

```

In [16]: from requests import Request, Session
from requests.exceptions import ConnectionError, Timeout, TooManyRedirects
import json

url = 'https://pro-api.coinmarketcap.com/v1/cryptocurrency/listings/latest'
parameters = {
    'start': '1',
    'limit': '15',
    'convert': 'USD'
}
headers = {
    'Accepts': 'application/json',
    'X-CMC_PRO_API_KEY': '0ad53085-1cb2-4eb8-ad9e-3ffbd7e56509',
}

session = Session()
session.headers.update(headers)

try:
    response = session.get(url, params=parameters)
    data = json.loads(response.text)
    print(data)
except (ConnectionError, Timeout, TooManyRedirects) as e:
    print(e)

#NOTE:
# I had to go in and put "jupyter notebook --NotebookApp.iopub_data_rate_limit=1e10"
# Into the Anaconda Prompt to change this to allow to pull data

# If that didn't work try using the local host URL as shown in the video

df2 = pd.json_normalize(data['data'])
df2['timestamp'] = pd.to_datetime('now')
df = df.append(df2)

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{'status': {'timestamp': '2023-07-09T19:45:00.000Z', 'error_code': 0, 'error_message': None, 'elapsed': 45, 'credit_count': 1, 'notice': None, 'total_count': 10248}, 'data': [{'id': 1, 'name': 'Bitcoin', 'symbol': 'BTC', 'slug': 'bitcoin', 'num_market_pairs': 10327, 'date_added': '2010-07-13T00:00:00.000Z', 'tags': ['mineable', 'pow', 'sha-256', 'store-of-value', 'state-channel', 'coinbase-ventures-portfolio', 'three-arrows-capital-portfolio', 'polychain-capital-portfolio', 'binance-labs-portfolio', 'blockchain-capital-portfolio', 'boostvc-portfolio', 'cms-holdings-portfolio', 'dgc-portfolio', 'dragonfly-capital-portfolio', 'electric-capital-portfolio', 'fabric-ventures-portfolio', 'framework-ventures-portfolio', 'galaxy-digital-portfolio', 'huobi-capital-portfolio', 'alameda-research-portfolio', 'a16z-portfolio', '1confirmation-portfolio', 'winklevoss-capital-portfolio', 'usv-portfolio', 'placeholder-ventures-portfolio', 'pantera-capital-portfolio', 'multicoin-capital-portfolio', 'paradigm-portfolio', 'bitcoin-ecosystem'], 'max_supply': 21000000, 'circulating_supply': 19424943, 'total_supply': 19424943, 'infinite_supply': False, 'platform': None, 'cmc_rank': 1, 'self_reported_circulating_supply': None, 'self_reported_market_cap': None, 'tvl_ratio': None, 'last_updated': '2023-07-09T19:45:00.000Z', 'quote': {'USD': {'price': 30268.437941542787, 'volume_24h': 7649133319.793995, 'volume_change_24h': 0.3216, 'percent_change_1h': -0.04681969, 'percent_change_24h': 0.45646703, 'percent_change_7d': -0.92908433, 'percent_change_30d': 14.53309814, 'percent_change_60d': 9.14607782, 'percent_change_90d': 3.82851504, 'market_cap': 587962681713.506, 'market_cap_dominance': 49.8902, 'fully_diluted_market_cap': 635637196772.4, 'tvl': None, 'last_updated': '2023-07-09T19:45:00.000Z'}}}, {'id': 1027, 'name': 'Ethereum', 'symbol': 'ETH', 'slug': 'ethereum', 'num_market_pairs': 7099, 'date_added': '2015-08-07T00:00:00.000Z', 'tags': ['pos', 'smart-contracts', 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'name': 'Ethereum', 'symbol': 'ETH', 'slug': 'ethereum', 'token_address': '0xdac17f958d2ee523a2206206994597c13d831ec7'}, 'infinite_supply': True, 'cmc_rank': 3, 'self_reported_circulating_supply': None, 'self_reported_market_cap': None, 'tvl_ratio': None, 'last_updated': '2023-07-09T19:45:00.000Z', 'quote': {'USD': {'price': 1.0001649903152712, 'volume_24h': 13128971083.943525, 'volume_change_24h': -3.0608, 'percent_change_1h': -0.01063411, 'percent_change_24h': 0.00261984, 'percent_change_7d': 0.0145197, 'percent_change_30d': 0.03204216, 'percent_change_60d': -0.04800789, 'percent_change_90d': -0.04433926, 'market_cap': 83374471615.2419, 'market_cap_dominance': 7.0761, 'fully_diluted_market_cap': 85745126199.68, 'tvl': None, 'last_updated': '2023-07-09T19:45:00.000Z'}}}, {'id': 