Technical Manual

for

Cryptocurrency Investment Classification Using Machine Learning and Sentiment Analysis

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1 Introduction

1.1 Overview

Cryptocurrency is a type of digital currency that generally only exists electronically. There is no physical coin or bill unless you use a service that allows you to cash in cryptocurrency for a physical token. In the past, prominent investments in the cryptocurrency have led people to become millionaires and billionaires. The currency has two primary advantages, it can be used to buy goods and services online over the web and can be bought as investments to generate returns. It will over time make physical currency obsolete. However with a lot of volatility and now there being more than 2000 cryptocurrencies, it becomes extremely difficult for commoners to invest. Hence we plan to create a Machine Learning Model that combined with natural language processing for sentimental analysis can accurately predict in which cryptocurrency to invest in, and whether it is the right time to invest by analyzing the market sentiment.

1.2 How to use this manual

This manual serves as a guide for running the "Cryptocurrency Investment Classification Using Machine Learning and Sentiment Analysis" Flask application on VS Code. The manual is split into two parts. The first part (A) introduces you to the different folders and sub-folders of the "Cryptocurrency Investment Classifier" in VS Code. The second part (B) introduces you to how to run the Flask application on your desktop using VS Code.

2 DIRECTORY OF CRYPTOCURRENCY INVESTMENT CLASSIFIER

Users have to select a cryptocurrency they want to predict and then based on machine learning and sentiment analysis a recommendation will be made to the user.

2.1 Folders Of The Project

The app consists of “static”, “templates” and ”weight” folders. Folders serve for clear management of objects and are often used as a basis for the application navigation structure. Once you import the zip file of the application into VS Code, you will see the following directory of the project under the crypto-predict. Shown in the Figure 1.

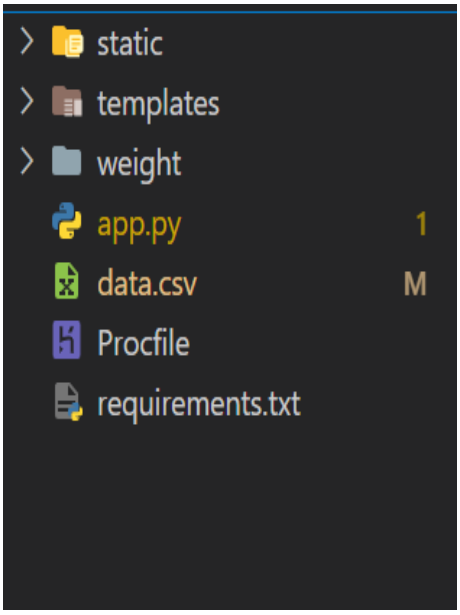

Figure 1: Folders

2.1.1 Static Folder

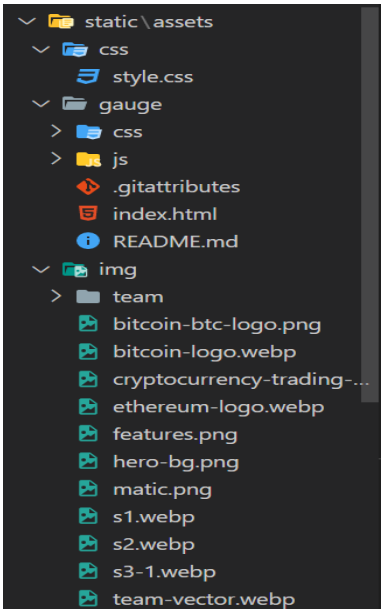

Figure 2: Static Folder (1)

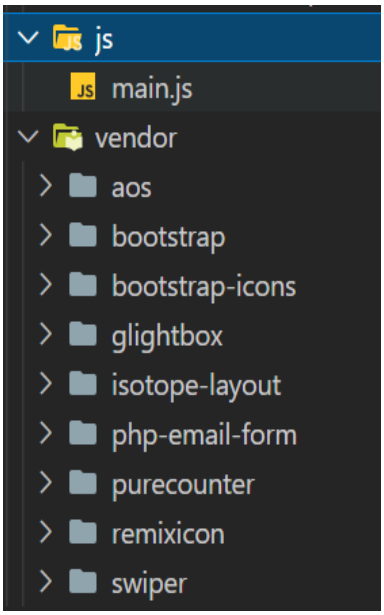

Figure 3: Static Folder (2)

The static folder contains assets used by the templates, including CSS files, JavaScript files, and images.

