



Crypto Traveller

Monash Fintech Bootcamp Project #1

Siddhesh, Regina, Simon and Richard

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Summary

- As a world wide traveller, we are always looking for the best exchange rate and most discounted crypto currency we can get for the current country we are in.
- This easy to use application will tell you:
 - Local Prices
 - Historical Analysis
 - Conversation Rate
 - Crypto Market Updates
 - Exchange Report

Currency Convertor

FinTech Boot Camp Project 1
Presentation

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Q:What is the best Crypto Currency to buy in my current country



- To answer this question we needed to collect data from different sources. This included python libraries, csv files and API's
- Yahoo Finance
- Coin Gecko API
- Country.io API
- Dash





Local Prices

Data Clean Up & Exploration

- We started by importing the required python libraries and mapbox access token.
- These libraries and API's were used to create DataFrames for Country Data, Crypto and

```
import pandas as pd
import numpy as np
import yfinance as yf
import panel as pn
import plotly.express as px
import os
from requests import api
from dotenv import load_dotenv
from pycoingecko import CoinGeckoAPI
pn.extension("plotly")

mapbox_access_token = "pk.eyJ1IjoicGxvdGx5bWFwYm94IiwiYSI6ImNrOWJqb2F4djBnMjEzbG50amg0dnJieG4ifQ.Zme1-Uzoi75IaFbieBD13A"
px.set_mapbox_access_token(mapbox_access_token)
```

Data Analysis – Country Data

- Currency codes and Geocodes for each country were collected from country.io and set into DataFrames.
- These DF were then concatenate in the foll formate and saved as a CSV.
- Problems?

```
country_currency = api.get('http://country.io/currency.json').json()  
  
# countries2 = api.get('https://restcountries.eu/rest/v2/').json()  
# countries2
```

```
df_country_currency = pd.DataFrame(columns=['Code', 'Curr_code'], dtype=object)  
for key,value in country_currency.items():  
    df_country_currency = df_country_currency.append(pd.Series(  
    [  
        key,  
        value  
    ], index=df_country_currency.columns ), ignore_index=True)
```

```
df_country_currency.set_index('Code', inplace=True)  
df_country_currency.head()
```

Curr_code

Code

BD BDT

BE EUR

BF XOF

BG BGN

BA BAM

Data Analysis - Crypto

- Data for crypto analysis will be used from the previous DF to index by country name as well as Coin Gecko to get currency data on price.
- This will create 3 DataFrames
 - Df_crypto_price
 - Df_crypto_change
 - Df_Crypto_vol
- Problems ???

```
# form the List of fiat currencies - We need to use t
fiat = df_country_data.Curr_code.to_list()
```

```
gecko = CoinGeckoAPI()
crypto_prices = gecko.get_price(ids=['bitcoin','litec
```

```
df_gecko_data = pd.DataFrame.from_dict(crypto_prices)
df_gecko_data.index = df_gecko_data.index.str.upper()
df_gecko_data.head()
```

	litecoin	ripple	bitcoin
GBP	9.960000e+01	4.773910e-01	2.433000e+04
GBP_MARKET_CAP	6.661552e+09	2.207150e+10	4.560049e+11
GBP_24H_VOL	1.685425e+09	1.887243e+09	2.109473e+10
GBP_24H_CHANGE	-4.566815e+00	-5.433344e+00	-4.165523e+00
EUR	1.157000e+02	5.545500e-01	2.826300e+04

Data Analysis – Map Plotting

- All the data was then pulled together through a function and inserted into mapbox to display crypto information for each country.

```
map1 = px.scatter_mapbox(  
    df_plot,  
    lat="CapitalLatitude",  
    lon="CapitalLongitude",  
    color="ContinentName",  
    hover_name='CountryName',  
    hover_data= hover_data,  
    zoom = 2,  
    mapbox_style='basic',  
    height=1000  
)  
map1.show()
```



Discuss

1,000

Historical Analysis

Data Clean Up & Exploration

“If you don't know where you've come from, you don't know where you're going” – Maya Angelou