1839, 'name': 'BNB', 'symbol': 'BNB', 'slug': 'bnb', 'num_market_pairs': 1491, 'date_added': '2017-07-25T00:00:00.000Z', 'tags': ['marketplace', 'centralized-exchange', 'payments', 'smart-contracts', 'alameda-research-portfolio', 'multicoin-capital-portfolio', 'bnb-chain', 'layer-1', 'sec-security-token'], 'max_supply': None, 'circulating_supply': 155849854.35784027, 'total_supply': 155849854.35784027, 'infinite_supply': False, 'platform': None, 'cmc_rank': 4, 'self_reported_circulating_supply': None, 'self_reported_market_cap': None, 'tvl_ratio': None, 'last_updated': '2023-07-09T19:45:00.000Z', 'quote': {'USD': {'price': 234.73180982264677, 'volume_24h': 294392268.84773463, 'volume_change_24h': -6.6194, 'percent_change_1h': -0.00169384, 'percent_change_24h': -0.12689869, 'percent_change_7d': -3.96832544, 'percent_change_30d': -9.74880082, 'percent_ch
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'payments', 'doggone-doggerel', 'bnb-chain'], 'max\_supply': None, 'circulating\_supply': 140104806383.70526, 'total\_supply': 140104806383.70526, 'infinite\_supply': True, 'platform': None, 'cmc\_rank': 8, 'self\_reported\_circulating\_supply': None, 'self\_reported\_market\_cap': None, 'tv1\_ratio': None, 'last\_updated': '2023-07-09T19:45:00.000Z', 'quote': {'USD': {'price': 0.06555937880225045, 'volume\_24h': 151366053.5934565, 'volume\_change\_24h': 2.1522, 'percent\_change\_1h': -0.2231111, 'percent\_change\_24h': 0.2201664, 'percent\_change\_7d': -3.60398633, 'percent\_change\_30d': -4.36618014, 'percent\_change\_60d': -10.94824993, 'percent\_change\_90d': -22.00155693, 'market\_cap': 9185184073.72529, 'market\_cap\_dominance': 0.7796, 'fully\_diluted\_market\_cap': 9185184073.73, 'tv1': None, 'last\_updated': '2023-07-09T19:45:00.000Z'}}}, {'id': 5426, 'name': 'Solana', 'symbol': 'SOL', 'slug': 'solana', 'num\_market\_pairs': 483, 'date\_added': '2020-04-10T00:00:00.000Z', 'tags': ['pos', 'platform', 'solana-ecosystem', 'cms-holdings-portfolio', 'kenetic-capital-portfolio', 'alameda-research-portfolio', 'multicoins-capital-portfolio', 'okex-blockdream-ventures-portfolio', 'layer-1', 'ftx-bankruptcy-estate', 'sec-security-token'], 'max\_supply': None, 'circulating\_supply': 402489083.08942574, 'total\_supply': 552084719.771929, 'infinite\_supply': True, 'platform': None, 'cmc\_rank': 9, 'self\_reported\_circulating\_supply': None, 'self\_reported\_market\_cap': None, 'tv1\_ratio': None, 'last\_updated': '2023-07-09T19:45:00.000Z', 'quote': {'USD': {'price': 21.285026321744606, 'volume\_24h': 414714458.48957044, 'volume\_change\_24h': -42.5863, 'percent\_change\_1h': -0.24668602, 'percent\_change\_24h': -1.82755138, 'percent\_change\_7d': 10.18654274, 'percent\_change\_30d': 20.30343977, 'percent

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'platform', 'enterprise-solutions', 'zero-knowledge-proofs', 'scaling', 'state-channel', 'coinbase-ventures-portfolio', 'layer-2', 'binance-launchpad', 'binance-labs-portfolio', 'polygon-ecosystem', 'moonriver-ecosystem', 'injective-ecosystem', 'sec-security-token'], 'max\_supply': 10000000000, 'circulating\_supply': 9319469069.28493, 'total\_supply': 10000000000, 'infinite\_supply': False, 'platform': None, 'cmc\_rank': 13, 'self\_reported\_circulating\_supply': None, 'self\_reported\_market\_cap': None, 'tv1\_ratio': None, 'last\_updated': '2023-07-09T19:45:00.000Z', 'quote': {'USD': {'price': 0.6914160230673141, 'volume\_24h': 254142157.05041614, 'volume\_change\_24h': 19.6054, 'percent\_change\_1h': -0.43636458, 'percent\_change\_24h': 2.35485436, 'percent\_change\_7d': 3.07332193, 'percent\_change\_30d': -5.93132475, 'percent\_change\_60d': -21.1161465, 'percent\_change\_90d': -37.78978581, 'market\_cap': 6443630240.983829, 'market\_cap\_dominance': 0.5468, 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```

