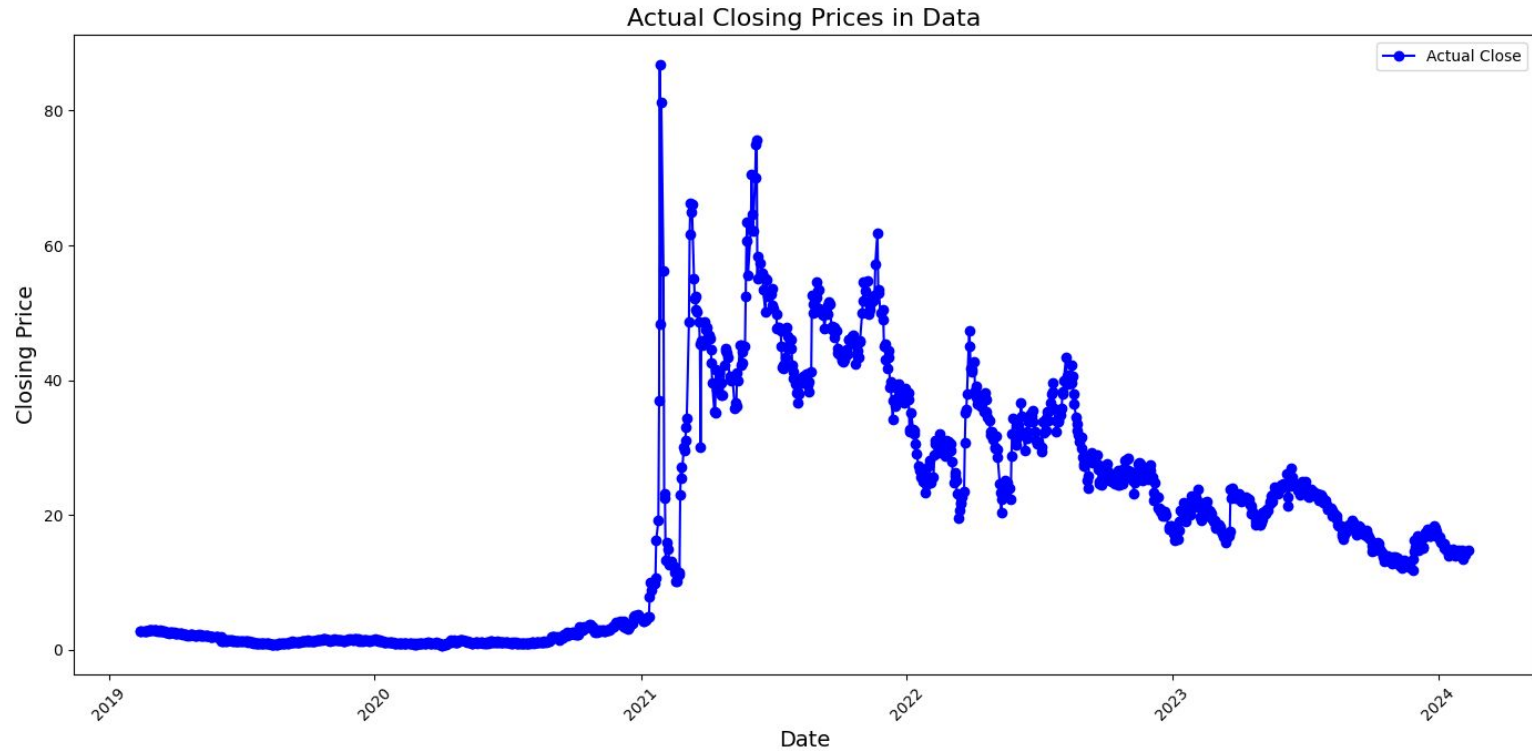


GME Stock Price Visualization



Source: Yahoo Finance

GME Stock Price Time Series Forecasting

```
import torch
import torch.nn as nn

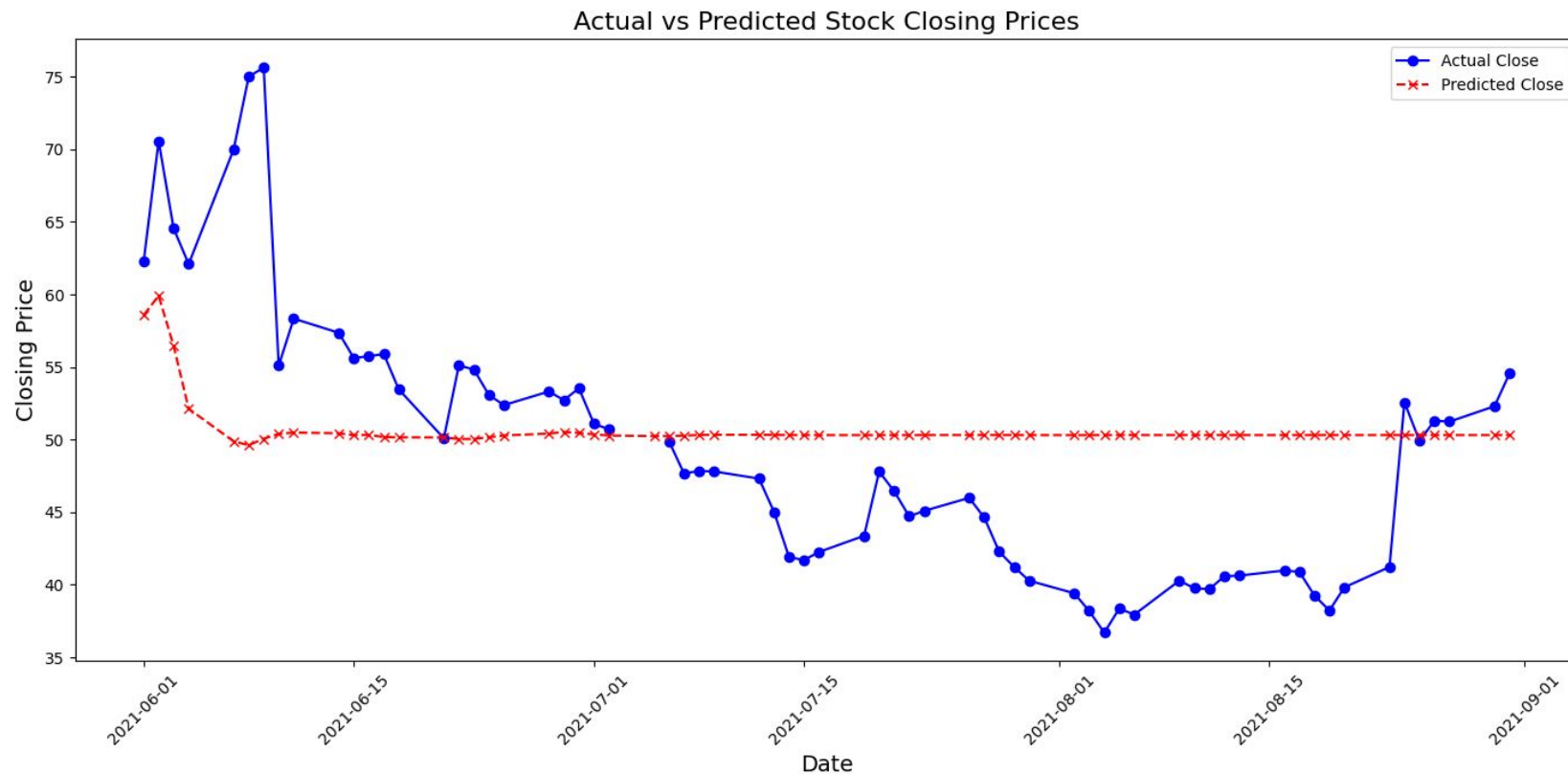
class StockPriceLSTM(nn.Module):
    def __init__(self, input_size=1, hidden_layer_size=100, output_size=1):
        super(StockPriceLSTM, self).__init__()
        self.hidden_layer_size = hidden_layer_size

        # Define LSTM layer with batch_first=True
        self.lstm = nn.LSTM(input_size, hidden_layer_size, batch_first=True)

        # Define output layer
        self.linear = nn.Linear(hidden_layer_size, output_size)
```

Model: One-Layer LSTM with hidden layer size = 100

LSTM Prediction Visualization



r/WSB Sentiment Analysis

```
# Filter rows where the 'title' column contains 'GME'
wsb = wsb[wsb['title'].str.contains('GME', case=False)].reset_index()
wsb.tail(10)
```

