**ADTA 5410 Final Project Proposal**

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**Project Title**: Predicting Stock Price Direction Using Sentiment Analysis of News

**Idea/Research Question:** How effectively can sentiment analysis of news articles and social media content predict the directional movement of daily stock prices for selected companies in the U.S. stock market?

**Rationale and Background:** Predicting stock prices is notoriously complex due to the dynamic interplay of financial, political, and social factors. However, investor sentiment, which can be shaped by news articles and social media trends, plays a crucial role in market behavior. Today, platforms like Facebook, Twitter, and TikTok dominate the digital landscape, quickly amplifying news and opinions. As public sentiment fluctuates rapidly in response to breaking news—such as company product launches, leadership changes, or world events—these shifts can directly impact stock prices.

For example, unexpected events, such as a change in leadership or a public figure’s death, could trigger rapid investor responses. Consider Tesla: If a pivotal figure like Elon Musk passed away, investors would likely rush to sell shares, anticipating market volatility, and only re-enter the market once stability returns. Our study aims to explore how such sentiment-driven actions influence stock price directions.

**Scope of Work:** This project will collect and analyze two primary datasets:

* News sentiment data from News APIs, focusing on news articles related to selected U.S. companies.
* Stock price data from Yahoo Finance or similar platforms, tracking daily closing prices and their direction.

**Target Variables:**

* Daily stock closing prices and price direction
* Sentiment scores from news articles and relevant social media posts

**Deliverables:**

* A forecast of stock price directional movement (gain or loss) for selected companies.
* Analysis of sentiment impact from news and social media trends on stock prices.

**Methodology:**

Sentiment Analysis, Logistic Regression, and other required methods as needed.