- To obtain historical prices for our selected crypto currencies we use the Yahoo Finance library along with the plotly express library.
- This data was then cleaned up by being put into a DataFrame and indexed by closing price

```
# Coding to create a new data which displays only closing prices for BTC, ETH, DOGE, ADA and MATIC
df_closing_prices = pd.DataFrame()
df_closing_prices["BTC"] = df_ticker_low["BTC-USD"]["Close"]
df_closing_prices["ETH"] = df_ticker_low["ETH-USD"]["Close"]
df_closing_prices["DOGE"] = df_ticker_low["DOGE-USD"]["Close"]
df_closing_prices["ADA"] = df_ticker_low["ADA-USD"]["Close"]
df_closing_prices["MATIC"] = df_ticker_low["MATIC-USD"]["Close"]
df_closing_prices.index = df_ticker_low.index.date
df_closing_prices
```

```
#This is coding which imports the necessary Libraries and API's required to retrieve and plot the data.
pn.extension("plotly")
import plotly.express as px
```

```
#Code to import and download 5 years worth of pricing data (USD) for Bitcoin (BTC), Ethereum (ETH), Dogecoin (DOGE), Cardano (ADA) and Po Lygon (MATIC).
df_ticker_low = yf.download(['BTC-USD', 'ETH-USD', 'DOGE-USD', 'ADA-USD', 'MATIC-USD'], period='5y', group_by= 'ticker', dtype= object)
df_ticker_low
```

Data Analysis – 5 Year Closing Price History

- The DataFrame was then used to plot the closing prices of each crypto currency over a 5 year period.

```
# Coding to generate a line plot of the data  
df_closing_prices_plot = df_closing_prices.plot(figsize=(20, 10),title="5 year closing price history")
```

Major Crypto's Five Years History & Trend



Discuss



**Conversation
Rate**

Data Clean Up & Exploration

- Variables called crypto_coins and fiat were created to store lists of different crypto and fiat currency
- To collect current prices for BTC and ETH crypto API URLs were used.
- DataFrames using this information were created

```
df_eth_btc = pd.DataFrame(columns=['crypto', 'USD', 'AUD'], index=None)
df_eth_btc = df_eth_btc.append(pd.Series(['ETH', eth_price, '12000'], index=df_eth_btc.columns), ignore_index=True)
df_eth_btc = df_eth_btc.append(pd.Series(['BTC', btc_price, '32000'], index=df_eth_btc.columns), ignore_index=True)
df_eth_btc.set_index('crypto', inplace=True)
```

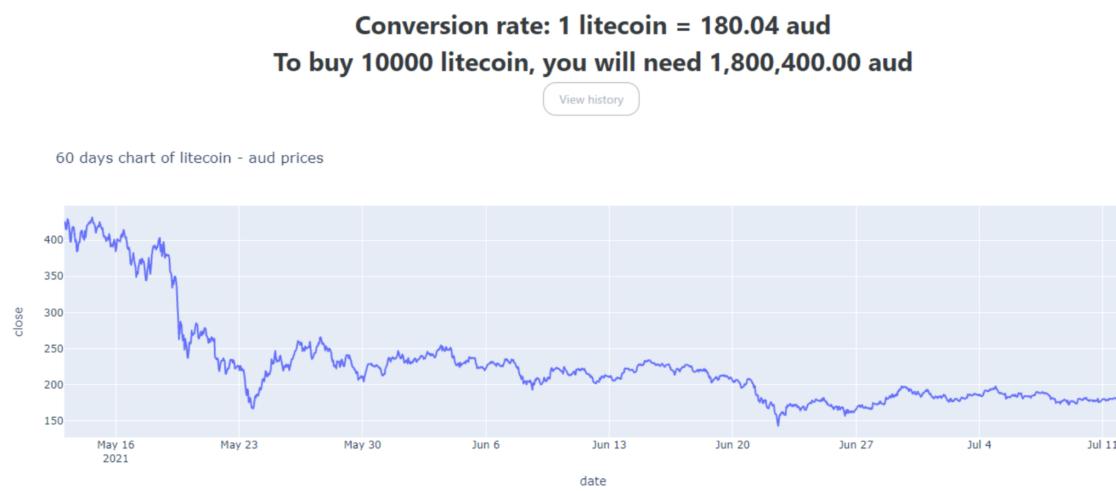
```
btc_url = "https://api.alternative.me/v2/ticker/Bitcoin/?convert=AUD"
eth_url = "https://api.alternative.me/v2/ticker/Ethereum/?convert=AUD"
btc_url = btc_url + "?format=json"
eth_url = eth_url + "?format=json"
# Fetch current BTC price
btc_price = api.get(btc_url)
# Fetch current ETH price
eth_price = api.get(eth_url)
btc_response = btc_price.content
eth_response = eth_price.content
btc_data = btc_price.json()
eth_data = eth_price.json()
btc_price = btc_data['data'][1]['quotes']['USD']['price']
eth_price = eth_data['data'][1027]['quotes']['USD']['price']
```

```
crypto_coins = ['bitcoin','ethereum','litecoin','ripple','eos','monero','stellar']
fiat = ['usd','aud','eur','gbp','cad','sgd']

df_crypt_fiat_conv = Functions_data_graphs.get_crypto_fiat_conv( crypto_coins = crypto_coins, fiat = fiat )
```