```
In [17]: type(data)
```

```
Out[17]: dict
```

```
In [4]: import pandas as pd
```

```
pd.set_option('display.max_columns', None)
```

```
In [19]: df = pd.json_normalize(data['data'])  
df['timestamp'] = pd.to_datetime('now', utc=True)
```

```
In [20]: df
```

Out[20]:

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_supply	circulat
0	1	Bitcoin	BTC	bitcoin	10327	2010-07-13T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+07	1.9
1	1027	Ethereum	ETH	ethereum	7099	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	NaN	1.2
2	825	Tether	USDT	tether	56559	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	NaN	8.3
3	1839	BNB	BNB	bnb	1491	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	NaN	1.9
4	3408	USD Coin	USDC	usd-coin	13242	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	NaN	2.7
5	52	XRP	XRP	xrp	978	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+11	5.2
6	2010	Cardano	ADA	cardano	857	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+10	3.4
7	74	Dogecoin	DOGE	dogecoin	739	2013-12-15T00:00:00.000Z	[mineable, pow, script, medium-of-exchange, me...	NaN	1.4
8	5426	Solana	SOL	solana	483	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	NaN	4.0
9	2	Litecoin	LTC	litecoin	941	2013-04-28T00:00:00.000Z	[mineable, pow, script, medium-of-exchange]	8.400000e+07	7.3
10	1958	TRON	TRX	tron	783	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem, sec-security...	NaN	8.9
11	6636	Polkadot	DOT	polkadot-new	527	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	NaN	1.2
12	3890	Polygon	MATIC	polygon	764	2019-04-28T00:00:00.000Z	[pos, platform, enterprise-	1.000000e+10	9.3

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_supply	circulat
							solutions, zero-kno...		
13	1831	Bitcoin Cash	BCH	bitcoin- cash	723	2017-07- 23T00:00:00.000Z	[mineable, pow, sha- 256, marketplace, medium-o...	2.100000e+07	1.9
14	3717	Wrapped Bitcoin	WBTC	wrapped- bitcoin	1281	2019-01- 30T00:00:00.000Z	[medium-of- exchange, defi, wrapped- tokens, fan...	NaN	1.9

```
In [3]: def api_runner():
    global df
    url = 'https://pro-api.coinmarketcap.com/v1/cryptocurrency/listings/latest'
    parameters = {
        'start': '1',
        'limit': '15',
        'convert': 'USD'
    }
    headers = {
        'Accepts': 'application/json',
        'X-CMC_PRO_API_KEY': '0ad53085-1cb2-4eb8-ad9e-3ffbd7e56509',
    }

    session = Session()
    session.headers.update(headers)

    try:
        response = session.get(url, params=parameters)
        data = json.loads(response.text)
        #print(data)
    except (ConnectionError, Timeout, TooManyRedirects) as e:
        print(e)

    #NOTE:
    # I had to go in and put "jupyter notebook --NotebookApp.iopub_data_rate_limit=1e10"
    # Into the Anaconda Prompt to change this to allow to pull data

    df2 = pd.json_normalize(data['data'])
    df2['timestamp'] = pd.to_datetime('now', utc=True)
    df = df.append(df2)

    # If that didn't work try using the local host URL as shown in the video
```

```
In [13]: #import os
    #from time import time
    #from time import sleep

    #for i in range(333):
        #api_runner()
        #print('API Runner completed successfully')
        #sleep(60) #sleep for 1 minute
    #exit()
```

```
-----
NameError                                Traceback (most recent call last)
Cell In[13], line 6
      3 from time import sleep
      5 for i in range(333):
----> 6     api_runner()
      7     print('API Runner completed successfully')
      8     sleep(60) #sleep for 1 minute

