**ABSTRACT**

**Stock Price Trend Prediction**

Stock price movement forecasting is a valuable tool in financial analytics, aiding investors and traders in making informed decisions. This project, titled **“Stock Price Trend Prediction”**, leverages historical market data to predict the directional trend of Tesla Inc.'s (TSLA) stock prices.The central goal is to classify whether the **stock price will rise or fall on the following day based on historical patterns.**

Using a dataset that spans from June 29, 2010, to February 13, 2025, key indicators such as the **opening price**, **closing price**, **daily high**, **daily low**, and **volume traded** were used to engineer features for model training. The project implements a **logistic regression model**, a simple yet effective classification algorithm, to determine the binary outcome: price increase or decrease. The dataset was preprocessed to compute a “Target” column, indicating whether the next day’s closing price is higher than the current day's.

The methodology involved cleaning and normalizing the data, followed by training and evaluating the model on historical stock price movements. Model performance was assessed using accuracy and confusion matrix metrics. While logistic regression offers interpretability and efficiency.

**Keywords:** Stock Market, Tesla, Trend Prediction, Logistic Regression, Time Series, Financial Forecasting, Machine Learning, Data Visualization.