In [1]:
```
from requests import Request, Session
from requests.exceptions import ConnectionError, Timeout, TooManyRedirects
import json

url = 'https://pro-api.coinmarketcap.com/v1/cryptocurrency/listings/latest'
#Original Sandbox Environment: 'https://sandbox-api.coinmarketcap.com/v1/cryptocurrenc
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)
```

In [2]:
```
type(data)
```

Out[2]:
```
dict
```

In [3]:
```
import pandas as pd



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

In [4]:
```
df = pd.json_normalize(data['data'])
df['timestamp'] = pd.to_datetime('now')
df
```

```
C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\arrays\datetimes.py:2199: Futu
reWarning: The parsing of 'now' in pd.to_datetime without `utc=True` is deprecated. I
n a future version, this will match Timestamp('now') and Timestamp.now()
  result, tz_parsed = tslib.array_to_datetime(
```

Out[4]:

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+0
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	Na
2	825	Tether	USDT	tether	48037	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	Na
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	Na
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	Na
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+1
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+1
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	Na
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	1.000000e+1
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	Na
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform,	Na

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
							solana-ecosystem, cms-holdings...	
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	Na
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	Na
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	8.400000e+0
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	Na

In [6]:

```
def api_runner():
    global df
    url = 'https://pro-api.coinmarketcap.com/v1/cryptocurrency/listings/latest'
    #Original Sandbox Environment: 'https://sandbox-api.coinmarketcap.com/v1/cryptocur
    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)
```

In [7]:
```
import os
from time import time
from time import sleep

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

```
C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\arrays\datetimes.py:2199: Futu
reWarning: The parsing of 'now' in pd.to_datetime without `utc=True` is deprecated. I
n a future version, this will match Timestamp('now') and Timestamp.now()
  result, tz_parsed = tslib.array_to_datetime(
C:\Users\saura\AppData\Local\Temp\ipykernel_2336\2082940238.py:32: FutureWarning: The
frame.append method is deprecated and will be removed from pandas in a future versio
n. Use pandas.concat instead.
  df = df.append(df2)
API Runner completed
C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\arrays\datetimes.py:2199: Futu
reWarning: The parsing of 'now' in pd.to_datetime without `utc=True` is deprecated. I
n a future version, this will match Timestamp('now') and Timestamp.now()
  result, tz_parsed = tslib.array_to_datetime(
C:\Users\saura\AppData\Local\Temp\ipykernel_2336\2082940238.py:32: FutureWarning: The
frame.append method is deprecated and will be removed from pandas in a future versio
n. Use pandas.concat instead.
  df = df.append(df2)
API Runner completed
C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\arrays\datetimes.py:2199: Futu
reWarning: The parsing of 'now' in pd.to_datetime without `utc=True` is deprecated. I
n a future version, this will match Timestamp('now') and Timestamp.now()
  result, tz_parsed = tslib.array_to_datetime(
C:\Users\saura\AppData\Local\Temp\ipykernel_2336\2082940238.py:32: FutureWarning: The
frame.append method is deprecated and will be removed from pandas in a future versio
n. Use pandas.concat instead.
  df = df.append(df2)
API Runner completed
C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\arrays\datetimes.py:2199: Futu
reWarning: The parsing of 'now' in pd.to_datetime without `utc=True` is deprecated. I
n a future version, this will match Timestamp('now') and Timestamp.now()
  result, tz_parsed = tslib.array_to_datetime(
C:\Users\saura\AppData\Local\Temp\ipykernel_2336\2082940238.py:32: FutureWarning: The
frame.append method is deprecated and will be removed from pandas in a future versio
n. Use pandas.concat instead.
  df = df.append(df2)
API Runner completed
C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\arrays\datetimes.py:2199: Futu
reWarning: The parsing of 'now' in pd.to_datetime without `utc=True` is deprecated. I
n a future version, this will match Timestamp('now') and Timestamp.now()
  result, tz_parsed = tslib.array_to_datetime(
C:\Users\saura\AppData\Local\Temp\ipykernel_2336\2082940238.py:32: FutureWarning: The
frame.append method is deprecated and will be removed from pandas in a future versio
n. Use pandas.concat instead.
  df = df.append(df2)
API Runner completed
```

```
---------------------------------------------------------------------------
KeyboardInterrupt                         Traceback (most recent call last)
Input In [7], in <cell line: 5>()
      6     api_runner()
      7     print('API Runner completed')
----> 8     sleep(60) #sleep for 1 minute
      9 exit()

KeyboardInterrupt:
```