Cell In[10], line 15, in api_runner()
      5 parameters = {
      6     'start': '1',
      7     'limit': '15',
      8     'convert': 'USD'
      9 }
     10 headers = {
     11     'Accepts': 'application/json',
     12     'X-CMC_PRO_API_KEY': '0ad53085-1cb2-4eb8-ad9e-3ffbd7e56509',
     13 }
---> 15 session = Session()
     16 session.headers.update(headers)
     18 try:
```

**NameError:** name 'Session' is not defined

In [32]: df



	id	name	symbol	slug	num_market_pairs	date_added	tags	max_supply	circulation
0	1	Bitcoin	BTC	bitcoin	10327	2010-07-13T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, stateless]	2.100000e+07	1.900000e+07
1	1027	Ethereum	ETH	ethereum	7099	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, colateralizable]	NaN	1.000000e+07
2	825	Tether	USDT	tether	56559	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin]	NaN	8.000000e+08
3	1839	BNB	BNB	bnb	1491	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...]	NaN	1.000000e+07
4	3408	USD Coin	USDC	usd-coin	13242	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...]	NaN	2.000000e+07
5	52	XRP	XRP	xrp	978	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+11	5.000000e+09
6	2010	Cardano	ADA	cardano	857	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+10	3.000000e+09
7	74	Dogecoin	DOGE	dogecoin	739	2013-12-15T00:00:00.000Z	[mineable, pow, script, medium-of-exchange, me...	NaN	1.000000e+07
8	5426	Solana	SOL	solana	483	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	NaN	4.000000e+07
9	2	Litecoin	LTC	litecoin	941	2013-04-28T00:00:00.000Z	[mineable, pow, script, medium-of-exchange]	8.400000e+07	7.000000e+07
10	1958	TRON	TRX	tron	783	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem, sec-security...	NaN	8.000000e+08
11	6636	Polkadot	DOT	polkadot-new	527	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	NaN	1.000000e+07
12	3890	Polygon	MATIC	polygon	764	2019-04-28T00:00:00.000Z	[pos, platform, enterprise-	1.000000e+10	9.000000e+08

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_supply	circulat
							solutions, zero-kno...		
13	1831	Bitcoin Cash	BCH	bitcoin-cash	723	2017-07-23T00:00:00.000Z	[mineable, pow, sha-256, marketplace, medium-o...	2.100000e+07	1.9
14	3717	Wrapped Bitcoin	WBTC	wrapped-bitcoin	1281	2019-01-30T00:00:00.000Z	[medium-of-exchange, defi, wrapped-tokens, fan...	NaN	1.9
0	1	Bitcoin	BTC	bitcoin	10327	2010-07-13T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+07	1.9
1	1027	Ethereum	ETH	ethereum	7099	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	NaN	1.7
2	825	Tether	USDT	tether	56559	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	NaN	8.3
3	1839	BNB	BNB	bnb	1491	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	NaN	1.9
4	3408	USD Coin	USDC	usd-coin	13242	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	NaN	2.7
5	52	XRP	XRP	xrp	978	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+11	5.2
6	2010	Cardano	ADA	cardano	857	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+10	3.4
7	74	Dogecoin	DOGE	dogecoin	739	2013-12-15T00:00:00.000Z	[mineable, pow, script, medium-of-exchange, me...	NaN	1.4
8	5426	Solana	SOL	solana	483	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	NaN	4.0
9	2	Litecoin	LTC	litecoin	941	2013-04-28T00:00:00.000Z	[mineable, pow, script, medium-of-exchange]	8.400000e+07	7.3
10	1958	TRON	TRX	tron	783	2017-09-13T00:00:00.000Z	[media, payments,	NaN	8.9

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_supply	circulat
							tron-ecosystem, sec-security...		
11	6636	Polkadot	DOT	polkadot-new	527	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	NaN	1.2
12	3890	Polygon	MATIC	polygon	764	2019-04-28T00:00:00.000Z	[pos, platform, enterprise-solutions, zero-kno...	1.000000e+10	9.3
13	1831	Bitcoin Cash	BCH	bitcoin-cash	723	2017-07-23T00:00:00.000Z	[mineable, pow, sha-256, marketplace, medium-o...	2.100000e+07	1.9
14	3717	Wrapped Bitcoin	WBTC	wrapped-bitcoin	1281	2019-01-30T00:00:00.000Z	[medium-of-exchange, defi, wrapped-tokens, fan...	NaN	1.9
0	1	Bitcoin	BTC	bitcoin	10327	2010-07-13T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+07	1.9
1	1027	Ethereum	ETH	ethereum	7099	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	NaN	1.2
2	825	Tether	USDT	tether	56559	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	NaN	8.3
3	1839	BNB	BNB	bnb	1491	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	NaN	1.9
4	3408	USD Coin	USDC	usd-coin	13242	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	NaN	2.7
5	52	XRP	XRP	xrp	978	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+11	5.2
6	2010	Cardano	ADA	cardano	857	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+10	3.4
7	74	Dogecoin	DOGE	dogecoin	739	2013-12-15T00:00:00.000Z	[mineable, pow, script, medium-of-exchange, me...	NaN	1.4

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_supply	circulat
8	5426	Solana	SOL	solana	483	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	NaN	4.0
9	2	Litecoin	LTC	litecoin	941	2013-04-28T00:00:00.000Z	[mineable, pow, script, medium-of-exchange]	8.400000e+07	7.3
10	1958	TRON	TRX	tron	783	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem, sec-security...	NaN	8.9
11	6636	Polkadot	DOT	polkadot-new	527	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	NaN	1.2
12	3890	Polygon	MATIC	polygon	764	2019-04-28T00:00:00.000Z	[pos, platform, enterprise-solutions, zero-kno...	1.000000e+10	9.3
13	1831	Bitcoin Cash	BCH	bitcoin-cash	723	2017-07-23T00:00:00.000Z	[mineable, pow, sha-256, marketplace, medium-o...	2.100000e+07	1.9
14	3717	Wrapped Bitcoin	WBTC	wrapped-bitcoin	1281	2019-01-30T00:00:00.000Z	[medium-of-exchange, defi, wrapped-tokens, fan...	NaN	1.9

