Mini Project - IT Workshop 1

Group-13

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Problem Statement:

Data Analysis & Visualisation of CryptoCurrency using Python.

Description:

Cryptocurrency is a medium of exchange, created and stored electronically in the blockchain using encryption techniques to control the creation of monetary units to verify the transfer of funds. It has no physical form.
Eg: Bitcoin, Dogecoin, Ethereum.

Libraries and Functions:

Libraries imported:

1)Numpy: Numpy is a Python library used for working with arrays. It also provides a wide variety of mathematical operations on the array. Numpy also works with the python objects called multi-dimensional arrays.

2)Pandas: Panda is a Python library used for working on data analysis. It provides a huge set of commands and features that can be used to analyze the data easily. It is used for tabular data.

3)Matplotlib: Matplotlib is a Python library used for data-Visualisation and also used for Graphical plotting.

Functions Used:

pandas.read_csv:
Used to read csv files from directory

Pandas. data frame:
Used to create a definite data frame from the files imported.

Matplotlib.pyplot.plot:
Takes x-axis variable and y-axis variable as parameters and plots respectively.

Pandas.DataFrame.difference:
Used to select columns whose header is not supplied as a parameter to the function.

sklearn :
Used for visualizing the data and plotted in array matrix form.

pandas.DataFrame.pct_change:
Used to calculate percent change of input parameters. By default, on a data frame, it calculates the percentage difference between the values in adjacent rows.

Numpy.std:
When a data frame is passed as parameters it calculates the standard deviation of individual columns.

Numpy. mean:
When a data frame is passed as parameters it calculates the mean of individual columns.

Datasets:

For the visualization of data, datasets of different cryptocurrencies are used which include:
Bitcoin
Dogecoin
Ethereum
Shiba Inu coin
Aave coin
ChainLink coin

Every dataset contains comma-separated values of Date, Open, High, Low, Close, Adj Close, Volume respectively of a coin at different dates.

Results & plots:

1)We have successfully plotted the Open, High, Low, Close values of every coin using the “.head” function.

2)Using pandas data frame we have plotted the closing values of the coin as shown below.

3)Using the NumPy library we have plotted the standard deviation and mean values of each coin from the given data.

The plots are displayed below

```
#Creating a new dataframe that holds the closing price of all 6 crypto currencies
dataf=pd.DataFrame({'BTC':btc['Close'],
                    'AAVE':aave['Close'],
                    'LINK':link['Close'],
                    'ETH':eth['Close'],
                    'DOGE':doge['Close'],
                    'SHIB':shib['Close']
                   })
```

```
#The Dataframe dataf will look like
dataf
```

```
...          BTC        AAVE       LINK          ETH      DOGE      SHIB
0    29374.152344  377.611786  11.872555   730.367554  0.002753  0.000009
1    32127.267578  406.692291  12.220137   774.534973  0.002769  0.000010
2    32782.023438  385.420563  13.650172   975.507690  0.002779  0.000008
3    31971.914063  404.309723  13.571063  1040.233032  0.002821  0.000008
4    33992.429688  397.924561  14.539868  1100.006104  0.002773  0.000008
..            ...         ...        ...          ...       ...       ...
361           NaN         NaN        NaN          NaN  0.261898       NaN
362           NaN         NaN        NaN          NaN  0.266315       NaN
363           NaN         NaN        NaN          NaN  0.282359       NaN
364           NaN         NaN        NaN          NaN  0.273526       NaN
365           NaN         NaN        NaN          NaN  0.270235       NaN
```

USING PANDAS

```
#standard deviation is a measure of volatility of a coin
print('The cryptocurrency volatility')
np.std(DSR)
```

```
The cryptocurrency volatility
BTC     0.039977
AAVE    0.056821
LINK    0.069816
ETH     0.054004
DOGE    0.189326
SHIB    0.087252
dtype: float64
```

```
#mean of coin
np.mean(DSR)
```