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

Out[8]:

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+0
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	Na
2	825	Tether	USDT	tether	48037	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	Na
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	Na
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	Na
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+1
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+1
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	Na
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	1.000000e+1
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	Na
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform,	Na

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
							solana-ecosystem, cms-holdings...	
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	Na
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	Na
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	8.400000e+0
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	Na
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+0
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	Na
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	Na
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	Na
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	Na
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+1

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+1
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	Na
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	1.000000e+1
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	Na
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	Na
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	Na
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	Na
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	8.400000e+0
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	Na
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+0
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts,	Na

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
							ethereum-ecosystem, coi...	
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	Na
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	Na
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	Na
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+1
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+1
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	Na
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	1.000000e+1
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	Na
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	Na
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-	Na

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
							chain, polkadot-...	
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	Na
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	8.400000e+0
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	Na
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+0
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	Na
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	Na
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	Na
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	Na
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+1
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+1
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-	Na

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
							backed-stablecoin, binance-...	
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	1.000000e+1
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	Na
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	Na
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	Na
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	Na
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	8.400000e+0
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	Na
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+0
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	Na
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-	Na

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
							backed-stablecoin...	
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	Na
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	Na
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+1
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+1
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	Na
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	1.000000e+1
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	Na
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	Na
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	Na
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem,	Na

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
							doggone-doggerel]	
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	8.400000e+0
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	Na
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	2.100000e+0
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	Na
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	Na
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	Na
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	Na
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1.000000e+1
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	4.500000e+1
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	Na
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-	1.000000e+1

	id	name	symbol	slug	num_market_pairs	date_added	tags	max_suppl
							solutions, zero-knowledg...	
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	Na
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	Na
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	Na
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	Na
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	8.400000e+0
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-	Na

In [39]:
```
pd.set_option('display.float_format', lambda x: '%.5f' % x)
```

In [40]:
```
df
```

Out[40]:

	id	name	symbol	slug	num_market_pairs	date_added	tags	max
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	210000(
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	
2	825	Tether	USDT	tether	48037	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1000000000(
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	450000000(
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	1000000000(
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform,	

	id	name	symbol	slug	num_market_pairs	date_added	tags	max
							solana-ecosystem, cms-holdings...	
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	840000(
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	210000(
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1000000000(

	id	name	symbol	slug	num_market_pairs	date_added	tags	max
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	450000000(
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	100000000(
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	840000(
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	210000(
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts,	

	id	name	symbol	slug	num_market_pairs	date_added	tags	max
							ethereum-ecosystem, coi...	
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	10000000000
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	450000000(
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	100000000(
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-	

	id	name	symbol	slug	num_market_pairs	date_added	tags	max
							chain, polkadot-...	
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	840000(
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	210000(
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1000000000(
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	450000000(
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-	

	id	name	symbol	slug	num_market_pairs	date_added	tags	max
							backed-stablecoin, binance-...	
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	1000000000
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	840000
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	210000
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-	

	id	name	symbol	slug	num_market_pairs	date_added	tags	max
							backed-stablecoin...	
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1000000000(
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	450000000(
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-solutions, zero-knowledg...	1000000000(
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem,	

