

## COMS4995 – Applied Machine Learning: Project Proposal

**Title:** Predicting Fortune1000 Company Financial Health Trajectory

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**Objective:** Predict Fortune1000 financial health trajectories based on key financial metrics from 2024. Implement machine learning techniques for making predictions and observing company performance.

**Abstract:** This model will predict the financial health trajectories of Fortune 1000 companies, where financial health is indicated by market capitalization (“Market Cap”) value. We can predict Market Cap value using regression techniques, and we will additionally investigate company health using classification based on EBITDA margins.

**Approach:** We will compile a dataset based on financial statements from a Kaggle dataset and market data from Yahoo! Finance.

1. Data from this [Kaggle dataset of 2024 financial statements of Fortune 1000 Companies](#) will be used to analyze common metrics from company balance sheets and 10-K annual reports.
2. We will use KPIs from Yahoo! Finance on EBITDA. This metric will be used for regression.

**Proposed ML techniques:** For predicting financial metric values themselves, we will apply **Linear Regression** and a **Neural Network**. However, we will also use other models besides these baseline ones to investigate our results (such as **Ridge Regression**). We will perform the following phases of the supervised learning framework.

- We will create the dataset with the above metrics and preprocess the data, which will include handling missing data, encoding, and scaling.
- We will (1) split the data, (2) determine hyperparameters, (3) train the models, (4) evaluate performance, and (5) deploy the model.
- The implementation of certain methods will depend on the nature of the data. For instance, we will likely implement stratified splitting. Additionally, we may later implement SMOTE, as we will see during classification that the majority class of Fortune1000 companies is “healthy.”

**Conclusion:** Observations on company financial health trajectories can be made based on the results obtained from the above models, which will predict financial metrics using regression and categorize companies by financial health using classification. Specifically, regression techniques will be used to predict Market Cap for 2024 and classification techniques will be used to categorize companies by profitability.