```
In [5]: from requests import Request, Session
from requests.exceptions import ConnectionError, Timeout, TooManyRedirects
import json

def api_runner():
    global df
    url = 'https://pro-api.coinmarketcap.com/v1/cryptocurrency/listings/latest'
    #Original Sandbox Environment: 'https://sandbox-api.coinmarketcap.com/v1/cryptocurre
    parameters = {
        'start': '1',
        'limit': '15',
        'convert': 'USD'
    }
    headers = {
        'Accepts': 'application/json',
        'X-CMC_PRO_API_KEY': '0ad53085-1cb2-4eb8-ad9e-3ffbd7e56509',
    }

    session = Session()
    session.headers.update(headers)

    try:
        response = session.get(url, params=parameters)
        data = json.loads(response.text)
        #print(data)
```

```

except (ConnectionError, Timeout, TooManyRedirects) as e:
    print(e)

#NOTE:
# I had to go in and put "jupyter notebook --NotebookApp.iopub_data_rate_limit=1e10"
# Into the Anaconda Prompt to change this to allow to pull data

# Use this if you just want to keep it in a dataframe
#df2 = pd.json_normalize(data['data'])
#df2['Timestamp'] = pd.to_datetime('now')
#df = df.append(df2)

# Use this if you want to create a csv and append data to it
df = pd.json_normalize(data['data'])
df['timestamp'] = pd.to_datetime('now')
df

if not os.path.isfile(r'C:\Users\musam\OneDrive\Desktop\Soban Document\Data Analyst\Pandas\A
df.to_csv(r'C:\Users\musam\OneDrive\Desktop\Soban Document\Data Analyst\Pandas\A
else:
    df.to_csv(r'C:\Users\musam\OneDrive\Desktop\Soban Document\Data Analyst\Pandas\A

#Then to read in the file: df = pd.read_csv(r'C:\Users\alexf\OneDrive\Documents\Pyth
# If that didn't work try using the local host URL as shown in the video

```

```

In [ ]: df72 = pd.read_csv(r'C:\Users\musam\OneDrive\Desktop\Soban Document\Data Analyst\Pandas\
df72

```

```

In [6]: import os
from time import time
from time import sleep

for i in range(333):
    api_runner()
    print('API Runner completed successfully')
    sleep(60) #sleep for 1 minute
exit()

```

```

C:\Users\musam\AppData\Local\Temp\ipykernel_204\1662253128.py:41: FutureWarning: The parsing of 'now' in pd.to_datetime without `utc=True` is deprecated. In a future version, this will match Timestamp('now') and Timestamp.now()
    df['timestamp'] = pd.to_datetime('now')
API Runner completed successfully

```