	id	name	symbol	slug	num_market_pairs	date_added	tags	max
							doggone-doggerel]	
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	840000(
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-ecosystem]	
0	1	Bitcoin	BTC	bitcoin	9987	2013-04-28T00:00:00.000Z	[mineable, pow, sha-256, store-of-value, state...	210000(
1	1027	Ethereum	ETH	ethereum	6491	2015-08-07T00:00:00.000Z	[pos, smart-contracts, ethereum-ecosystem, coi...	
2	825	Tether	USDT	tether	48041	2015-02-25T00:00:00.000Z	[payments, stablecoin, asset-backed-stablecoin...	
3	1839	BNB	BNB	bnb	1195	2017-07-25T00:00:00.000Z	[marketplace, centralized-exchange, payments, ...	
4	3408	USD Coin	USDC	usd-coin	10269	2018-10-08T00:00:00.000Z	[medium-of-exchange, stablecoin, asset-backed-...	
5	52	XRP	XRP	xrp	889	2013-08-04T00:00:00.000Z	[medium-of-exchange, enterprise-solutions, arr...	1000000000(
6	2010	Cardano	ADA	cardano	655	2017-10-01T00:00:00.000Z	[dpos, pos, platform, research, smart-contract...	450000000(
7	4687	Binance USD	BUSD	binance-usd	6272	2019-09-20T00:00:00.000Z	[stablecoin, asset-backed-stablecoin, binance-...	
8	3890	Polygon	MATIC	polygon	592	2019-04-28T00:00:00.000Z	[platform, enterprise-	100000000(

	id	name	symbol	slug	num_market_pairs	date_added	tags	max
							solutions, zero-knowledg...	
9	74	Dogecoin	DOGE	dogecoin	644	2013-12-15T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange, me...	
10	5426	Solana	SOL	solana	434	2020-04-10T00:00:00.000Z	[pos, platform, solana-ecosystem, cms-holdings...	
11	6636	Polkadot	DOT	polkadot-new	470	2020-08-19T00:00:00.000Z	[substrate, polkadot, binance-chain, polkadot-...	
12	5994	Shiba Inu	SHIB	shiba-inu	487	2020-08-01T00:00:00.000Z	[memes, ethereum-ecosystem, doggone-doggerel]	
13	2	Litecoin	LTC	litecoin	875	2013-04-28T00:00:00.000Z	[mineable, pow, scrypt, medium-of-exchange]	840000(
14	1958	TRON	TRX	tron	727	2017-09-13T00:00:00.000Z	[media, payments, tron-	

In [41]:
```
df3 = df.groupby('name', sort=False)[['quote.USD.percent_change_1h','quote.USD.percent
df3
```

Out[41]:

name	quote.USD.percent_change_1h	quote.USD.percent_change_24h	quote.USD.percent_change_7d
Bitcoin	-0.26138	-2.87387	4.02563
Ethereum	-0.46724	-3.35301	1.94969
Tether	0.00004	-0.00309	-0.01511
BNB	-0.11427	-2.45031	0.96763
USD Coin	-0.00885	0.00018	-0.00123
XRP	-0.07837	-0.15079	0.51500
Cardano	0.21571	-2.83281	-2.17844
Binance USD	0.00605	0.00961	0.03006
Polygon	-0.52985	-3.91998	5.59804
Dogecoin	-0.47705	-2.51139	-2.76136
Solana	-0.21310	-5.37716	5.04499
Polkadot	-0.44110	-4.62410	9.86662
Shiba Inu	0.01058	-3.23138	-4.13736
Litecoin	0.38901	-0.58102	-4.78101
TRON	0.34037	-1.94704	-1.04075

In [42]:
```
df4 = df3.stack()
df4
```

Out[42]:

name		
Bitcoin	quote.USD.percent_change_1h	-0.26138
	quote.USD.percent_change_24h	-2.87387
	quote.USD.percent_change_7d	4.02563
	quote.USD.percent_change_30d	3.72322
	quote.USD.percent_change_60d	40.78628
	quote.USD.percent_change_90d	42.98174
Ethereum	quote.USD.percent_change_1h	-0.46724
	quote.USD.percent_change_24h	-3.35301
	quote.USD.percent_change_7d	1.94969
	quote.USD.percent_change_30d	-0.51167
	quote.USD.percent_change_60d	32.00905
	quote.USD.percent_change_90d	34.32762
Tether	quote.USD.percent_change_1h	0.00004
	quote.USD.percent_change_24h	-0.00309
	quote.USD.percent_change_7d	-0.01511
	quote.USD.percent_change_30d	-0.00211
	quote.USD.percent_change_60d	0.01214
	quote.USD.percent_change_90d	0.07317
BNB	quote.USD.percent_change_1h	-0.11427
	quote.USD.percent_change_24h	-2.45031
	quote.USD.percent_change_7d	0.96763
	quote.USD.percent_change_30d	0.01237
	quote.USD.percent_change_60d	24.68659
	quote.USD.percent_change_90d	2.11288
USD Coin	quote.USD.percent_change_1h	-0.00885
	quote.USD.percent_change_24h	0.00018
	quote.USD.percent_change_7d	-0.00123
	quote.USD.percent_change_30d	0.00220
	quote.USD.percent_change_60d	-0.01059
	quote.USD.percent_change_90d	-0.01746
XRP	quote.USD.percent_change_1h	-0.07837
	quote.USD.percent_change_24h	-0.15079
	quote.USD.percent_change_7d	0.51500
	quote.USD.percent_change_30d	-8.07877
	quote.USD.percent_change_60d	10.23802
	quote.USD.percent_change_90d	-0.86952
Cardano	quote.USD.percent_change_1h	0.21571
	quote.USD.percent_change_24h	-2.83281
	quote.USD.percent_change_7d	-2.17844
	quote.USD.percent_change_30d	0.96435
	quote.USD.percent_change_60d	47.37183
	quote.USD.percent_change_90d	20.92514
Binance USD	quote.USD.percent_change_1h	0.00605
	quote.USD.percent_change_24h	0.00961
	quote.USD.percent_change_7d	0.03006
	quote.USD.percent_change_30d	0.01773
	quote.USD.percent_change_60d	0.00957
	quote.USD.percent_change_90d	-0.02078
Polygon	quote.USD.percent_change_1h	-0.52985
	quote.USD.percent_change_24h	-3.91998
	quote.USD.percent_change_7d	5.59804
	quote.USD.percent_change_30d	35.95237
	quote.USD.percent_change_60d	68.40039
	quote.USD.percent_change_90d	57.60394
Dogecoin	quote.USD.percent_change_1h	-0.47705
	quote.USD.percent_change_24h	-2.51139
	quote.USD.percent_change_7d	-2.76136
	quote.USD.percent_change_30d	-4.88025
	quote.USD.percent_change_60d	8.21482

```
                quote.USD.percent_change_90d     2.74006
Solana          quote.USD.percent_change_1h     -0.21310
                quote.USD.percent_change_24h    -5.37716
                quote.USD.percent_change_7d      5.04499
                quote.USD.percent_change_30d    -3.09875
                quote.USD.percent_change_60d   106.16153
                quote.USD.percent_change_90d    61.31988
Polkadot        quote.USD.percent_change_1h     -0.44110
                quote.USD.percent_change_24h    -4.62410
                quote.USD.percent_change_7d      9.86662
                quote.USD.percent_change_30d     5.33550
                quote.USD.percent_change_60d    55.15514
                quote.USD.percent_change_90d    28.09034
Shiba Inu       quote.USD.percent_change_1h      0.01058
                quote.USD.percent_change_24h    -3.23138
                quote.USD.percent_change_7d     -4.13736
                quote.USD.percent_change_30d     5.30742
                quote.USD.percent_change_60d    52.05800
                quote.USD.percent_change_90d    40.55135
Litecoin        quote.USD.percent_change_1h      0.38901
                quote.USD.percent_change_24h    -0.58102
                quote.USD.percent_change_7d     -4.78101
                quote.USD.percent_change_30d     3.14179
                quote.USD.percent_change_60d    40.65928
                quote.USD.percent_change_90d    19.09770
TRON            quote.USD.percent_change_1h      0.34037
                quote.USD.percent_change_24h    -1.94704
                quote.USD.percent_change_7d     -1.04075
                quote.USD.percent_change_30d    11.34519
                quote.USD.percent_change_60d    26.08869
                quote.USD.percent_change_90d    31.01251
dtype: float64
```

