StockiMent

‘Stock Prediction with Sentiment’

Stock Market Prediction Based on Twitter Sentiment Analysis Approach Using Deep Learning

Kelompok 3:
Abid Ilmun Fisabil, Hana Rifdah Sakinah, Sivi Almanaf
Full Time Data Scientist Program - Hacktiv8 Batch 006

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Introduction

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Background

The stock market is **dynamic**, **unpredictable**, and non-linear in nature **[1].** Thus, in order to maximize profits and avoid losses, strategies for predicting stock prices in advance by evaluating trends over the previous several years might be quite valuable for making stock market moves **[2][3].**

News, current events, and product releases, **influence market movements** based on efficient market hypothesis (EMH) **[4]**

Social media is one ideal venue for **sharing public sentiments [5],** *especially Twitter.*

We can predict stock based on **fundamentals factors** (financial condition, operations, macroeconomic factors) and **technicals factors** (open, high, low, and close price)**[6]**

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Background

Objective

creating predictive model that uses tweets' sentiment as well as technical factors of the stock company to **predict tomorrow's closing price.**

Data Collection and preprocessing

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Data Collection

Stock Dataset:

- Retrieved from YAHOO! FINANCE
- Focused on the opening, adjusted closing price, and volume
- Focused on NETFLIX Stock

Tweets Dataset

- Retrieved from prior research [7]
- Dataset includes at least 60 tweets per day
- Time framed between **07/15/2019** and **07/08/2020**

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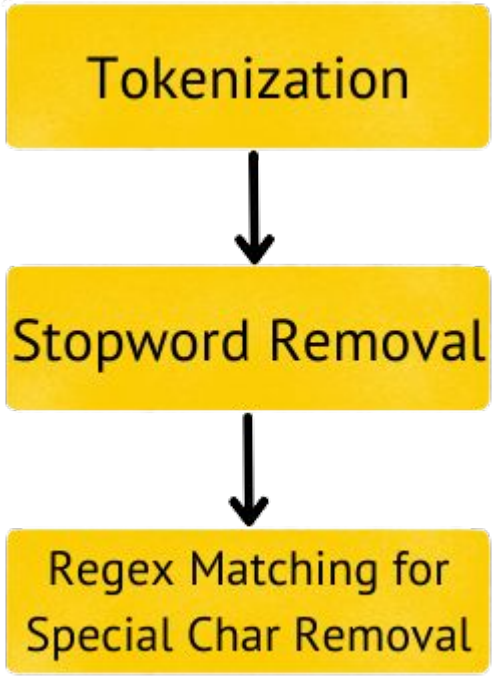
Preprocessing