```

C:\Users\musam\AppData\Local\Temp\ipykernel_204\1662253128.py:41: FutureWarning: The parsing of 'now' in pd.to_datetime without `utc=True` is deprecated. In a future version, this will match Timestamp('now') and Timestamp.now()
    df['timestamp'] = pd.to_datetime('now')
API Runner completed successfully

```

```

C:\Users\musam\AppData\Local\Temp\ipykernel_204\1662253128.py:41: FutureWarning: The parsing of 'now' in pd.to_datetime without `utc=True` is deprecated. In a future version, this will match Timestamp('now') and Timestamp.now()
    df['timestamp'] = pd.to_datetime('now')
API Runner completed successfully

```

```
-----  
KeyboardInterrupt                                Traceback (most recent call last)  
Cell In[6], line 8  
      6     api_runner()  
      7     print('API Runner completed successfully')  
----> 8     sleep(60) #sleep for 1 minute  
      9 exit()  
  
KeyboardInterrupt:
```

```
In [ ]: df72
```

```
In [ ]: df
```

```
In [7]: pd.set_option('display.float_format', lambda x: '%.5f' % x)
```

```
In [8]: df
```

Out[8]:		id	name	symbol	slug	num_market_pairs	date_added	tags	max_supply
Out[8]:	0	1	Bitcoin	BTC	bitcoin	10342	2010-07-13T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	21000000.00000
	1	1027	Ethereum	ETH	ethereum	7124	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	NaN
	2	825	Tether	USDT	tether	56978	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	NaN
	3	52	XRP	XRP	xrp	993	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	100000000000.00000
	4	1839	BNB	BNB	bnb	1508	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	NaN
	5	3408	USD Coin	USDC	usd-coin	13335	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	NaN
	6	5426	Solana	SOL	solana	486	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	NaN
	7	2010	Cardano	ADA	cardano	871	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	45000000000.00000
	8	74	Dogecoin	DOGE	dogecoin	743	2013-12-15T00:00:00.000Z	[mineable, pow, script, medium-of-exchange, me...	NaN
	9	3890	Polygon	MATIC	polygon	776	2019-04-28T00:00:00.000Z	[pos, platform, enterprise-solutions, zero-kno...	10000000000.00000
	10	1958	TRON	TRX	tron	788	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem, sec-security...	NaN
	11	2	Litecoin	LTC	litecoin	947	2013-04-28T00:00:00.000Z	[mineable, pow, script, medium-of-exchange]	84000000.00000
	12	6636	Polkadot	DOT	polkadot-new	533	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-	NaN

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_supply
							chain, polkadot-...	
13	5805	Avalanche	AVAX	avalanche	465	2020-07-13T00:00:00.000Z	[defi, smart-contracts, three-arrows-capital-p...	720000000.00000
14	1831	Bitcoin Cash	BCH	bitcoin-cash	729	2017-07-23T00:00:00.000Z	[mineable, pow, sha-256, marketplace, medium-o...	21000000.00000

```
In [9]: df3 = df.groupby('name', sort=False)[['quote.USD.percent_change_1h', 'quote.USD.percent_change_24h', 'quote.USD.percent_change_7d', 'quote.USD.percent_change_30d', 'quote.USD.percent_change_60d']]
```

	name	quote.USD.percent_change_1h	quote.USD.percent_change_24h	quote.USD.percent_change_7d	quote.USD.percent_change_30d	quote.USD.percent_change_60d
	Bitcoin	-0.03790	-0.04489	0.17828	15.03956	10.40590
	Ethereum	-0.09682	-0.07284	3.27839	137.84612	114.15408
	Tether	-0.01852	0.01352	0.02203	91.96428	91.96428
	XRP	-2.97527	3.47830	58.97526	137.84612	114.15408
	BNB	-0.26204	-2.60075	4.31632	137.84612	114.15408
	USD Coin	-0.02821	0.00307	-0.00399	137.84612	114.15408
	Solana	-0.90193	-0.44681	29.89007	137.84612	114.15408
	Cardano	-0.87047	-3.72712	11.14765	137.84612	114.15408
	Dogecoin	-0.91518	-3.67021	6.27002	137.84612	114.15408
	Polygon	-0.33485	-3.55574	12.25054	137.84612	114.15408
	TRON	-0.50887	-1.59586	1.79940	137.84612	114.15408
	Litecoin	-0.43078	-0.50355	-2.67451	137.84612	114.15408
	Polkadot	-0.29643	-2.30295	4.86004	137.84612	114.15408
	Avalanche	-0.24171	-4.31664	4.83771	137.84612	114.15408
	Bitcoin Cash	-0.83057	0.21006	-5.45200	137.84612	114.15408

