



# **TIC3901 Industrial Practice**

## **Report 2**

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# 1. Introduction

This report provides an update on the progress of the Financial Markets Dashboard Project. The project aims to enhance commercial awareness across fixed income, equities, currencies, and commodities markets by streamlining data aggregation, cleaning, and visualization. By reducing the time financial professionals spend on manual data collection and interpretation, the dashboard supports more efficient and informed decision-making.

## 2. Progress Overview

Significant progress has been made since the project proposal phase, with key milestones achieved across data collection, cleaning, and visualization:

### 2.1 Data Collection

Python scripts have been developed and tested for extracting relevant financial data from the following key sources:

- **Google News Search Engine**

- Relevant news articles are extracted based on user-defined keywords.
- Up to 5 pages per keyword are scraped, sorted by the latest articles in descending order.
- Data is stored in a table format as CSV files.



google\_news.csv

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- **FXStreet Economic Calendar**

- Economic event data is scraped to track important financial releases and indicators.
- Data is stored in a table format as CSV files.



calendar.csv

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- **U.S. Treasury Par Yield Curve Rates**

- Daily treasury yield curve data is obtained to monitor interest rate movements.
- Data is stored in a table format as CSV files.

- **Yahoo Finance**

- Prices of user-defined financial securities are extracted to calculate daily, weekly, monthly, and year-to-date changes.
- Data is retrieved using the yfinance Python library and stored in CSV files.

## 2.2 Data Cleaning

Custom Python scripts have been implemented to clean raw data extracted from all sources, leveraging tools like Pandas, NumPy, and LangChain's Large Language Model (LLM). Key cleaning tasks include:

- **Text Data Parsing and Summarization**
  - Unstructured text data scraped from the Google Search Engine is processed using LangChain's LLM to generate concise and actionable summaries.
- **Datetime Formatting**
  - All datetime fields have been converted from the US time format to Singapore (SG) time format to ensure consistency with local market standards.
- **Handling Missing Data**
  - Prices from Yahoo Finance are forward-filled to address missing values caused by public holidays when exchanges are closed for trading.
- **Derived Metrics Calculation**
  - Daily, weekly, and monthly price changes have been calculated for all user-defined securities to support comprehensive analysis.

## 2.3 Data Visualization

Cleaned data is visualized using appropriate formats, such as charts and tables. These visualizations are being prepared for integration into a unified dashboard using either Excel or Tableau. Key financial insights will be presented through:

- Concise narrative descriptions on current affairs.
- Tabular summaries of economic events and securities price changes.
- Clear and informative charts on U.S. Treasury Par Yield Curve Rates.

## 3. Conclusion

The project is progressing on schedule, with all major data extraction, cleaning, and visualisation completed. The next steps will focus on incorporating the visualisation components on a dashboard (Excel or Tableau). The dashboard is now well-positioned to meet its objectives of improving commercial awareness and decision-making for finance professionals.