In [43]:
```
type(df4)
```

Out[43]:
```
pandas.core.series.Series
```

In [44]:
```
df5 = df4.to_frame(name='values')
df5
```

Out[44]:

name		values
Bitcoin	**quote.USD.percent_change_1h**	-0.26138
	quote.USD.percent_change_24h	-2.87387
	quote.USD.percent_change_7d	4.02563
	quote.USD.percent_change_30d	3.72322
	quote.USD.percent_change_60d	40.78628
	quote.USD.percent_change_90d	42.98174
Ethereum	**quote.USD.percent_change_1h**	-0.46724
	quote.USD.percent_change_24h	-3.35301
	quote.USD.percent_change_7d	1.94969
	quote.USD.percent_change_30d	-0.51167
	quote.USD.percent_change_60d	32.00905
	quote.USD.percent_change_90d	34.32762
Tether	**quote.USD.percent_change_1h**	0.00004
	quote.USD.percent_change_24h	-0.00309
	quote.USD.percent_change_7d	-0.01511
	quote.USD.percent_change_30d	-0.00211
	quote.USD.percent_change_60d	0.01214
	quote.USD.percent_change_90d	0.07317
BNB	**quote.USD.percent_change_1h**	-0.11427
	quote.USD.percent_change_24h	-2.45031
	quote.USD.percent_change_7d	0.96763
	quote.USD.percent_change_30d	0.01237
	quote.USD.percent_change_60d	24.68659
	quote.USD.percent_change_90d	2.11288
USD Coin	**quote.USD.percent_change_1h**	-0.00885
	quote.USD.percent_change_24h	0.00018
	quote.USD.percent_change_7d	-0.00123
	quote.USD.percent_change_30d	0.00220
	quote.USD.percent_change_60d	-0.01059
	quote.USD.percent_change_90d	-0.01746
XRP	**quote.USD.percent_change_1h**	-0.07837
	quote.USD.percent_change_24h	-0.15079

name		values
	quote.USD.percent_change_7d	0.51500
	quote.USD.percent_change_30d	-8.07877
	quote.USD.percent_change_60d	10.23802
	quote.USD.percent_change_90d	-0.86952
Cardano	quote.USD.percent_change_1h	0.21571
	quote.USD.percent_change_24h	-2.83281
	quote.USD.percent_change_7d	-2.17844
	quote.USD.percent_change_30d	0.96435
	quote.USD.percent_change_60d	47.37183
	quote.USD.percent_change_90d	20.92514
Binance USD	quote.USD.percent_change_1h	0.00605
	quote.USD.percent_change_24h	0.00961
	quote.USD.percent_change_7d	0.03006
	quote.USD.percent_change_30d	0.01773
	quote.USD.percent_change_60d	0.00957
	quote.USD.percent_change_90d	-0.02078
Polygon	quote.USD.percent_change_1h	-0.52985
	quote.USD.percent_change_24h	-3.91998
	quote.USD.percent_change_7d	5.59804
	quote.USD.percent_change_30d	35.95237
	quote.USD.percent_change_60d	68.40039
	quote.USD.percent_change_90d	57.60394
Dogecoin	quote.USD.percent_change_1h	-0.47705
	quote.USD.percent_change_24h	-2.51139
	quote.USD.percent_change_7d	-2.76136
	quote.USD.percent_change_30d	-4.88025
	quote.USD.percent_change_60d	8.21482
	quote.USD.percent_change_90d	2.74006
Solana	quote.USD.percent_change_1h	-0.21310
	quote.USD.percent_change_24h	-5.37716
	quote.USD.percent_change_7d	5.04499
	quote.USD.percent_change_30d	-3.09875

