sources.

Example Query:

Summarize analyst recommendations and share the latest news for Tesla

## Example Output:

```
PS D:\AI\ML\GIT\Practise_Projects> cd Financial_AI_Agent
PS D:\AI\ML\GIT\Practise_Projects\Financial_AI_Agent> conda activate venv/
PS D:\AI\ML\GIT\Practise_Projects\Financial_AI_Agent> python financial_agent.py
##### 🤖 Thinking...

Message
-----
summarize analyst recommendation and share the latest news for nvidia

Response (16.1s)
-----
Running:

• transfer task to finance ai agent(task description=Summarize analyst recommendation for NVIDIA, expected_output=A summary of the latest analyst recommendations for NVIDIA, additional_information=Please include the most recent ratings and price targets.)
• transfer task to web_search agent(task description=Find the latest news for NVIDIA, expected_output=A list of the latest news articles about NVIDIA, additional_information=Limit the search to the past week and include only reputable sources.)

Here is a summary of the latest analyst recommendations for NVIDIA:

• Buy: 48
• Hold: 4
• Sell: 0
• Strong Buy: 12
• Strong Sell: 0

The ratings have remained consistent over the past few months, with a significant majority of analysts recommending a buy.

Additionally, here are the latest news articles about NVIDIA from the past week:

1 Nvidia's next move: powering humanoid robots - [Source](https
```

## Project Structure

### Multi-Agent-Finance-and-Web-Search/

```
|— main.py           # Main script
|— requirements.txt  # Dependencies
|— .env.example      # Environment variable template
|— README.md         # Project overview
```

## Technical Details

### Web Search Agent

- Tool: DuckDuckGo
- Purpose: Searches for user queries and includes credible sources.

### Finance Agent

- Tool: YFinanceTools

- Functionalities:
  - Retrieves stock prices.
  - Summarizes analyst recommendations.
  - Displays company fundamentals and latest news.

### Multi-Agent Collaboration

- Combines agents for complex queries.
- Streamlines responses in Markdown with tables and sources.

### Potential Enhancements

1. Add support for additional tools like Google Search or Alpha Vantage.
2. Introduce a GUI for easier interaction.
3. Expand the financial agent to include cryptocurrency data.
4. Add natural language understanding for better query interpretation.

### Contributors

- **Vaibhav Gaikwad (Project Lead)**
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### Contact Information

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