Filter tweets stages



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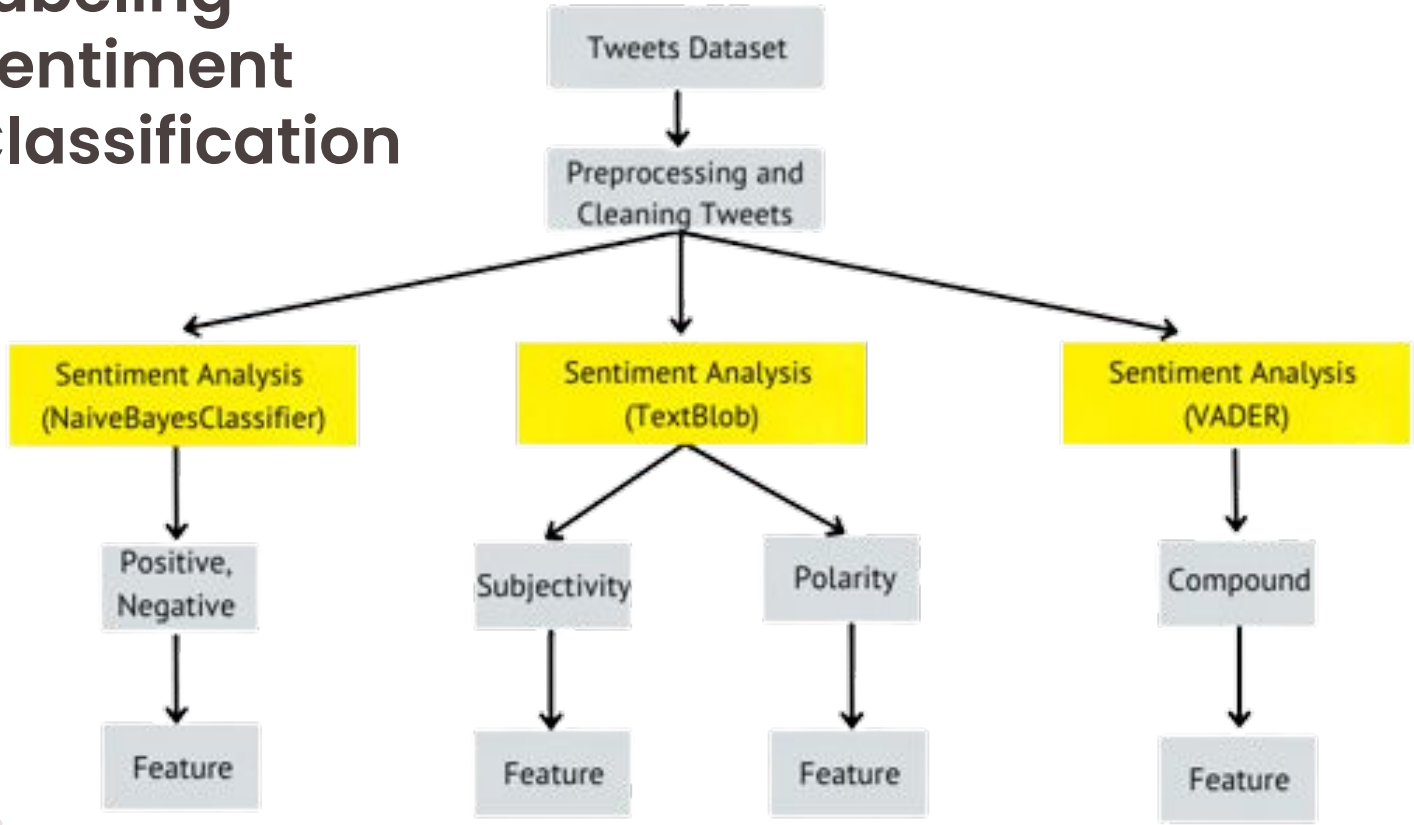
Preprocessing