```
In [10]: df4 = df3.stack()
df4
```

Out[10]:	name		
	Bitcoin	quote.USD.percent_change_1h	-0.03790
		quote.USD.percent_change_24h	-0.04489
		quote.USD.percent_change_7d	0.17828
		quote.USD.percent_change_30d	15.03956
		quote.USD.percent_change_60d	10.40590
		...	
	Bitcoin Cash	quote.USD.percent_change_24h	0.21006
		quote.USD.percent_change_7d	-5.45200
		quote.USD.percent_change_30d	137.84612
		quote.USD.percent_change_60d	114.15408
		quote.USD.percent_change_90d	91.96428
	Length: 90, dtype: float64		



```
In [12]: type(df4)
```

Out[12]: pandas.core.series.Series

```
In [14]: df5 = df4.to_frame(name='values')
df5
```

Out[14]:

		values
name		
Bitcoin	quote.USD.percent_change_1h	-0.03790
	quote.USD.percent_change_24h	-0.04489
	quote.USD.percent_change_7d	0.17828
	quote.USD.percent_change_30d	15.03956
	quote.USD.percent_change_60d	10.40590
...		...
Bitcoin Cash	quote.USD.percent_change_24h	0.21006
	quote.USD.percent_change_7d	-5.45200
	quote.USD.percent_change_30d	137.84612
	quote.USD.percent_change_60d	114.15408
	quote.USD.percent_change_90d	91.96428

90 rows × 1 columns

```
In [15]: type(df5)
```

Out[15]: pandas.core.frame.DataFrame

```
In [18]: index = pd.Index(range(90))

df6 = df5.reset_index()
df6
```

Out[18]:

	name	level_1	values
0	Bitcoin	quote.USD.percent_change_1h	-0.03790
1	Bitcoin	quote.USD.percent_change_24h	-0.04489
2	Bitcoin	quote.USD.percent_change_7d	0.17828
3	Bitcoin	quote.USD.percent_change_30d	15.03956
4	Bitcoin	quote.USD.percent_change_60d	10.40590
...	...	...	...
85	Bitcoin Cash	quote.USD.percent_change_24h	0.21006
86	Bitcoin Cash	quote.USD.percent_change_7d	-5.45200
87	Bitcoin Cash	quote.USD.percent_change_30d	137.84612
88	Bitcoin Cash	quote.USD.percent_change_60d	114.15408
89	Bitcoin Cash	quote.USD.percent_change_90d	91.96428

90 rows × 3 columns

```
In [23]: df7 = df6.rename(columns={'level_1': 'percent_change'})
df7
```

Out[23]:

	name	percent_change	values
0	Bitcoin	quote.USD.percent_change_1h	-0.03790
1	Bitcoin	quote.USD.percent_change_24h	-0.04489
2	Bitcoin	quote.USD.percent_change_7d	0.17828
3	Bitcoin	quote.USD.percent_change_30d	15.03956
4	Bitcoin	quote.USD.percent_change_60d	10.40590
...	...	...	...
85	Bitcoin Cash	quote.USD.percent_change_24h	0.21006
86	Bitcoin Cash	quote.USD.percent_change_7d	-5.45200
87	Bitcoin Cash	quote.USD.percent_change_30d	137.84612
88	Bitcoin Cash	quote.USD.percent_change_60d	114.15408
89	Bitcoin Cash	quote.USD.percent_change_90d	91.96428

90 rows × 3 columns

