



# Bitcoin Daily

Ferit Yikar

# Overview

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## Time Series

- A Time Series project that predicts Future BTC/USD prices.

## NLP

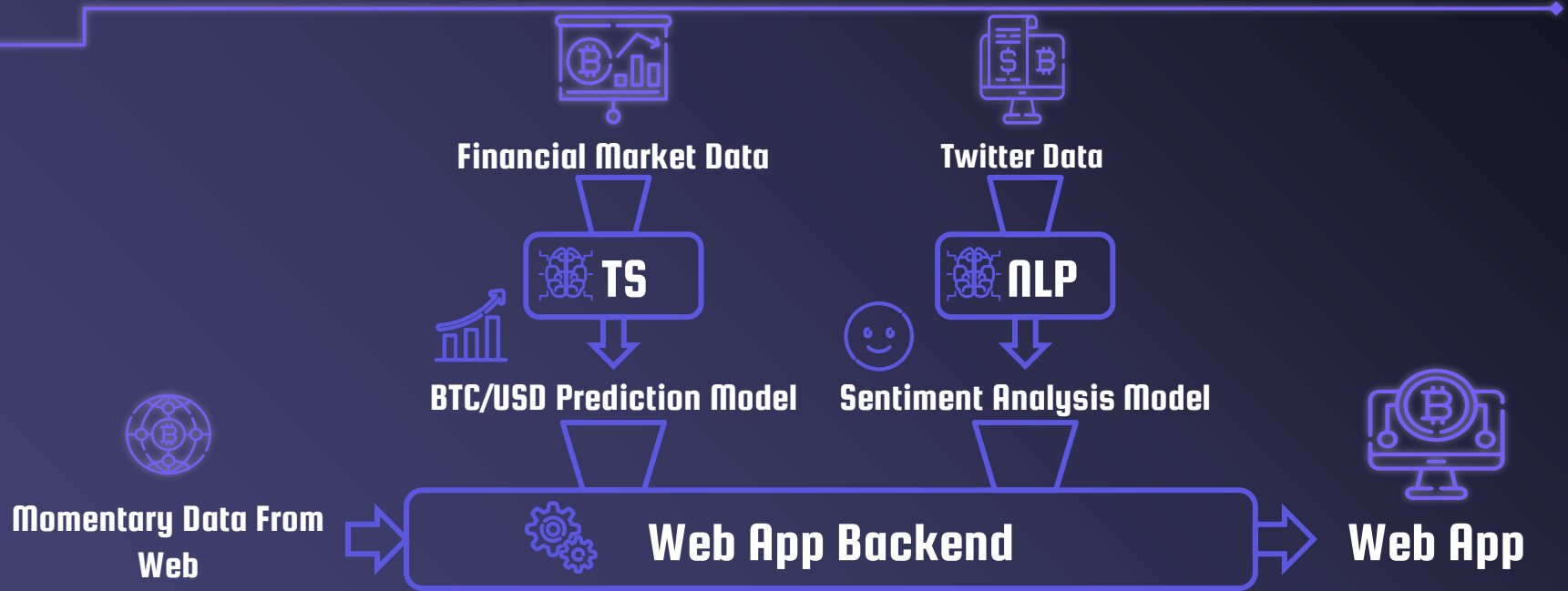
- An NLP project that understands the sentiment of various tweets with hashtags #Bitcoin and #Btc

## Web App

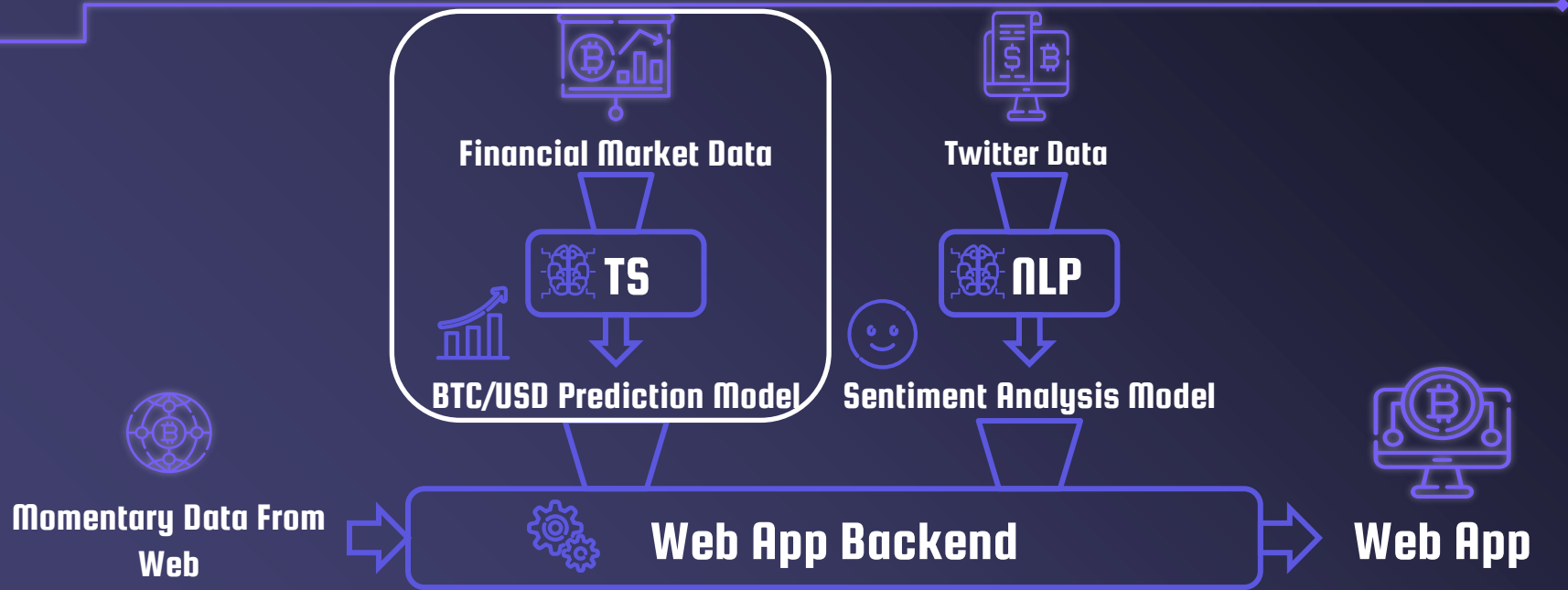
- An web app that puts these 2 projects together to give insight about BTC trend, BTC/USD prediction, and Twitter analysis.