Labeling Sentiment Classification



Materials and Method

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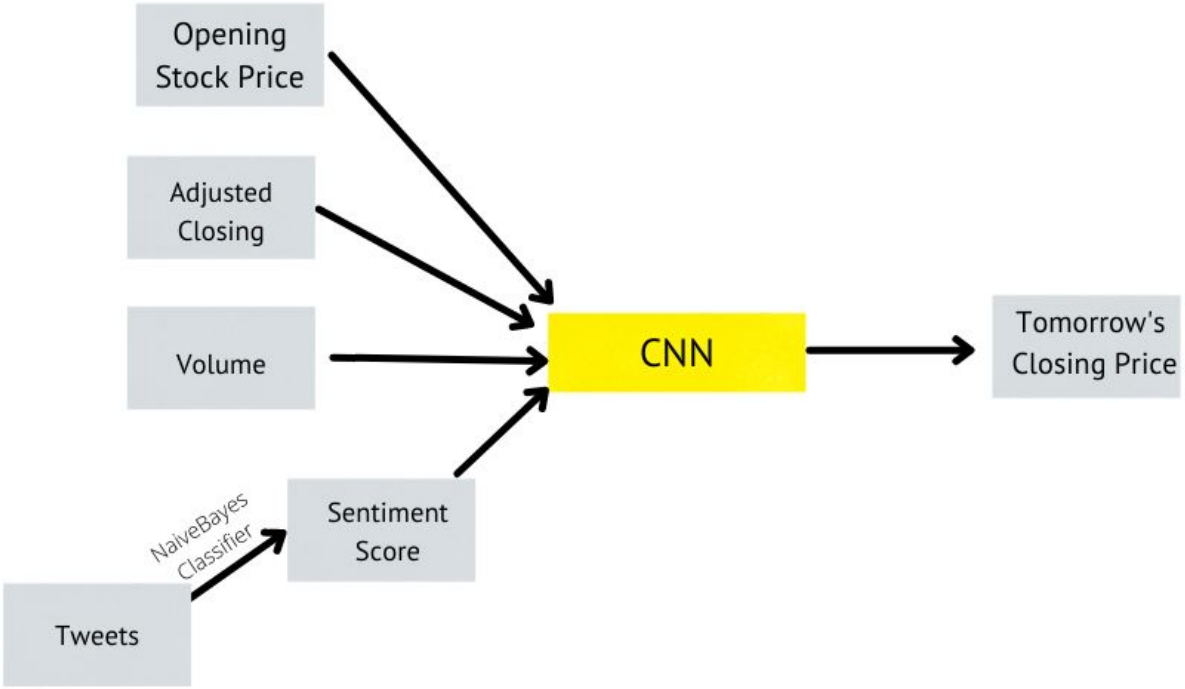
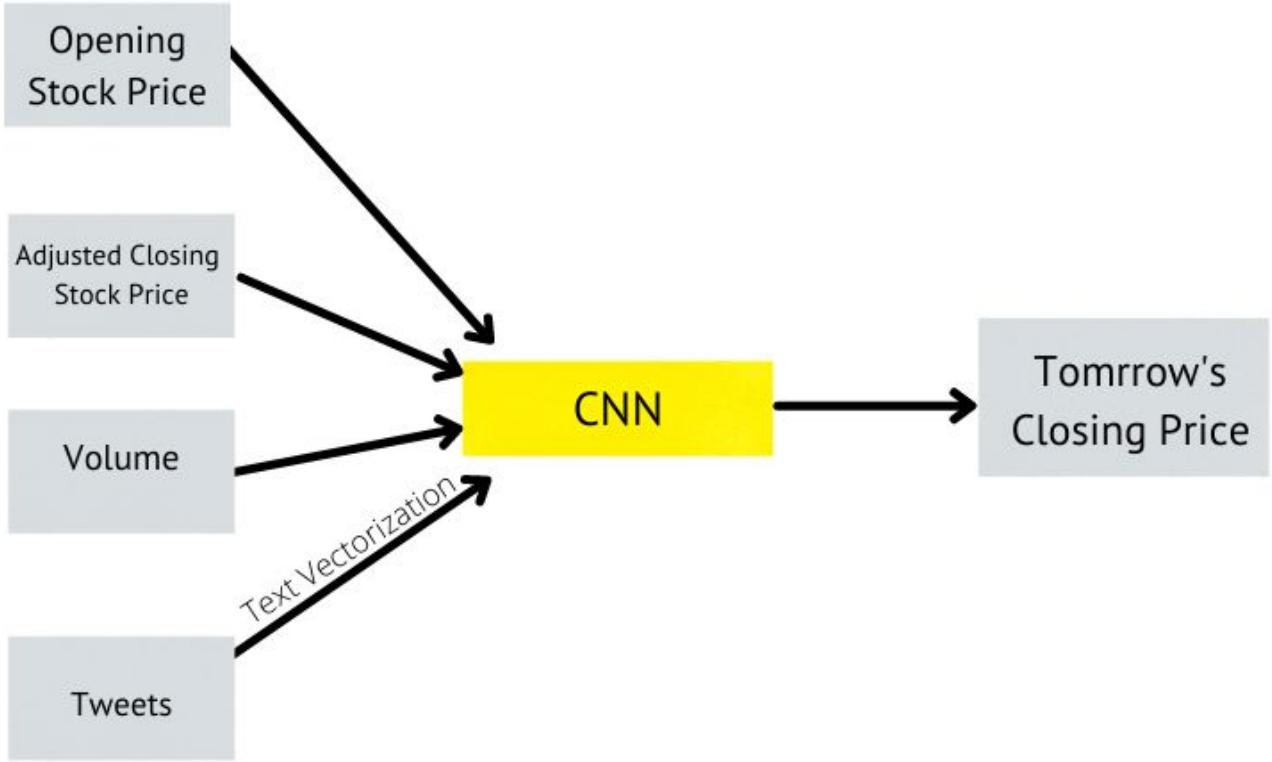
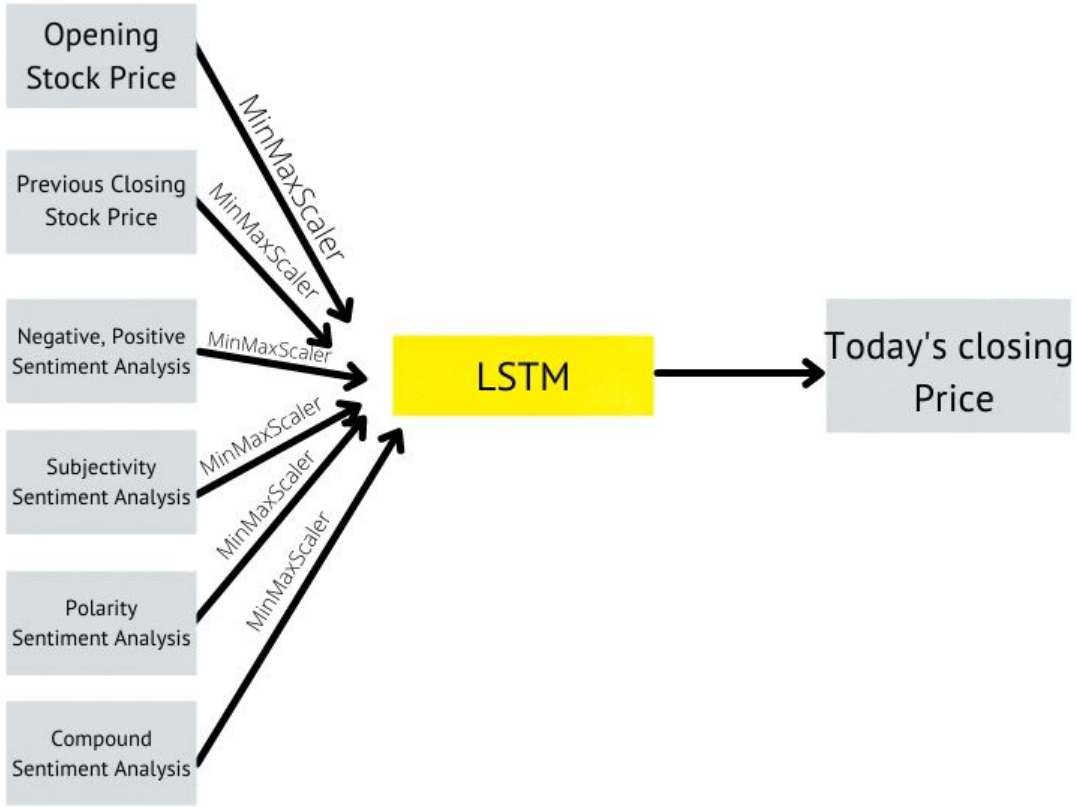
First Scheme



