Performance Analysis of FAANG Companies

Team Members: Takaaki Morita, Ming Shan Lee, Yun Jing Chang, Hasti Sodavadia

The COVID-19 pandemic has significantly impacted global economic sectors, including the technology industry. This project aims to analyze the performance of FAANG companies (Facebook, Amazon, Apple, Netflix, and Google) from January 2019 to the present (February 2024), with a specific focus on their financial health, stock performance, employment trends, and particularly layoffs during the post-pandemic era.

We will collect data from Yahoo Finance, which offers comprehensive historical data on stock prices, trending volumes, and financial summaries of tech giants. The collection will be executed through Python libraries "BeautifulSoup" and "requests." While 'BeautifulSoup" will analyze the web pages, "requests" will handle the HTTP requests to Yahoo Finance's web pages for each company. This approach allows us to automate the extraction of structured datasets from the HTML content of the web pages.

We will be explicitly scraping the following information for each bank:
- Historical stock price (daily open, close, high, low, and volume)
- Quarterly and annual financial statements (income statement, balance sheet, cashflow)
- Employment Data: Information on employment trends, focusing on layoffs and hiring patterns.
- Financial ratios and performance indicators

The collected data will go through various analyses, including financial ratio analysis, employment trend analysis, stock performance trend analysis, and comparison of pre-pandemic and post-pandemic performance. We will use Python libraries pandas for data manipulation, NumPy for numerical analysis, and scikit-learn for any predictive modeling.

We will create visualizations to display the analysis results effectively. We will use Matplotlip and Seaborn to make these visualizations. This will include time-series graphs of

stock prices, comparative bar charts of key financial ratios, and scatter plots to depict the correlation between performance indicators and employment trends.

Our analysis of FAANG companies from 2019 to the present highlights their resilience and adaptability during the COVID-19 pandemic. Despite market fluctuations, these tech giants showed robust financial health and strategic management of employment trends, particularly in layoffs. Our project uses advanced data analysis tools to offer valuable insights into corporate strategies and workforce dynamics amidst economic challenges. This study enriches the academic understanding of tech sector operations during crises. It is a vital resource for investors and industry professionals, demonstrating the importance of agility and innovation in a rapidly evolving global economy.

Work Division

Takaaki Morita: Data Scraping and Cleaning, Reporting
Ming Shan Lee: Predictive Modeling and Financial Ratio Analysis
Yun Jing Chang: Stock Performance Analysis and Visualization of Data
Hasti Sodavadia: Employment Trend Analysis and Documentation