Data Analysis – Currency Converter

These DataFrames were then used in Dash's callback function where the user can manually enter the amount of fiat they wish to exchange for crypto, along with a 60-day chart.



\$USD

Input \$USD amount below to convert:

Amount \$1000.00

\$BTC

Amount in \$BTC:

Amount current price \$34204.0

\$ETH

Amount in \$ETH:

Amount current price \$2140.59

More! ! Pick your currency, We will convert it for you!

Cryptocurrency:

Fiat Currency:

Amount of Crypto:

[Submit](#)

[< >](#)

Discuss

Crypto Market Update

Data Clean Up & Exploration

– Market Update

⌚ A collection of altcoins lastest news / maintainance alert / update! Everything you need in a single dashboard :)

Select the category to view the corresponding updates

General ▾

↳Symbol	↳Update	↳Created at	↳User
tkp	\$ The USDC airdrop coming on 10th Aug, 2021. 🚀 Learn how to start getting money every month \$ https://tokpie.io/blog/get-airdrop-cryptocurrencies-from-top-altcos-every-week/ #USDC #airdrop #stablecoins #tokens #giveaway #cryptocurrency #passiveincome	2021-07-11T18:33:23.288Z	Vasilii
tkp	TKP Partial 10% Migration to BSC (#BEP20) 🚀🚀 Meet the bridge & PancakeSwap ✅ https://tokpie.io/blog/tokpie-tkp-bep20-tokens-partial-migration/ #TKP #token #BEP20 #BinanceSmartChain #partial #migration	2021-07-11T09:45:11.028Z	Vasilii
smart	Topic of the 4th round of the #SmartMemeTournament: "#SmartCash will have its 4th anniversary on July 11, 2021" Check out the rules in the article below, create your #meme and win a prize! https://coinlance.com/2021/06/06/bcmemetournament-and-smartmemetournament-round-3-is-actively-going-on/ https://twitter.com/SmartCashMemes/status/1409480847053496323	2021-07-10T21:02:14.439Z	SmartCas
smart	#AssCash is a great gateway drug into #SmartCash. Come for the ass, stay for the smarts. AssCash into SmartCash! Best of both worlds. https://twitter.com/scashofficial/status/1408586265570709514	2021-07-10T21:01:11.016Z	SmartCas
ioc	Things are heating up in the \$IOC DVM kitchen.. https://twitter.com/I0Coin_Official/status/141355589416679424	2021-07-09T18:36:53.701Z	Matt Eng (Team)

« « » »

- The data for the crypto section of the app uses a .get function to pull market updates information.
- This function is then pulled to Dah to display alt coin latest news, alerts and updates.