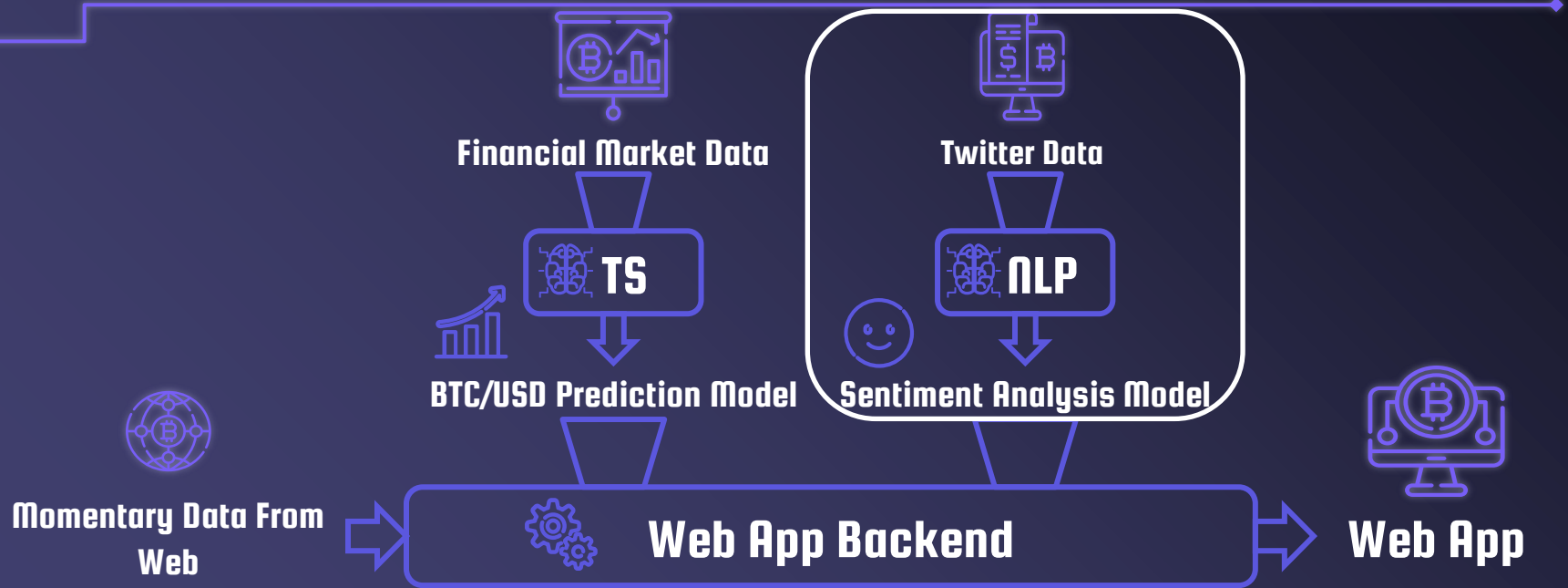
# Web App Process



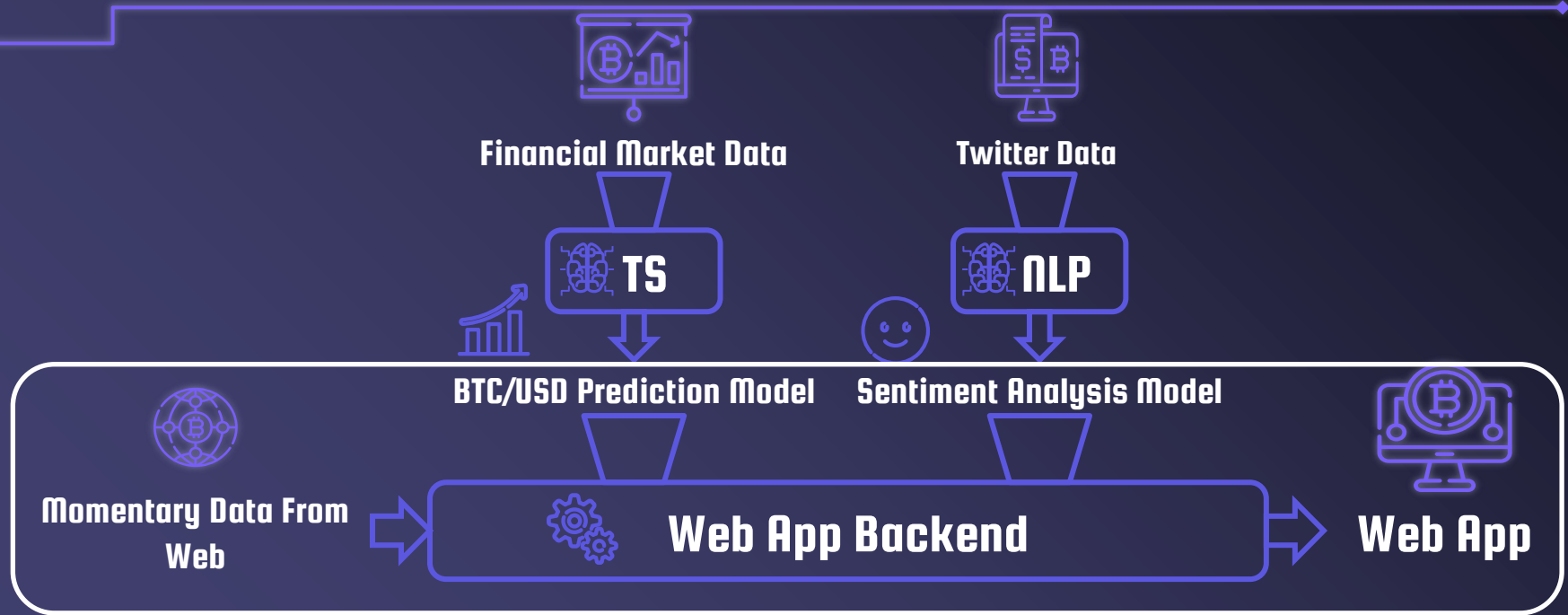
# Web App Process



# Web App Process



# Web App Process



# Background



In 2011 Bitcoin lost 93%  
of its value

01

02

In 2022, on average  
more than 150k  
#Bitcoin tweets per day

Bitcoin has more than  
\$800B market cap

03

04

There have been more  
than 650 Billion Bitcoin  
transactions

