Group Name:	LSTeaM
Project Title:	Stock Market Price Movement Analysis on (Unsure, looking at tech industry/tesla)
Project Statement/Project Goal(s):	Train the model to read and detect price signals and movements within the market with regards to the social media activity centred around the specific company. The model takes in financial data from the market to determine if an equity should be sold, held or bought. The model also takes in a corpus of texts from posts on the web to predict future price movements based on the sentiment of the public.
Project Scope:	**Potential analytical tasks:** ● Time series, the processing of modelling will use past behaviours of price fluctuations to forecast future outcomes of future price fluctuations. Machine Learning or Deep Learning models will take in price data of the past to be able to forecast future price behaviours. ● Classification Model to be used to predict and classify different equities into classification groups based on past financial data from the specific sector in the stock market, deciding either to buy, sell or hold an equity. ● Build a model through studying the relationship between stock market fluctuations in the specific industry and social media activity ● Train the model to be able to predict stock market behaviour based on social media activity to detect the public sentiment towards specific events in the specific sector.

Tools and Technologies	**Potential Models to look at for Time-series Modelling:** ● Regression Modelling through machine learning (Scikit-Learn) ● Time Series model through machine learning (AutoRegressive integrated Moving Average ARIMA, Numpy, Pandas, Statsmodels, Scikit-Learn) ● Long-Short Term Memory Model ● Reinforcement Learning **Sentiment Analysis/NLP:** ● NLP Sentiment analysis (TextBlob, Vader, Text2Emotion) ● Web Scraping (TweePy, Instaloader, Beautiful Soup) ● Clustering sentiments into categories
Project Timeline	**Timeline of project:** Week 1 - 2: Web scraping on various social media platforms for fundamental analysis, import financial data from the stock market for technical analysis Week 3 - 5: Data pre-processing and cleaning Week 6 - 7: Train and test a model that conducts analysis based on financial data alone, and predicts future price movements based on price signals detected by the model. Validate the model built solely on financial data. Week 8 - 9: Train and improve the model by feeding it with public sentiments data. Teach the model to better predict future price movements, taking into account both financial data and public sentiment data. Week 9 - 11: Testing both models (combined, and uncombined) with unseen data. Fix any potential bugs found within the model. Week 12: Deploy the model to complete the entire machine learning pipeline.

Source of Dataset(s)	**Datasets needed:** ● Historical stock market data (price movement, volume, moving averages, etc) ● Corpus of text derived from different social media platforms with several keywords relevant to the specific industry used to filter appropriate texts/posts. (i.e. AMC, etc)