Discuss

Exchange Report

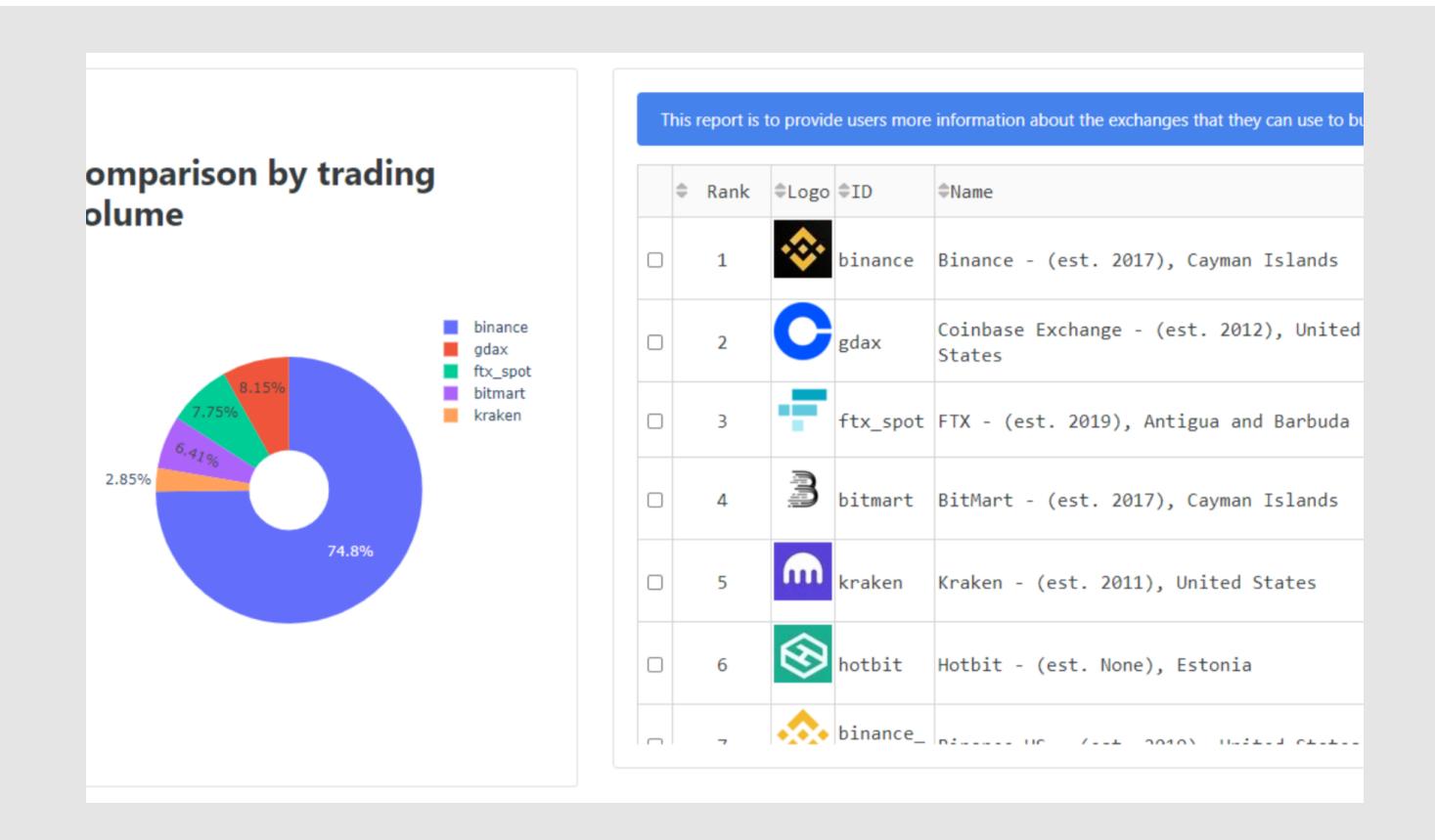
183.102

154.178

245.5

Data Clean Up and Exploration

– Exchange Report



- Similar to the Market update function the exchange report uses a .get function to pull information.
- This information is used by dash to display trading volume for different exchanges around the world.

Discuss