2.1.2 Templates Folder

This folder contain the front-end pages to be loaded. The templates folder contains only HTML templates. These have an .html extension. Shown in the Figure 4. Templates

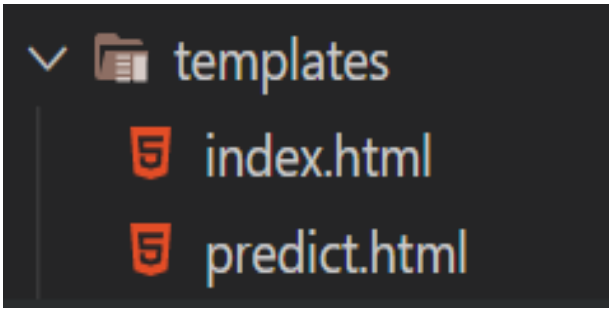

Figure 4: Template folder

2.1.3 Weight Folder

This folder contains the weight of the machine learning model in a model.h5 file which helps in faster running of the model.

2.1.4 Adding Twitter API Keys

The code snippet shown in the figure requires API Key secrets, which users need to apply for Twitter API access keys by signing up as developers click here to register, agreeing to the terms of service and mentioning the use case for the API. After three working days, users will get access keys and tokens which need to be mentioned in the code snippet available inside app.py file, which then authenticates the twitter server using those keys, to retrieve the tweets. Then after successful registration one can get the required keys and paste it.

```
consumer_key = 'YOUR_consumer_key'
consumer_secret = 'YOUR_consumer_secret'
access_token = 'YOUR_access_token'
access_token_secret = 'YOUR_access_token_secret'
```

Figure 5: API Key Changes

2.2 Files of the Project

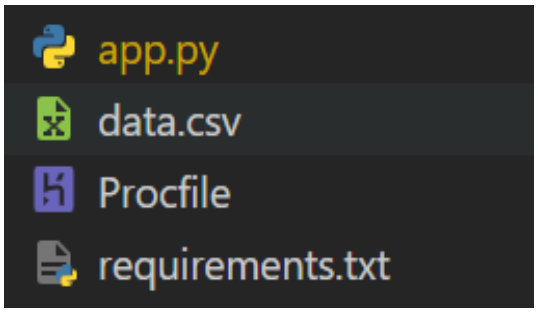

Figure 6: Important Files

2.2.1 app.py

app.py contains the application's code, where you create the app and its views. Its major function is to handle routing. After a user selects a cryptocurrency,

app.py gives a recommendation for that cryptocurrency.

2.2.2 data.csv

This file is generated in real-time and consists of all the tweets fetched from twitter.

2.2.3 Procfile

A Procfile tells Heroku how to startup your application on it's servers. A Procfile is a mechanism for declaring what commands are run by your application's dynos (or a web process) on the Heroku platform.

2.2.4 requirements.txt

In Python requirement. txt file is a type of file that usually stores information about all the libraries, modules, and packages in itself that are used while developing a particular project. It also stores all files and packages on which that project is dependent or requires to run.