# Data

BTC/USD Prices from Yahoo-Finance

- Sep 17th 2014 - Mar 1st 2022
- >50.000 #Bitcoin tweets sentiment dataset
- Data.world

For future predictions and analysis, data from yfinance and tweepy API libraries is used.

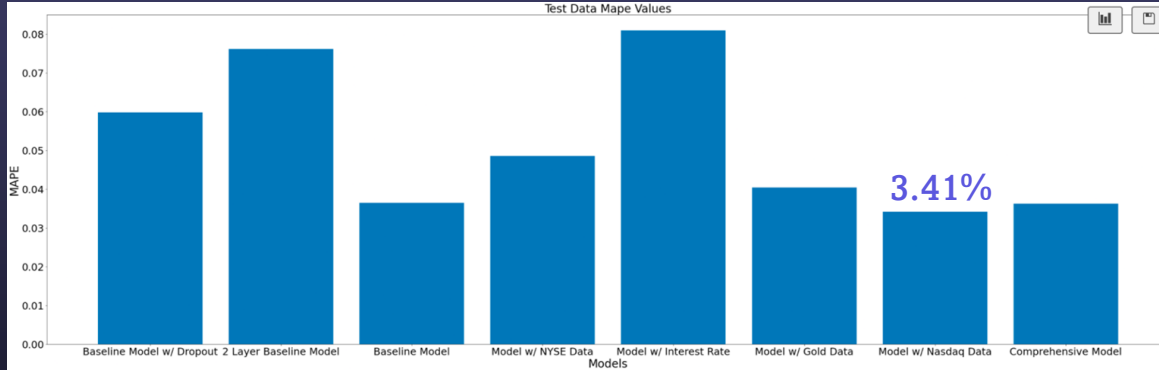




# Time Series

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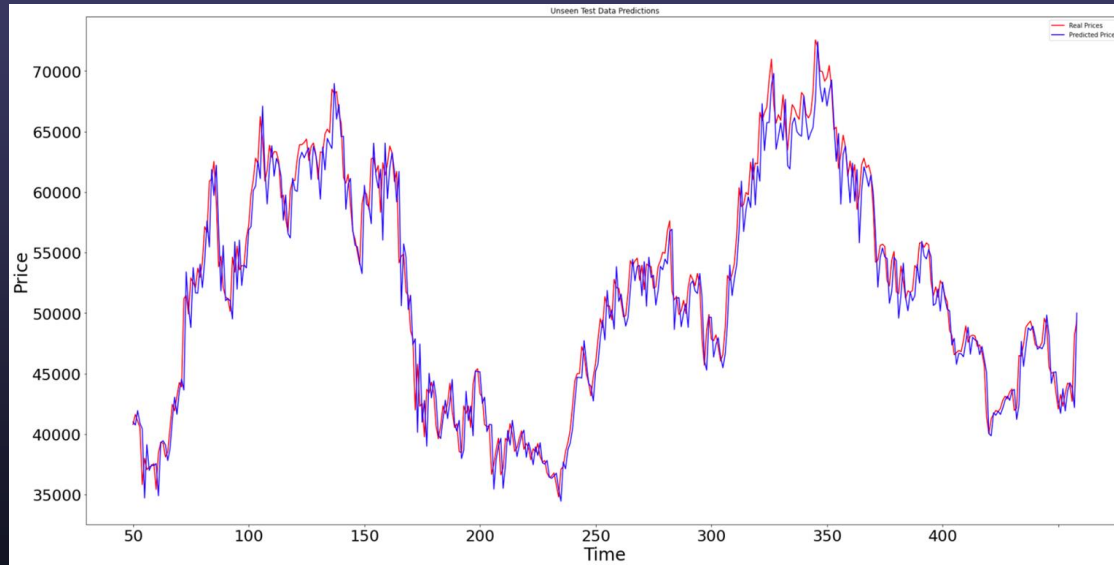
# MAPE on Unseen Test Data