		values
name		
Polkadot	quote.USD.percent_change_60d	106.16153
	quote.USD.percent_change_90d	61.31988
	quote.USD.percent_change_1h	-0.44110
	quote.USD.percent_change_24h	-4.62410
	quote.USD.percent_change_7d	9.86662
	quote.USD.percent_change_30d	5.33550
	quote.USD.percent_change_60d	55.15514
	quote.USD.percent_change_90d	28.09034
Shiba Inu	quote.USD.percent_change_1h	0.01058
	quote.USD.percent_change_24h	-3.23138
	quote.USD.percent_change_7d	-4.13736
	quote.USD.percent_change_30d	5.30742
	quote.USD.percent_change_60d	52.05800
	quote.USD.percent_change_90d	40.55135
Litecoin	quote.USD.percent_change_1h	0.38901
	quote.USD.percent_change_24h	-0.58102
	quote.USD.percent_change_7d	-4.78101
	quote.USD.percent_change_30d	3.14179
	quote.USD.percent_change_60d	40.65928
	quote.USD.percent_change_90d	19.09770
TRON	quote.USD.percent_change_1h	0.34037
	quote.USD.percent_change_24h	-1.94704
	quote.USD.percent_change_7d	-1.04075
	quote.USD.percent_change_30d	11.34519
	quote.USD.percent_change_60d	26.08869
	quote.USD.percent_change_90d	31.01251

In [45]:
```
df5.count()
```

Out[45]:
```
values    90
dtype: int64
```

In [46]:
```
index = pd.Index(range(90))

df6 = df5.reset_index()
df6
```

Out[46]:

	name	level_1	values
0	Bitcoin	quote.USD.percent_change_1h	-0.26138
1	Bitcoin	quote.USD.percent_change_24h	-2.87387
2	Bitcoin	quote.USD.percent_change_7d	4.02563
3	Bitcoin	quote.USD.percent_change_30d	3.72322
4	Bitcoin	quote.USD.percent_change_60d	40.78628
5	Bitcoin	quote.USD.percent_change_90d	42.98174
6	Ethereum	quote.USD.percent_change_1h	-0.46724
7	Ethereum	quote.USD.percent_change_24h	-3.35301
8	Ethereum	quote.USD.percent_change_7d	1.94969
9	Ethereum	quote.USD.percent_change_30d	-0.51167
10	Ethereum	quote.USD.percent_change_60d	32.00905
11	Ethereum	quote.USD.percent_change_90d	34.32762
12	Tether	quote.USD.percent_change_1h	0.00004
13	Tether	quote.USD.percent_change_24h	-0.00309
14	Tether	quote.USD.percent_change_7d	-0.01511
15	Tether	quote.USD.percent_change_30d	-0.00211
16	Tether	quote.USD.percent_change_60d	0.01214
17	Tether	quote.USD.percent_change_90d	0.07317
18	BNB	quote.USD.percent_change_1h	-0.11427
19	BNB	quote.USD.percent_change_24h	-2.45031
20	BNB	quote.USD.percent_change_7d	0.96763
21	BNB	quote.USD.percent_change_30d	0.01237
22	BNB	quote.USD.percent_change_60d	24.68659
23	BNB	quote.USD.percent_change_90d	2.11288
24	USD Coin	quote.USD.percent_change_1h	-0.00885
25	USD Coin	quote.USD.percent_change_24h	0.00018
26	USD Coin	quote.USD.percent_change_7d	-0.00123
27	USD Coin	quote.USD.percent_change_30d	0.00220
28	USD Coin	quote.USD.percent_change_60d	-0.01059
29	USD Coin	quote.USD.percent_change_90d	-0.01746
30	XRP	quote.USD.percent_change_1h	-0.07837
31	XRP	quote.USD.percent_change_24h	-0.15079
32	XRP	quote.USD.percent_change_7d	0.51500