Python

	index	title	score	id	url	comms_num	created	body	timestamp
8634	53011	Been on the GME train since the beginning, now...	0	oy1kdv	https://www.reddit.com/gallery/oy1kdv	15	1.628109e+09	NaN	2021-08-04 23:28:19
8635	53032	I sold my #AMC #GME to buy #HOOD, Hood can rea...	0	oxvw18	https://i.redd.it/xyz14jue7df71.jpg	44	1.628093e+09	NaN	2021-08-04 19:06:25
8636	53038	GME to 500 and S&P500, let's go baby	385	oxvb1x	https://i.redd.it/z954piol2df71.jpg	141	1.628092e+09	NaN	2021-08-04 18:39:27
8637	53061	Ford Mustang Mach-E Sales Grew 15.8 Percent in...	47	oxszue	https://www.businesswire.com/news/home/2021080...	21	1.628085e+09	NaN	2021-08-04 16:45:05
8638	53067	Daily Popular Tickers Thread for August 04, 20...	312	oxr6fe	https://www.reddit.com/r/wallstreetbets/commen...	1421	1.628078e+09	\nYour daily hype thread. Please keep the shit...	2021-08-04 15:01:20
8639	53107	Lost 70K on GME but here's my HOOD yolo	19	oxcpjg	https://i.redd.it/gvszmjzjh7f71.jpg	104	1.628024e+09	NaN	2021-08-03 23:54:59
8640	53120	GME 20k YOLO - Going to 0 or 6 figures	3446	ox9p9b	https://i.redd.it/plfafes9s6f71.jpg	546	1.628015e+09	NaN	2021-08-03 21:31:36
8641	53143	Daily Popular Tickers Thread for August 03, 20...	404	ox1zi7	https://www.reddit.com/r/wallstreetbets/commen...	1832	1.627992e+09	\nYour daily hype thread. Please keep the shit...	2021-08-03 15:01:02
8642	53174	GME \$950 Calls YOLO (IV Dipped Under 100% agai...	2997	owihcd	https://i.redd.it/9pds8gxxye71.jpg	530	1.627923e+09	NaN	2021-08-02 19:46:18
8643	53183	Daily Popular Tickers Thread for August 02, 20...	228	owd1a5	https://www.reddit.com/r/wallstreetbets/commen...	1070	1.627906e+09	\nYour daily hype thread. Please keep the shit...	2021-08-02 15:01:03

Source: Kaggle Dataset

Sentiment Analysis Using TextBlob

```
# Compute Sentiment Score with TextBlob
from textblob import TextBlob
import pandas as pd

# Define a function to compute sentiment polarity
def compute_polarity(text):
    return TextBlob(text).sentiment.polarity

# Apply the function to the 'title' column to create a new 'polarity' column
combined_df['polarity'] = combined_df['title'].apply(compute_polarity)

print(combined_df)
```

	timestamp	title	polarity
0	2021-01-28	NEW SEC FILING FOR GME! CAN SOMEONE LESS RETAR...	0.037875
1	2021-01-29	Current data on GME short positions WHATS THIS...	0.059853
2	2021-01-30	DEGIRO ONLY ALLOWING LIMIT ORDERS FOR GME AND ...	0.038738
3	2021-01-31	What can I do to support GME as someone who's ...	0.064826
4	2021-02-01	although they write that Melvin is down 53% th...	0.058472
..
175	2021-08-06	No GME posts on this date	0.000000
176	2021-08-09	Daily Popular Tickers Thread for August 09, 20...	0.375000
177	2021-08-10	No GME posts on this date	0.000000
178	2021-08-11	GROW: the same guy who discovered GME in June ...	0.000000
179	2021-08-12	Made \$25,000 shorting GME	0.000000

[180 rows x 3 columns]

Fusion Model Data

```
combined_df['timestamp'] = pd.to_datetime(combined_df['timestamp'])
combined_df = combined_df.merge(gme[['Date', 'Close']], left_on='timestamp', right_on='Date', how='left')

final_df = combined_df.dropna()
final_df
```

	timestamp	title	polarity	Date	Close
0	2021-01-28	NEW SEC FILING FOR GME! CAN SOMEONE LESS RETAR...	0.037875	2021-01-28	48.400002
1	2021-01-29	Current data on GME short positions WHATS THIS...	0.059853	2021-01-29	81.250000
4	2021-02-01	although they write that Melvin is down 53% th...	0.058472	2021-02-01	56.250000
5	2021-02-02	If you're buying silver, comment here! (not fo...	0.082262	2021-02-02	22.500000
6	2021-02-03	Loss porn: IM NOT FUCKING SELLING. \$GME 💎👊💎 ...	0.074211	2021-02-03	23.102501
...
175	2021-08-06	No GME posts on this date	0.000000	2021-08-06	37.942501
176	2021-08-09	Daily Popular Tickers Thread for August 09, 20...	0.375000	2021-08-09	40.282501
177	2021-08-10	No GME posts on this date	0.000000	2021-08-10	39.762501
178	2021-08-11	GROW: the same guy who discovered GME in June ...	0.000000	2021-08-11	39.695000
179	2021-08-12	Made \$25,000 shorting GME	0.000000	2021-08-12	40.587502

137 rows x 5 columns

Fusion Model

```
import torch
import torch.nn as nn

class FusionLSTM(nn.Module):
    def __init__(self, input_size=2, hidden_layer_size=100, output_size=2):
        super(FusionLSTM, self).__init__()
        self.hidden_layer_size = hidden_layer_size

        # Define LSTM layer with batch_first=True
        self.lstm = nn.LSTM(input_size, hidden_layer_size, batch_first=True)

        # Define output layer
        self.linear = nn.Linear(hidden_layer_size, output_size)
```

Model: One-Layer LSTM with hidden layer size = 100

Fusion Model Prediction