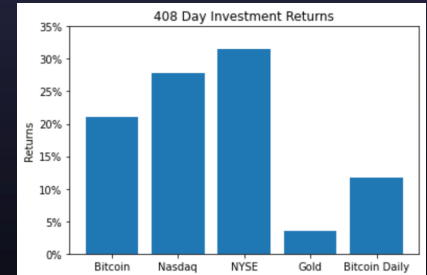
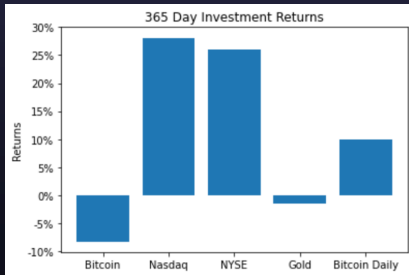
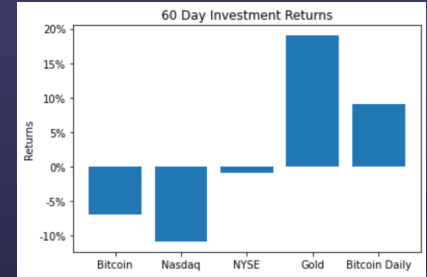
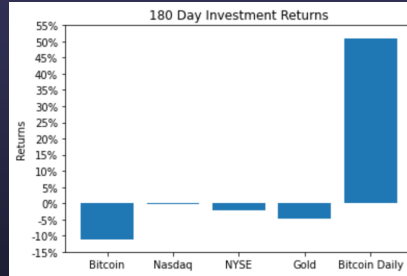
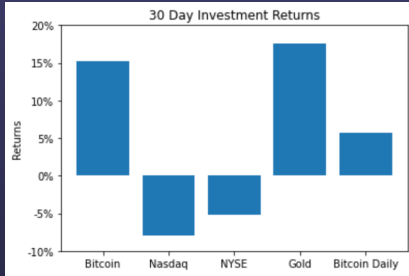
## Model w/ Nasdaq Data

3.41% Mean Absolute Percentage Error on unseen data

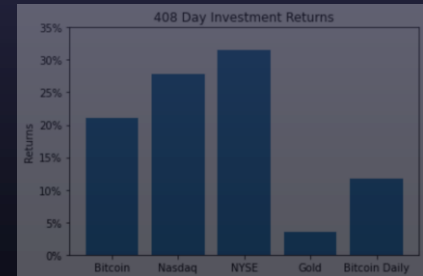
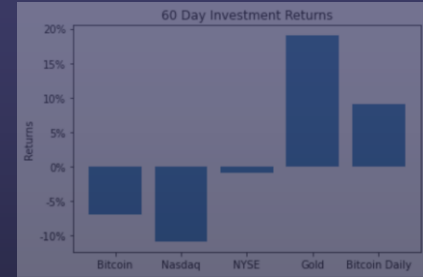
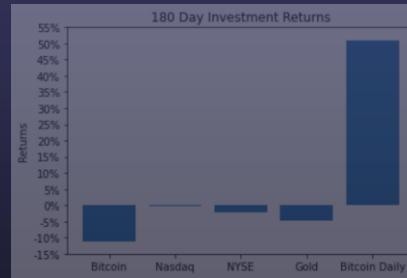
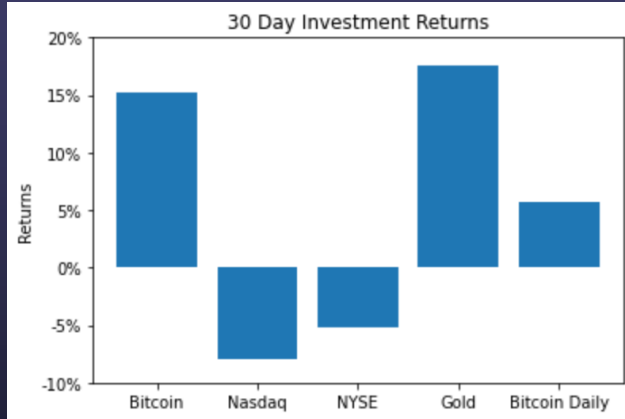
# Best Model Performance on Test Data



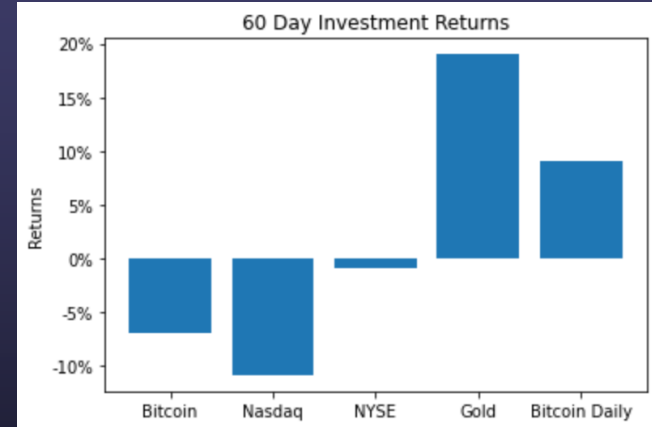
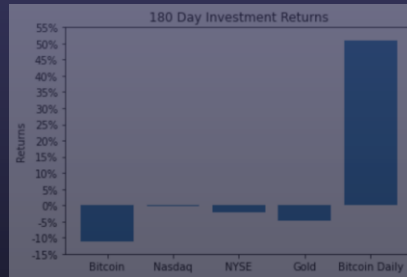
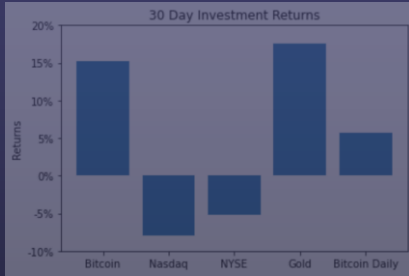
# Investment Return Test Runs