Second Scheme



Third Scheme



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Results & Discussion

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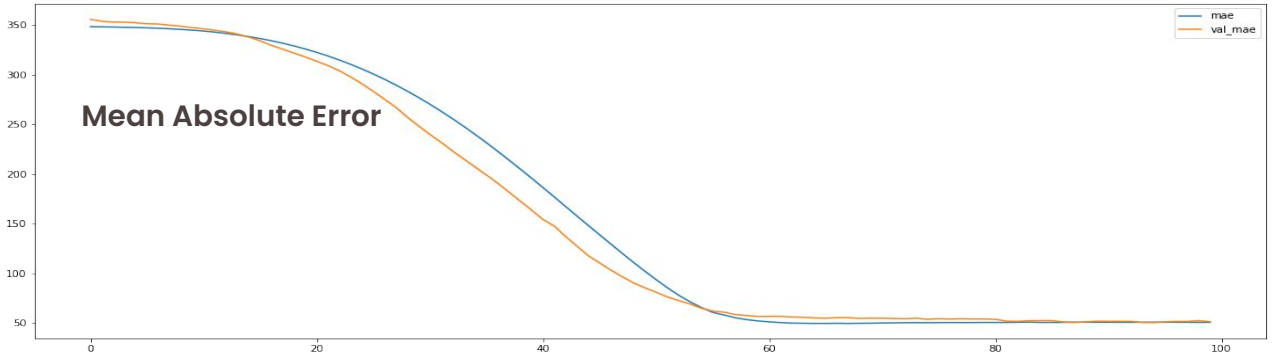
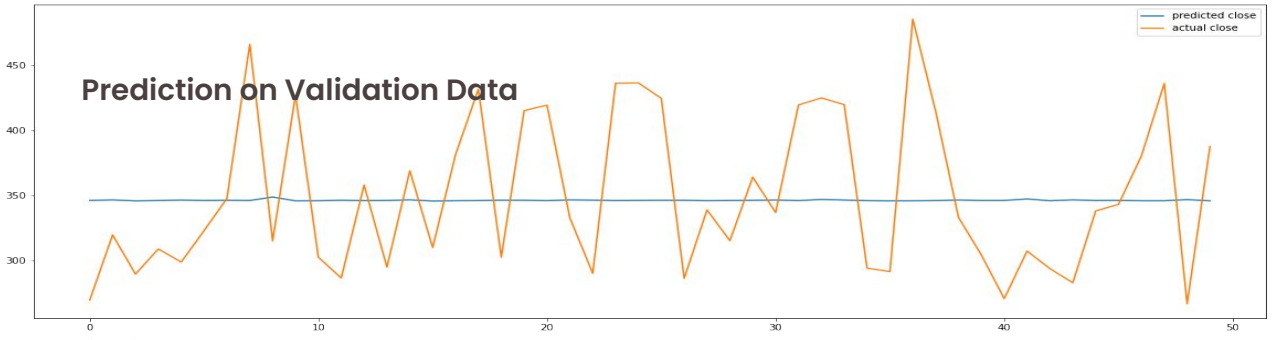
First Model : Convolutional Neural Network (CNN)
Features : Open, Adj Close, Volume, Naive Bayes Sentiment Score
Target : Next Day Close
MAE : $51





