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SI206

Final Project Report

4/27/21

Final Project Report

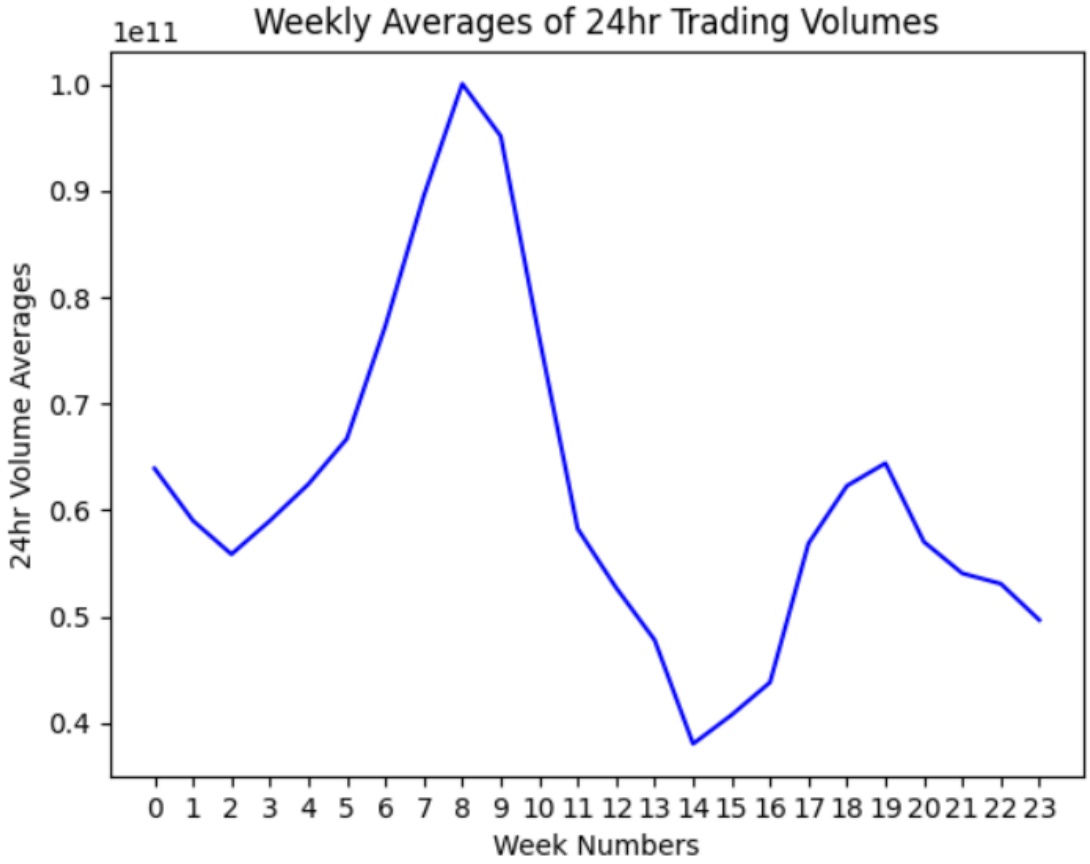
1. The goals for your project: To learn how to use databases, to get familiar with SQL language, to learn how to use the API documentation to suit our needs, how to visualize calculated data using matplotlib. The last goal for our project is to help out our Nigerian Astronaut friend, Air Force Major Abacha Tunde, get back home. To do this, we want to create code that will print out conversion rates from Nigerian Naira to Bitcoin, Bitcoin to USD, and USD to Russian Rubles in order to fool the authorities. Then we will calculate how much is owed to us for helping them.
2. The goals that were achieved: Solidified knowledge of databases, how to use Github with multiple people, how to use Liveshare on VSCode, solidified knowledge and usage of APIs, dictionaries, JSON files, and SQL language. We also learned how to plan our own projects and achieved the goal of bringing back Abacha Tunde.
3. The problems that you faced: Didn't start early enough, realized one of the APIs didn't have the functionality that we needed, needed to switch APIs in the middle, was hard to find something to calculate from data.