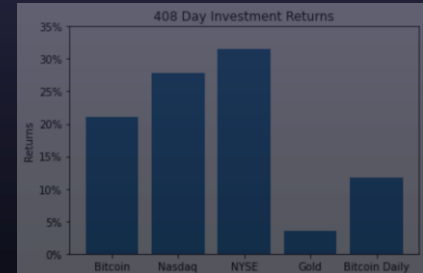
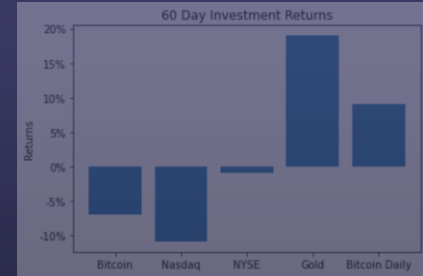
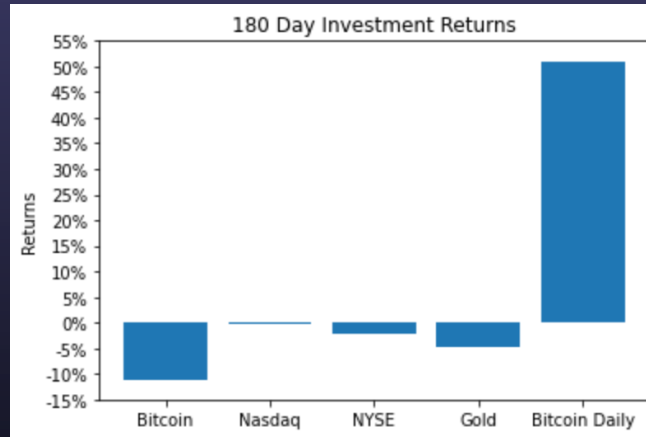
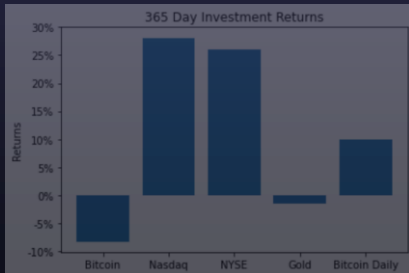
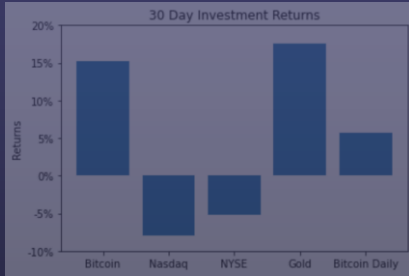
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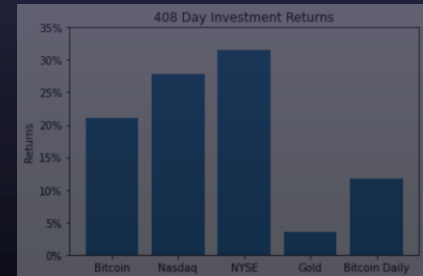
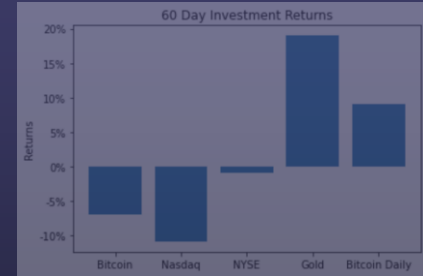
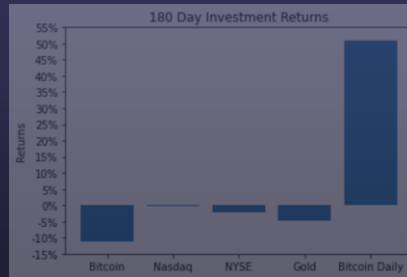
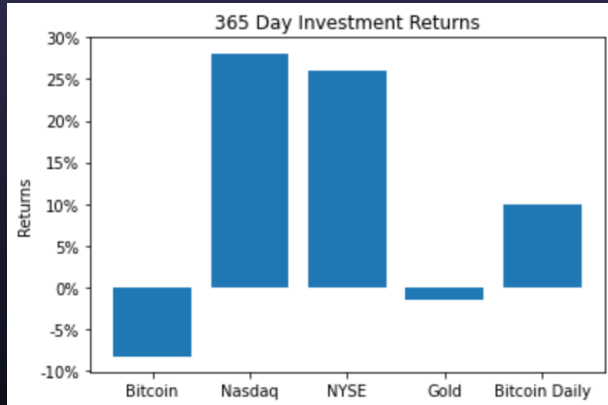
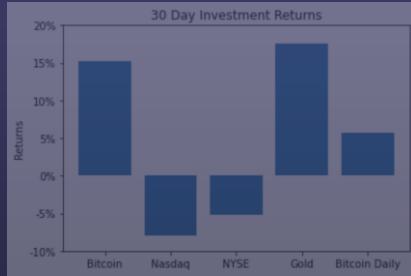
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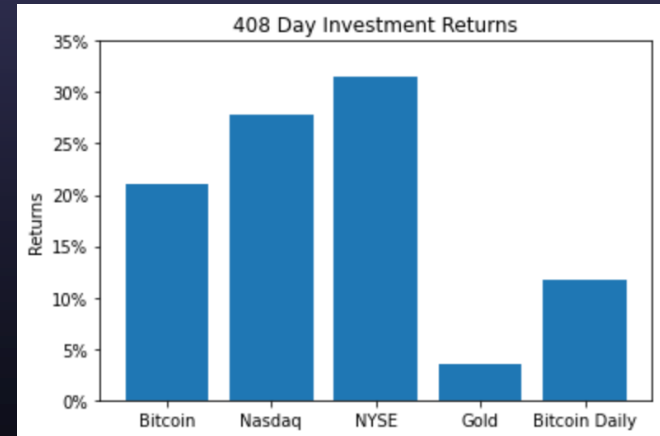
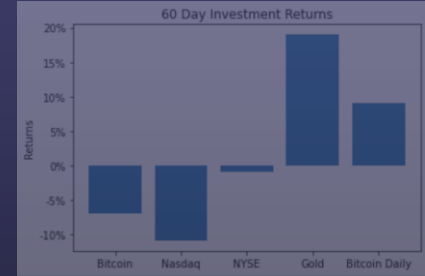
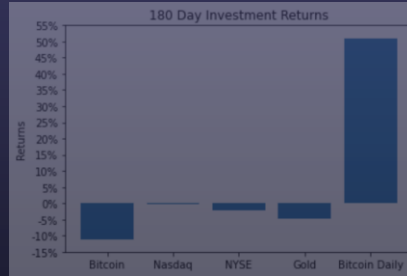
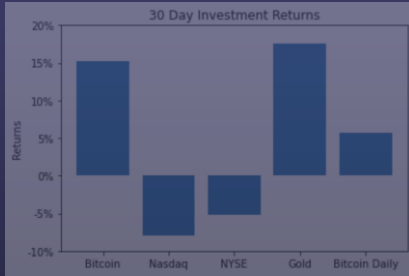