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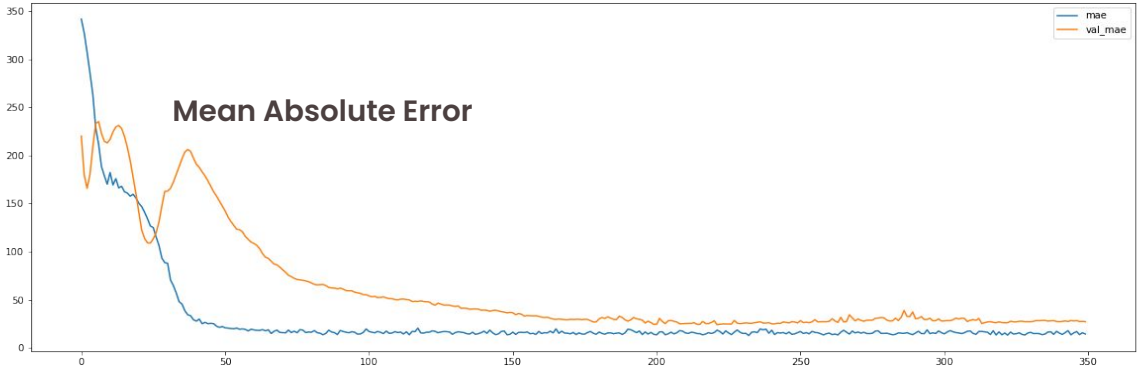
Second Model : Convolutional Neural Network (CNN)
Features : Open, Adjusted Close, Volume, Vectorized Tweets
Target : Close
MAE : $24



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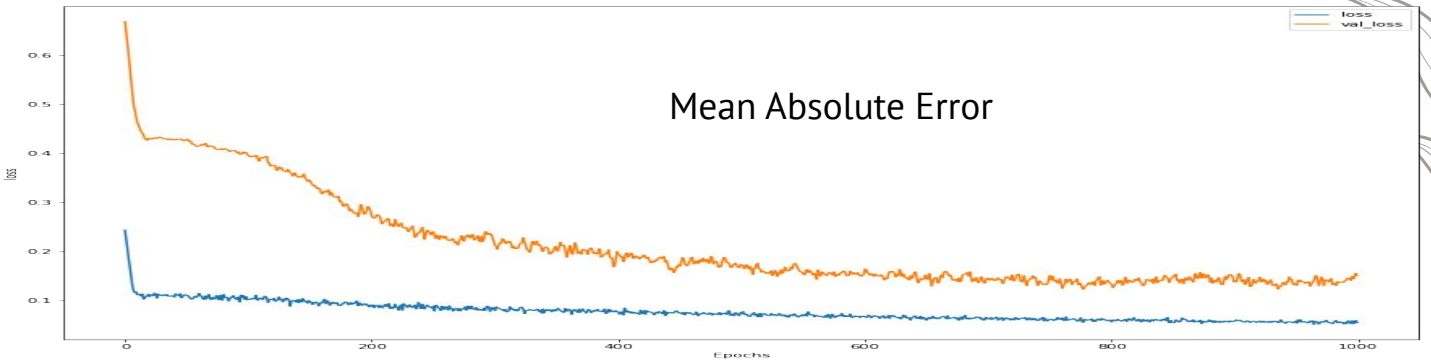
Third Model : Long Short Term Memory (LSTM)
Features : Open, Sentiment (Subjectivity, Polarity, Compound), NB Sentiment, Prev Close
Target : Today's Close
MAE : $37.3



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