```
In [27]: df7['percent_change'] = df7['percent_change'].replace(['quote.USD.percent_change_24h', 'q
df7
```

Out[27]:

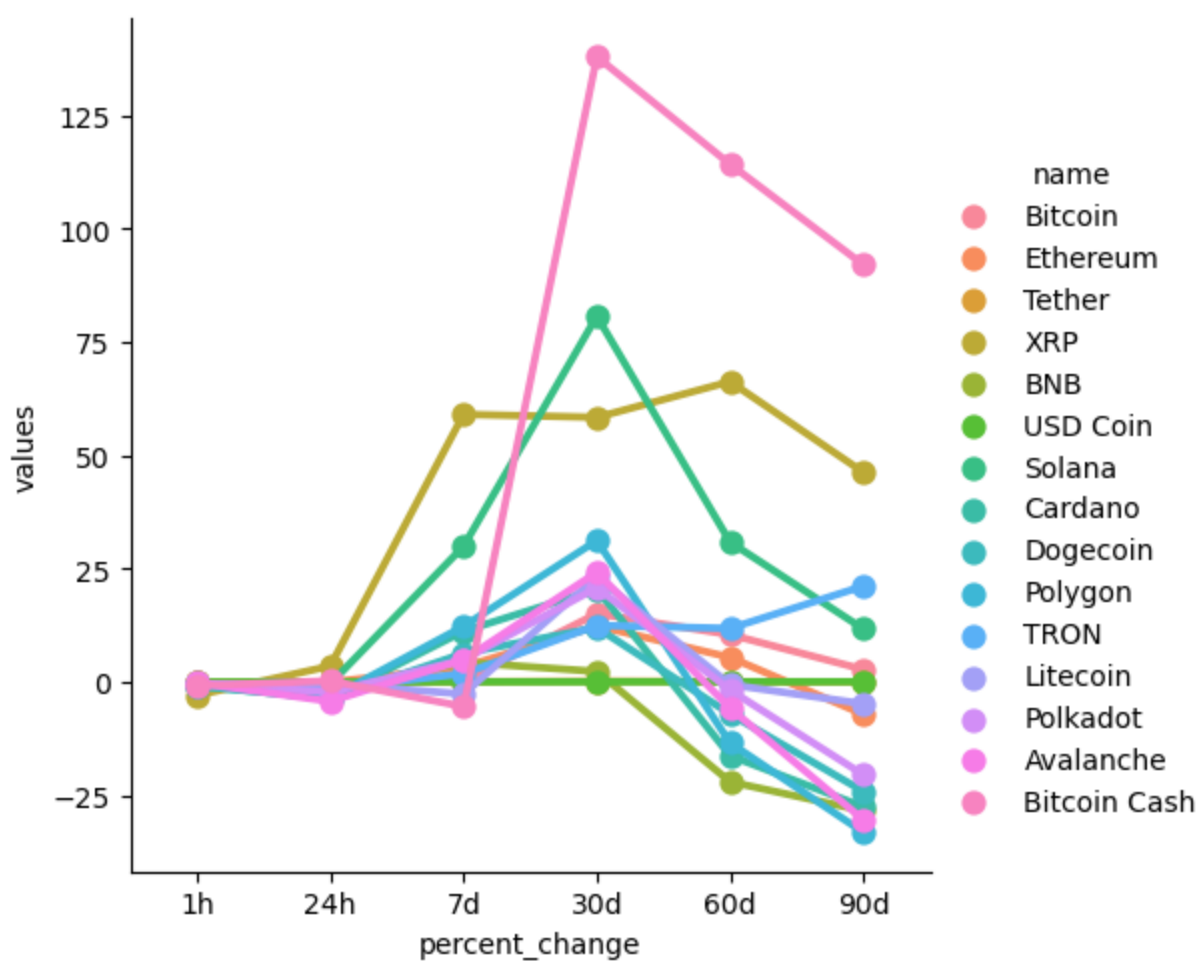
	name	percent_change	values
0	Bitcoin	1h	-0.03790
1	Bitcoin	24h	-0.04489
2	Bitcoin	7d	0.17828
3	Bitcoin	30d	15.03956
4	Bitcoin	60d	10.40590
...	...	...	...
85	Bitcoin Cash	24h	0.21006
86	Bitcoin Cash	7d	-5.45200
87	Bitcoin Cash	30d	137.84612
88	Bitcoin Cash	60d	114.15408
89	Bitcoin Cash	90d	91.96428

90 rows × 3 columns

```
In [28]: import seaborn as sns
import matplotlib.pyplot as plt
```

```
In [29]: sns.catplot(x='percent_change', y='values', hue='name', data=df7, kind='point')
```

Out[29]: <seaborn.axisgrid.FacetGrid at 0x267f3359060>



```
In [31]: # Now to do something much simpler
# we are going to create a dataframe with the columns we want

df10 = df[['name', 'quote.USD.price', 'timestamp']]
df10 = df10.query("name == 'Bitcoin'")
df10
```

```
Out[31]:
```

	name	quote.USD.price	timestamp
0	Bitcoin	30297.82824	2023-07-16 20:13:12.733202

```
In [33]: sns.set_theme(style="darkgrid")

sns.lineplot(x='timestamp', y='quote.USD.price', data = df10)

Out[33]: <Axes: xlabel='timestamp', ylabel='quote.USD.price'>
```