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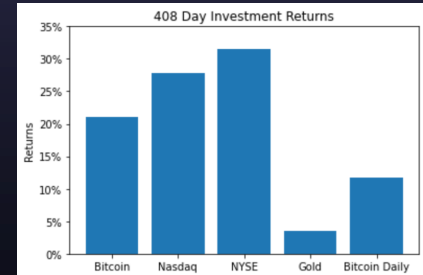
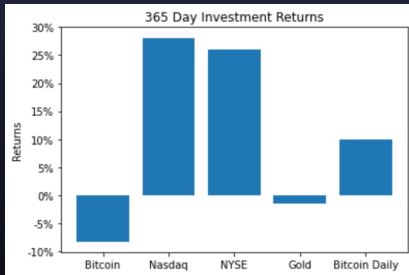
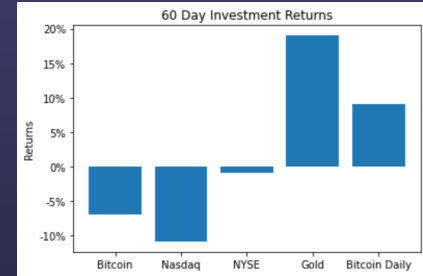
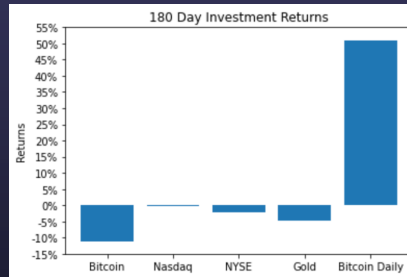
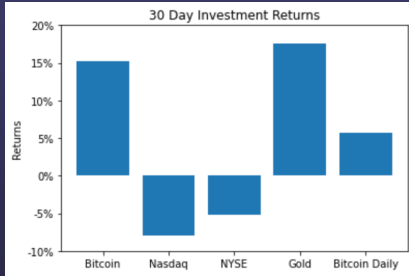