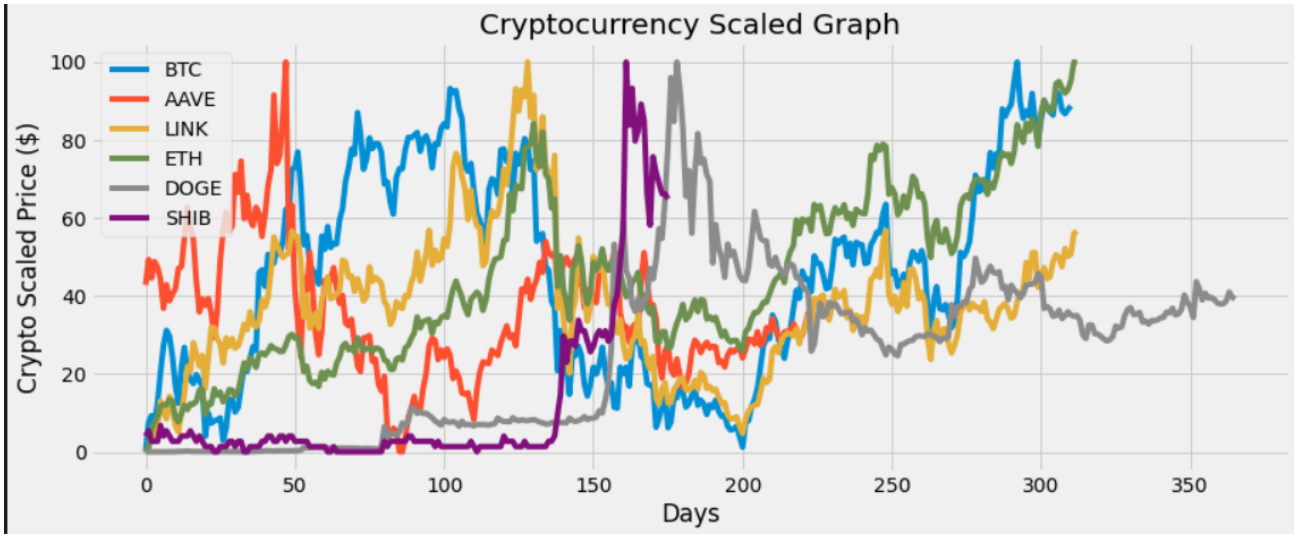
```
BTC     0.002840
AAVE    0.001415
LINK    0.005418
ETH     0.006637
DOGE    0.022994
SHIB    0.008245
dtype: float64
```

USING NUMPY

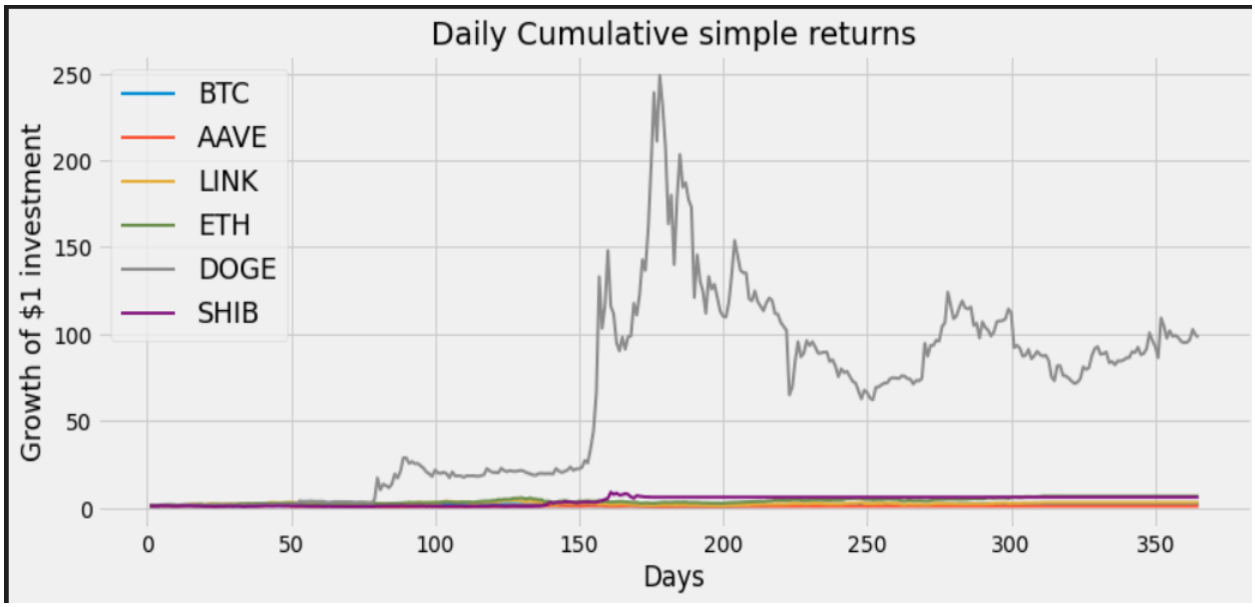
Graphs:

1)We have visualized the data and using the matplotlib library we have plotted the graphs.

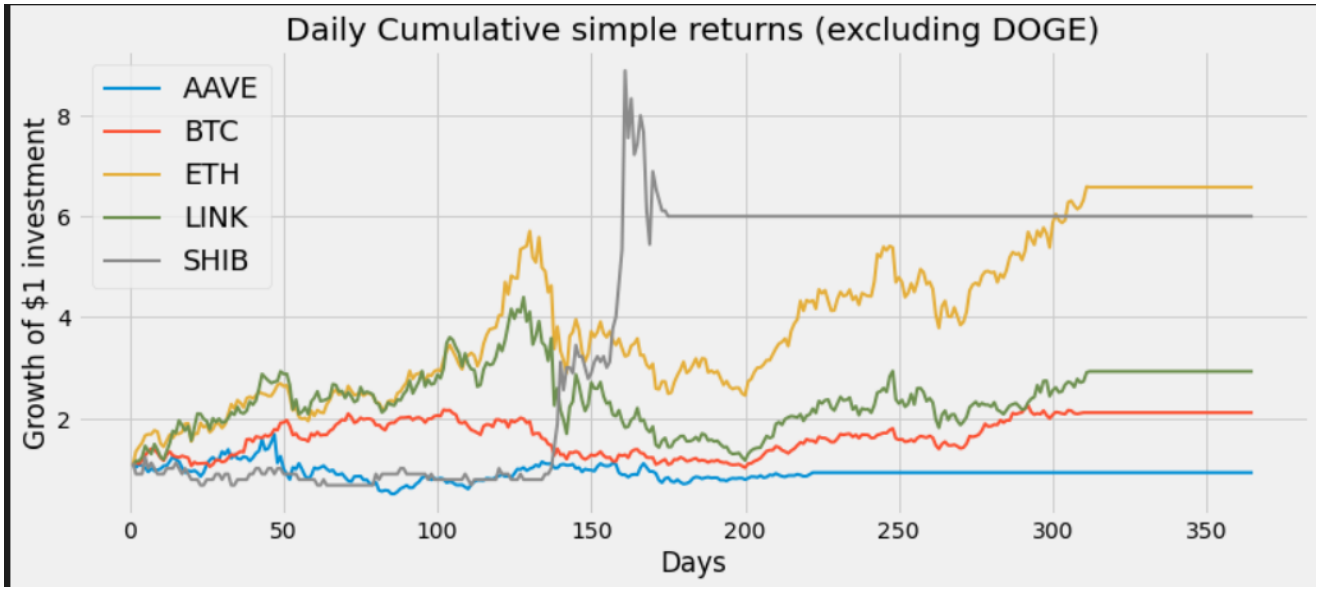
- ☐ Graph Currency value vs Time



- ☐ Graph for Daily returns vs growth for $1



- ☐ Graph for Daily returns vs growth for $1 (excluding Dogecoin)



Conclusion:

Hence using the above-stated libraries, functions & methods, raw data is collected and we have analyzed and visualized the data. The plots are further processed to clearly distinguish between the coins.

THANK YOU