3 RUNNING THE APPLICATION ON VS CODE

3.1 Installation

1. Install Python
2. Install Pip
3. Install dependecies using the following command pip3 install -r requirements.txt

3.2 Running The Application

1. Open Command Prompt (CMD)
2. Navigate to the local repository on your machine
3. Run app.py file using the following command *python app.py*

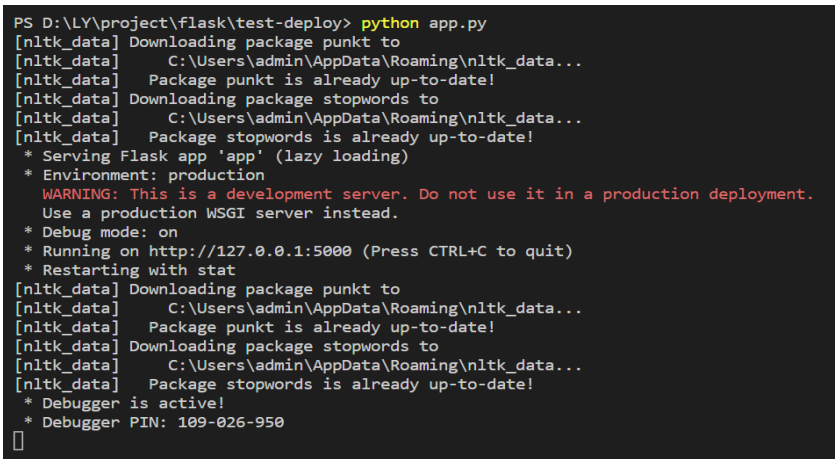

Figure 7: Running the application

4. After successfully running it will start on localhost port 5000
5. After some time the application would start running on localhost port 5000 as shown in the below figure

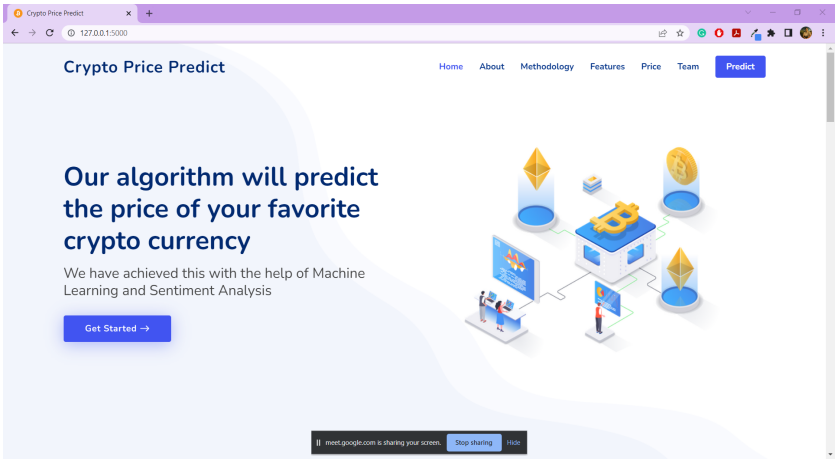

Figure 8: Homepage

6. Select the cryptocuurency you want to predict
7. Output will be displayed as shown in the below figure

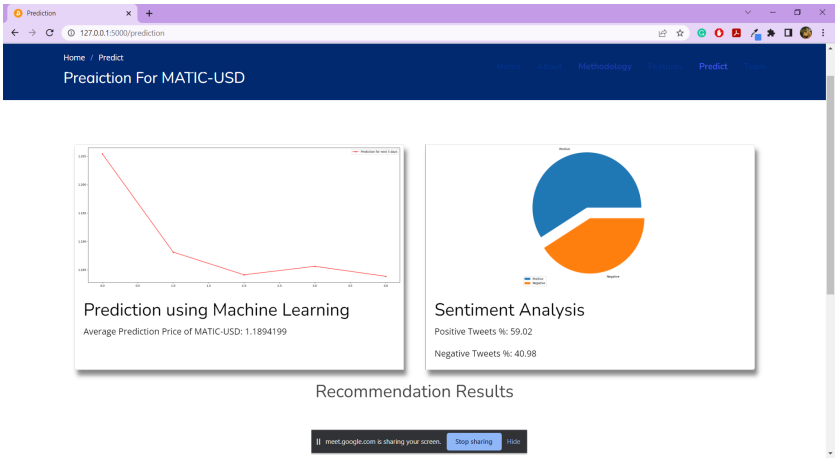

Figure 9: Prediction Page