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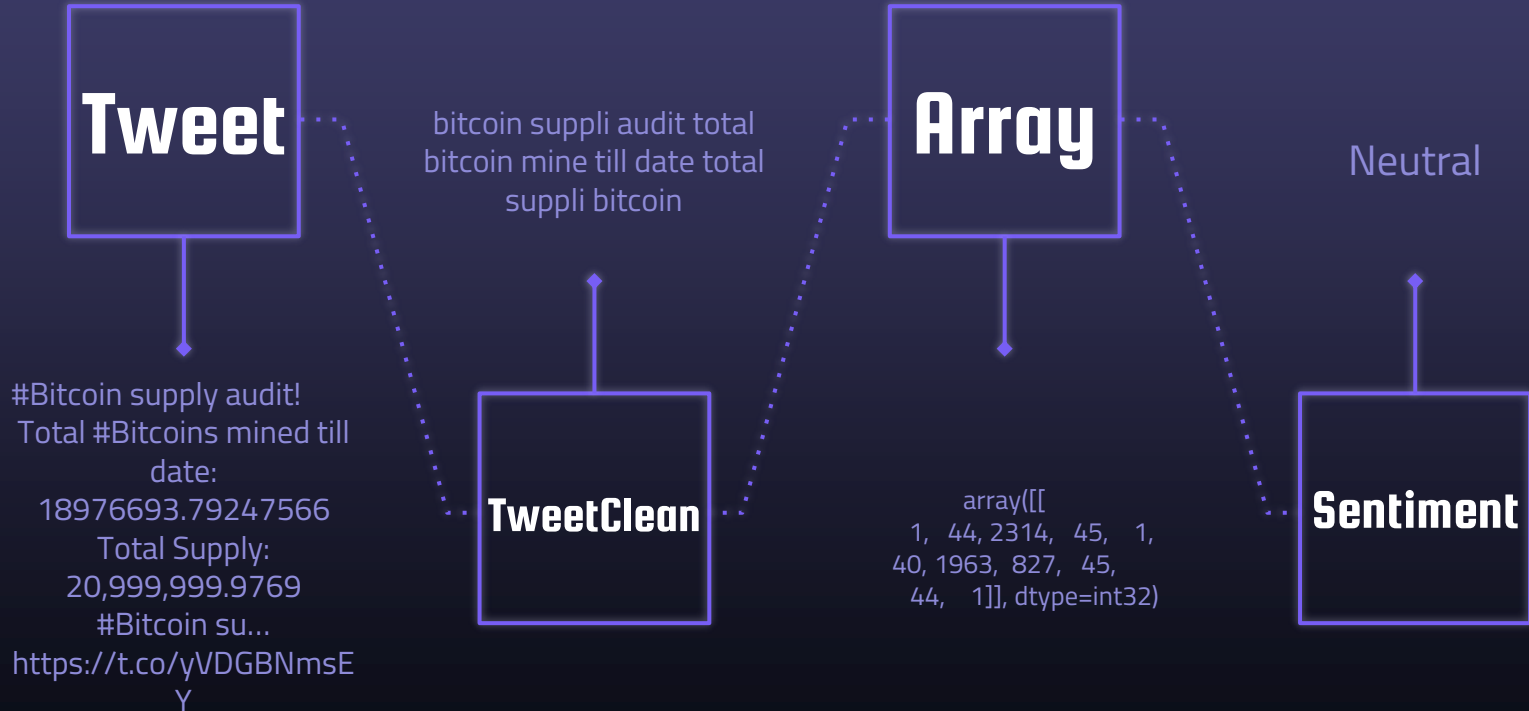
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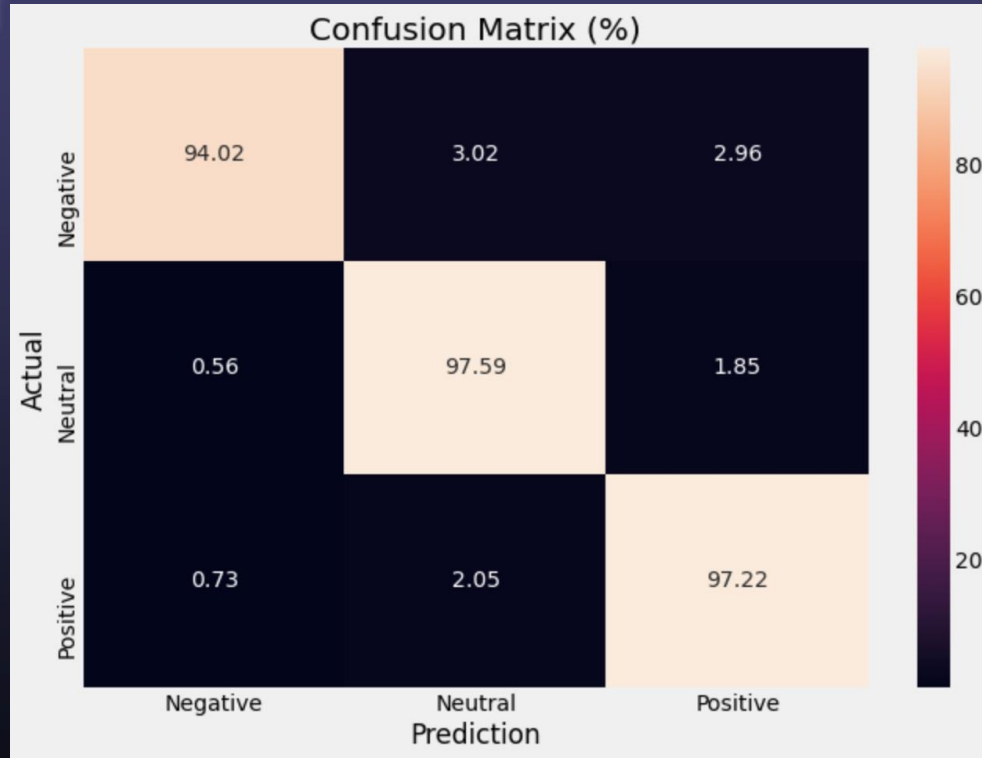
The background is a dark purple gradient. It features several thin, light purple lines that form a grid-like structure with some variations. There are also numerous small, light purple squares scattered across the background, some of which are slightly larger or more prominent than others. The overall effect is a modern, digital, and abstract aesthetic.