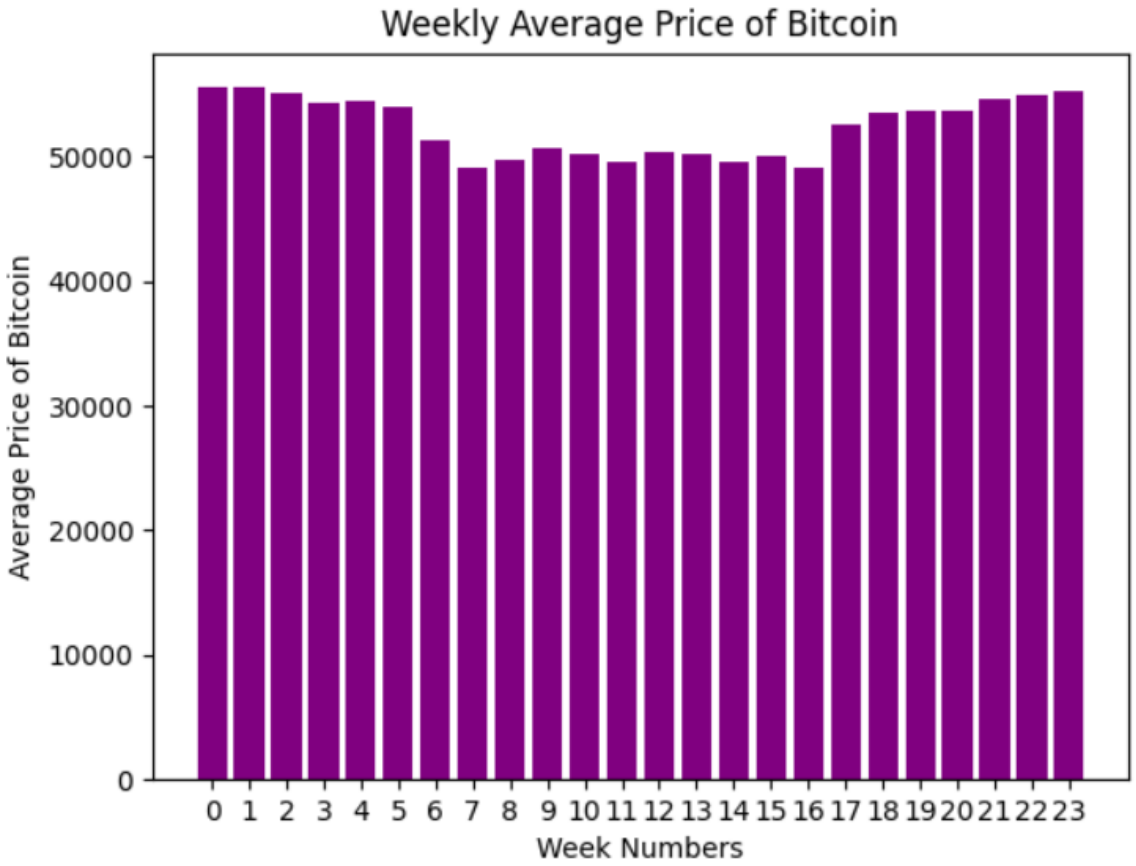
4. Calculations from data in database file

```
def calculate():
    cur, conn = setUpDatabase('bitcoin.db')
    avg = cur.execute('SELECT total_volume FROM bitcoin').fetchall()
    averages = []
    count = 0
    total = 0
    for num in avg:
        if count >= 7:
            averages.append(float(total / 7))
            count = 0
            total = 0
        total += num[0]
        count +=1
    conn.commit()
    return averages

def profits():
    cur, conn = setUpDatabase('bitcoin.db')
    avg = cur.execute('SELECT prices FROM bitcoin').fetchall()
    averages = []
    count = 0
    total = 0
    for num in avg:
        if count >= 7:
            averages.append(float(total / 7))
            count = 0
            total = 0
        total += num[0]
        count +=1
    conn.commit()
    return averages
```

5. Both visualizations



6. 

   We have set up a prompt, for fun, of a Nigerian Astronaut that is stranded and needs money to be transferred discretely to bring him home. However, one can use the functions we have written, research the 3 letter codes of currencies and mess around with the functions to see your own conversion rates of currencies you want to work with.

7.

def setUpDatabase(db_name): Takes database name as a parameter and creates a database.

def coingecko(currency): Takes in the 3 letter code for a currency as a parameter and returns the price of a Bitcoin in that currency in JSON format.

def rates(base, symbol): “base” takes in the 3 letter code for the currency you currently have and “symbol” takes the 3 letter code for the currency that you want to convert the base currency to as parameters, and returns the conversion rate in JSON format.

def marketdata(currency): Takes in the 3 letter code for a currency as a parameter and returns the market data (Price, Market Cap, 24-Hour Traded Volume) as a dictionary where the keys are the previous days from today and the values are a list where the first element is the price, the second is the market cap, and the third is the 24-hour traded volume.

def database(data): Takes in a dictionary “data” and creates a table where the rows are the days and the columns are the price, market cap, and 24-hour traded volume, respectively.

def calculate(): Doesn’t take in any parameters, returns a list of each week’s average 24-hour trading volume in a list from week 1 to week 24.

def profits(): Doesn’t take in any parameters, returns a list of each week’s average bitcoin price in a list from week 1 to week 24.

def line(): Doesn’t take in any parameters and displays a line graph of all the weeks’ average 24-hour trading volumes.

def bar(): Doesn’t take in any parameters and displays a bar graph of all the weeks’ average price of a Bitcoin.

End of code just acts as a main function to run all of the functions defined above. This portion also prints out all of the data that we need to complete our prompt of bringing Air Force Major Abacha Tunde back from space!

8.

Date	**Issue Description**	**Location of Resource**	**Result (did it solve the issue?)**
4/5/2021	Find first API to pull data from.	https://www.coingecko.com/en/api	Yes
4/5/2021	Find second API to pull data from.	https://www.coindesk.com/coindesk-api	Yes
4/21/2021	Second API doesn't do anything first one can't do. Replaced with another API.	https://ratesapi.io/	Yes, we have a second API for conversion between currencies now.

Github Repository: https://github.com/gracedho/SI206-p3.git