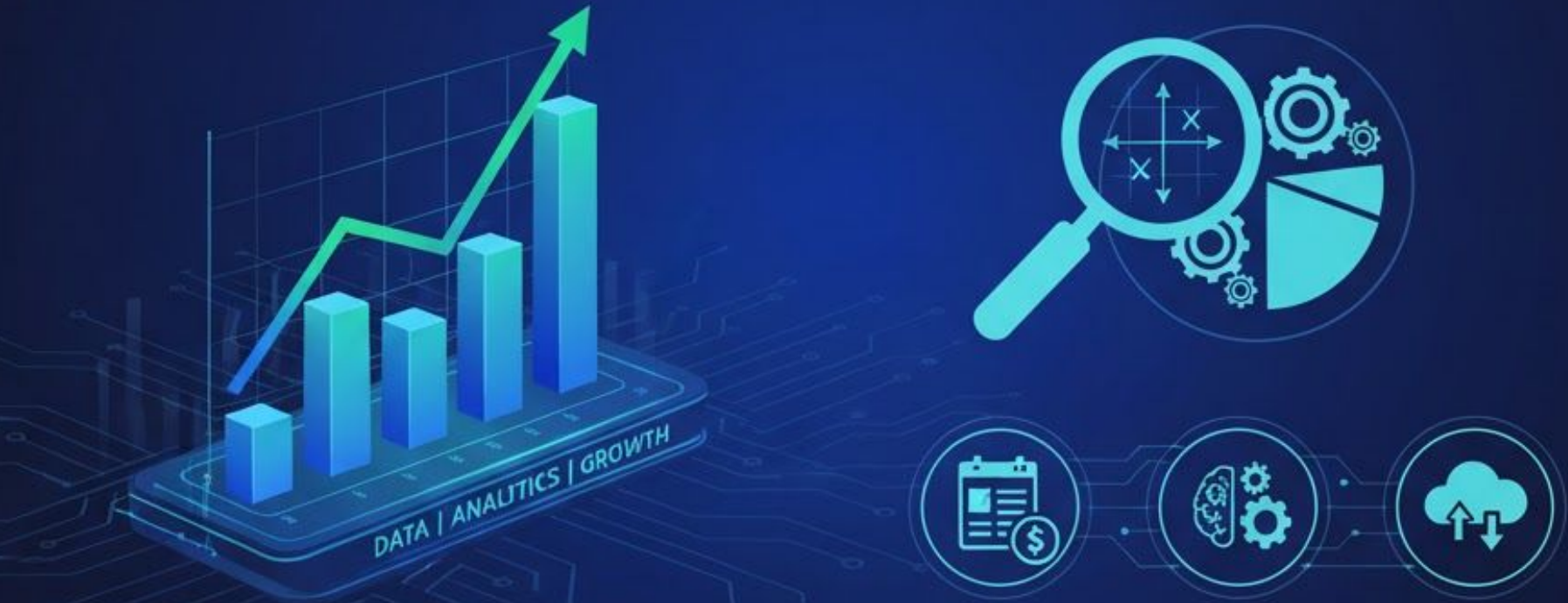
FINANCIAL DATA ANALYSIS MINI PROJECT

EXPLORING MARKET TRENDS & INVESTMENT INSIGHTS



Group Member

Name	Gender	Task
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La Phally	Male	Tickers Used for Analysis
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🌟 Introduction

- 🚀 With the rapid growth of computing power, humanity can now process and analyze massive datasets at unprecedented speeds.
- 🤖 This capability has enabled computers to *learn* and evolve into today's powerful artificial intelligence systems.
- 💡 Even without becoming a software engineer, the data-processing skills you've learned—especially using Python and Pandas—are enough to solve many real-world problems.
- 📊 **Pandas**, a core library widely used in data analysis, was originally designed for working with financial data.
- 💰 Financial data analysis is the *core* of data analysis. By practicing with historical financial datasets, you can gain experience applicable to most real-world data structures.
- 🌍 Financial data analysis remains one of the most effective ways to build strong, practical data-analysis skills.

🎯 Objective

Using everything we've learned so far, we will tackle the following key tasks:

- 🌐 Obtaining financial data from remote sources
- 📈 Visualizing stock price time series
- 📉 Visualizing trading volume time series
- 📊 Measuring simple daily returns
- 🔁 Calculating cumulative daily return
- 📅 Calculating monthly rolling returns
- 🧮 Computing moving averages
- 🔗 Analyzing correlations between financial factors
- 📉 Measuring stock price volatility

🧭 Overview

- The dataset we'll use consists of **global stock and economic indicators**, not just individual company stocks.
- 🌱 To provide deeper insight into real-world economic dynamics, we include global agricultural commodity prices.
- 🇺🇸 Since the U.S. market strongly influences global economics, selected U.S.-based financial instruments offer meaningful practice data.

📌 Tickers Used for Analysis

- **SPY** — Tracks the S&P 500, a leading U.S. market index
- **IYW** — Tracks the U.S. technology sector
- **VT** — Global stock market index
- **DBA** — Agricultural commodities index (food supply & demand)
- **TLT** — U.S. long-term Treasury bond rate
- **PDBC** — Broad commodity index (energy, metals, etc.)
- **IAU** — Gold price tracker

🏁 Conclusion

Through this practice, we gain hands-on experience with essential techniques used in real-world **financial data analysis**. By collecting time-series data 📊, visualizing market movements 📈, calculating returns 🔁, analyzing correlations 🔗, and measuring volatility 📉, we build a solid foundation in **data-driven decision making**.

Financial datasets are rich, dynamic, and closely connected to global economic conditions 🌍—making them one of the most powerful training tools for developing analytical skills. Whether or not you become a software engineer 👨‍💻, the ability to process, analyze, and interpret data using Python and Pandas empowers you to solve practical problems across many fields 💡.

By mastering these tools and workflows 🛠️, you prepare yourself to confidently handle complex datasets, uncover meaningful insights 🔍, and make informed decisions both professionally and in everyday life.