# NLP

# A Tweets Journey in the Model



# Confusion Matrix



Accuracy = 97%

Negative:

Recall  
=94.02%

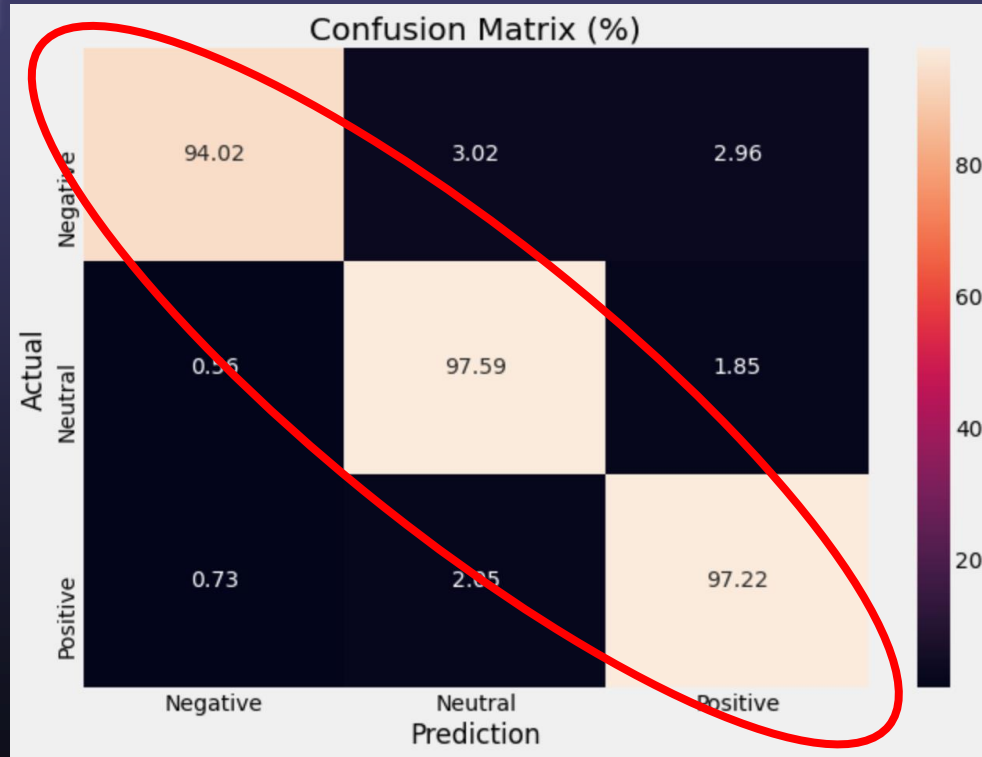
Precision  
=98.65%

Positive:

Recall  
=97.22%

Precision  
=95.29%

# Confusion Matrix



Accuracy = 97%

Negative:

Recall  
=94.02%

Precision  
=98.65%

Positive:

Recall  
=97.22%

Precision  
=95.29%

# Web App

An abstract background featuring a dark blue gradient. Overlaid on this are thin, light blue lines that form a series of interconnected rectangles and paths, some ending in small diamond shapes. Scattered throughout the composition are numerous small, solid blue squares of varying sizes, creating a digital or circuit-like aesthetic.

# Bitcoin Daily



- A Web App that provides Bitcoin prediction, Twitter insights on #Bitcoin and market data.
- The Data is updated every 15 mins
- Closing time is 6pm EST



# Retrieving Data

```
bitcoin_daily — python update_file.py — 123x35
...ct/bitcoin_daily — streamlit run webapp.py
...t/bitcoin_daily — python update_file.py
...hase_5/project/bitcoin_daily — -bash
+

(btc-env) Ferits-MBP:bitcoin_daily ferityikar$ python update_file.py
Welcome to Bitcoin Daily
Reading the most recent dataset we have
Today is 2022-03-08, retracting data from the last day we have data for: 2022-03-07 until 2022-03-08.
[*****100%*****] 5 of 5 completed
Getting BTC prices from cryptocmd because yfinance does not work on the weekends
Saving the Dataframe that is updated until 2022-03-08 for future uses
Graphing 60 days BTC/USD trend until 2022-03-08
Preparing the new data for predicting. Train-Test Split and Scaling
Getting last 60 rows for predicting tomorrows price
Loading the best model that will be used for prediction
2022-03-08 13:26:52.382443: I tensorflow/core/platform/cpu_feature_guard.cc:142] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: AVX2 FMA
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2022-03-08 13:26:52.408731: I tensorflow/compiler/xla/service/service.cc:168] XLA service 0x7fcf58a2ecd0 initialized for platform Host (this does not guarantee that XLA will be used). Devices:
2022-03-08 13:26:52.408755: I tensorflow/compiler/xla/service/service.cc:176] StreamExecutor device (0): Host, Default Version
Predicting tomorrows closing value
Saving the prediction as a pickle file
Getting 500 most recent tweets with hashtag #Bitcoin
Saving the most recent tweets as a CSV file
Saving the top Tweets based on number of retweets.
Cleaning the tweet data into stemmed words
Turning the tweets into arrays that can be processed
Saving the sentiment dictionary that shows the sentiment distribution of recent tweets for webapp
The model will run again in 15 minutes
1 minute has passed
5 minutes have passed
10 minutes have passed
14 minutes have passed
Initiating next run
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```



## Bitcoin Daily



**BTC-USD: \$39267.66**

Our Bitcoin prediction for 2022-03-08 is \$38078.54

## BTC Trend



# Project Owner

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**Ferit Yikar**

Data Scientist

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<https://github.com/FeritYikar>