

ADS-505 Team Project Form and Business Brief Templates

Reference the file, “Business Brief Requirements-Team 6.pdf.”

Team Number: 6

Team Leader/Representative: John Vincent Deniega

Full Names of Team Members:

1. Amy Ou
2. Ghassan Seba

Title of Your Project: Tesla Price Prediction

Short Description of Your Project and Objectives: The purpose of this

Name of Your Selected Dataset and Programming Language: Yahoo Finance TSLA / Federal Reserve Records; Python

Description of Your Selected Dataset (source, number of variables, size of the dataset, etc.): Information is sourced from Yahoo Finance, the US Federal Reserve, and the Tesla Inc. investor relations websites. Data set contains 380 records consisting of 28 variables of TSLA stock and general financial market information from 11 March 2022 to 13 September 2023. This date range was selected to study the effects of US Federal Reserve interest discount rate hikes on stock price movement.

Provide your team GitHub link here: <https://github.com/vanguardfox/ADS-505-Group6-2023>

How many times have your team members met so far? Zoom – Multiple, Slack – Daily

List the specific contributions that each team member is providing for the Final Team Project in the table below.

- **NOTE:** ALL students on the team should contribute equally to the Final Team Project.

Team Member 1 John Vincent Deniega	Team Member 2 Amy Ou	Team Member 3 Ghassan Seba
GitHub Repository Mgmt. Dataset Pull, Preprocessing Initial Jupyter Notebook P/E Ratio Price Modeling A Priori Neural Net PredMod Time-Series PredMod	Random Forest Modeling and Evaluation	Principal Component Analysis, Regression Tree model, Linear Regression Model

Comments/ Roadblocks: _____

Purpose:

Identify, analyze, and predict sensitivity and tendencies of stock price movement relative to company-specific, governmental monetary policy, and stock market-based factors.

Background:

Understanding stock price behavior can help investors make sound financial investments. Factors that may influence the direction and magnitude of stock price can range from broad sources such as international markets, governmental policy to more narrowly defined sources such as industry-specific economics and company-specific fundamentals.

Current Situation:

Tesla Inc. stock price over the dataset range has varied widely over the course of recent US Federal Reserve interest discount rate increases. The discount rate as of print is 5.5 percent, which is higher than that of the initial records within the dataset (dated 11 March 2022) at 0.25 percent. Despite increased cost of borrowing imposed by these rate increases, Tesla Inc. earnings per share increased from 0.68 US Dollars to 0.78 US Dollars over the period with a high of 1.07 US Dollars.

Expected Conclusion:

Team expects to find a moderate-to-high level of correlation of TSLA price movement with the NASDAQ 100 and a moderate level of correlation to the Standard and Poor's 500. Increases in earnings per share and revenue are expected to be favorable to Tesla Inc. which should consequently also be reflected in its share price. Increases in interest rates imply increased borrowing costs, which are expected to be negatively correlated to earnings per share. It is also expected that changes in the discount rate and reaction to earnings reports may lead to increased price volatility / variance.