	name	level_1	values
33	XRP	quote.USD.percent_change_30d	-8.07877
34	XRP	quote.USD.percent_change_60d	10.23802
35	XRP	quote.USD.percent_change_90d	-0.86952
36	Cardano	quote.USD.percent_change_1h	0.21571
37	Cardano	quote.USD.percent_change_24h	-2.83281
38	Cardano	quote.USD.percent_change_7d	-2.17844
39	Cardano	quote.USD.percent_change_30d	0.96435
40	Cardano	quote.USD.percent_change_60d	47.37183
41	Cardano	quote.USD.percent_change_90d	20.92514
42	Binance USD	quote.USD.percent_change_1h	0.00605
43	Binance USD	quote.USD.percent_change_24h	0.00961
44	Binance USD	quote.USD.percent_change_7d	0.03006
45	Binance USD	quote.USD.percent_change_30d	0.01773
46	Binance USD	quote.USD.percent_change_60d	0.00957
47	Binance USD	quote.USD.percent_change_90d	-0.02078
48	Polygon	quote.USD.percent_change_1h	-0.52985
49	Polygon	quote.USD.percent_change_24h	-3.91998
50	Polygon	quote.USD.percent_change_7d	5.59804
51	Polygon	quote.USD.percent_change_30d	35.95237
52	Polygon	quote.USD.percent_change_60d	68.40039
53	Polygon	quote.USD.percent_change_90d	57.60394
54	Dogecoin	quote.USD.percent_change_1h	-0.47705
55	Dogecoin	quote.USD.percent_change_24h	-2.51139
56	Dogecoin	quote.USD.percent_change_7d	-2.76136
57	Dogecoin	quote.USD.percent_change_30d	-4.88025
58	Dogecoin	quote.USD.percent_change_60d	8.21482
59	Dogecoin	quote.USD.percent_change_90d	2.74006
60	Solana	quote.USD.percent_change_1h	-0.21310
61	Solana	quote.USD.percent_change_24h	-5.37716
62	Solana	quote.USD.percent_change_7d	5.04499
63	Solana	quote.USD.percent_change_30d	-3.09875
64	Solana	quote.USD.percent_change_60d	106.16153
65	Solana	quote.USD.percent_change_90d	61.31988

	name	level_1	values
66	Polkadot	quote.USD.percent_change_1h	-0.44110
67	Polkadot	quote.USD.percent_change_24h	-4.62410
68	Polkadot	quote.USD.percent_change_7d	9.86662
69	Polkadot	quote.USD.percent_change_30d	5.33550
70	Polkadot	quote.USD.percent_change_60d	55.15514
71	Polkadot	quote.USD.percent_change_90d	28.09034
72	Shiba Inu	quote.USD.percent_change_1h	0.01058
73	Shiba Inu	quote.USD.percent_change_24h	-3.23138
74	Shiba Inu	quote.USD.percent_change_7d	-4.13736
75	Shiba Inu	quote.USD.percent_change_30d	5.30742
76	Shiba Inu	quote.USD.percent_change_60d	52.05800
77	Shiba Inu	quote.USD.percent_change_90d	40.55135
78	Litecoin	quote.USD.percent_change_1h	0.38901
79	Litecoin	quote.USD.percent_change_24h	-0.58102
80	Litecoin	quote.USD.percent_change_7d	-4.78101
81	Litecoin	quote.USD.percent_change_30d	3.14179
82	Litecoin	quote.USD.percent_change_60d	40.65928
83	Litecoin	quote.USD.percent_change_90d	19.09770
84	TRON	quote.USD.percent_change_1h	0.34037
85	TRON	quote.USD.percent_change_24h	-1.94704
86	TRON	quote.USD.percent_change_7d	-1.04075
87	TRON	quote.USD.percent_change_30d	11.34519
88	TRON	quote.USD.percent_change_60d	26.08869
89	TRON	quote.USD.percent_change_90d	31.01251

In [47]:
```
df7 = df6.rename(columns={'level_1': 'percent_change'})
df7
```

Out[47]:

	name	percent_change	values
0	Bitcoin	quote.USD.percent_change_1h	-0.26138
1	Bitcoin	quote.USD.percent_change_24h	-2.87387
2	Bitcoin	quote.USD.percent_change_7d	4.02563
3	Bitcoin	quote.USD.percent_change_30d	3.72322
4	Bitcoin	quote.USD.percent_change_60d	40.78628
5	Bitcoin	quote.USD.percent_change_90d	42.98174
6	Ethereum	quote.USD.percent_change_1h	-0.46724
7	Ethereum	quote.USD.percent_change_24h	-3.35301
8	Ethereum	quote.USD.percent_change_7d	1.94969
9	Ethereum	quote.USD.percent_change_30d	-0.51167
10	Ethereum	quote.USD.percent_change_60d	32.00905
11	Ethereum	quote.USD.percent_change_90d	34.32762
12	Tether	quote.USD.percent_change_1h	0.00004
13	Tether	quote.USD.percent_change_24h	-0.00309
14	Tether	quote.USD.percent_change_7d	-0.01511
15	Tether	quote.USD.percent_change_30d	-0.00211
16	Tether	quote.USD.percent_change_60d	0.01214
17	Tether	quote.USD.percent_change_90d	0.07317
18	BNB	quote.USD.percent_change_1h	-0.11427
19	BNB	quote.USD.percent_change_24h	-2.45031
20	BNB	quote.USD.percent_change_7d	0.96763
21	BNB	quote.USD.percent_change_30d	0.01237
22	BNB	quote.USD.percent_change_60d	24.68659
23	BNB	quote.USD.percent_change_90d	2.11288
24	USD Coin	quote.USD.percent_change_1h	-0.00885
25	USD Coin	quote.USD.percent_change_24h	0.00018
26	USD Coin	quote.USD.percent_change_7d	-0.00123
27	USD Coin	quote.USD.percent_change_30d	0.00220
28	USD Coin	quote.USD.percent_change_60d	-0.01059
29	USD Coin	quote.USD.percent_change_90d	-0.01746
30	XRP	quote.USD.percent_change_1h	-0.07837
31	XRP	quote.USD.percent_change_24h	-0.15079
32	XRP	quote.USD.percent_change_7d	0.51500

	name	percent_change	values
33	XRP	quote.USD.percent_change_30d	-8.07877
34	XRP	quote.USD.percent_change_60d	10.23802
35	XRP	quote.USD.percent_change_90d	-0.86952
36	Cardano	quote.USD.percent_change_1h	0.21571
37	Cardano	quote.USD.percent_change_24h	-2.83281
38	Cardano	quote.USD.percent_change_7d	-2.17844
39	Cardano	quote.USD.percent_change_30d	0.96435
40	Cardano	quote.USD.percent_change_60d	47.37183
41	Cardano	quote.USD.percent_change_90d	20.92514
42	Binance USD	quote.USD.percent_change_1h	0.00605
43	Binance USD	quote.USD.percent_change_24h	0.00961
44	Binance USD	quote.USD.percent_change_7d	0.03006
45	Binance USD	quote.USD.percent_change_30d	0.01773
46	Binance USD	quote.USD.percent_change_60d	0.00957
47	Binance USD	quote.USD.percent_change_90d	-0.02078
48	Polygon	quote.USD.percent_change_1h	-0.52985
49	Polygon	quote.USD.percent_change_24h	-3.91998
50	Polygon	quote.USD.percent_change_7d	5.59804
51	Polygon	quote.USD.percent_change_30d	35.95237
52	Polygon	quote.USD.percent_change_60d	68.40039
53	Polygon	quote.USD.percent_change_90d	57.60394
54	Dogecoin	quote.USD.percent_change_1h	-0.47705
55	Dogecoin	quote.USD.percent_change_24h	-2.51139
56	Dogecoin	quote.USD.percent_change_7d	-2.76136
57	Dogecoin	quote.USD.percent_change_30d	-4.88025
58	Dogecoin	quote.USD.percent_change_60d	8.21482
59	Dogecoin	quote.USD.percent_change_90d	2.74006
60	Solana	quote.USD.percent_change_1h	-0.21310
61	Solana	quote.USD.percent_change_24h	-5.37716
62	Solana	quote.USD.percent_change_7d	5.04499
63	Solana	quote.USD.percent_change_30d	-3.09875
64	Solana	quote.USD.percent_change_60d	106.16153
65	Solana	quote.USD.percent_change_90d	61.31988

	name	percent_change	values
66	Polkadot	quote.USD.percent_change_1h	-0.44110
67	Polkadot	quote.USD.percent_change_24h	-4.62410
68	Polkadot	quote.USD.percent_change_7d	9.86662
69	Polkadot	quote.USD.percent_change_30d	5.33550
70	Polkadot	quote.USD.percent_change_60d	55.15514
71	Polkadot	quote.USD.percent_change_90d	28.09034
72	Shiba Inu	quote.USD.percent_change_1h	0.01058
73	Shiba Inu	quote.USD.percent_change_24h	-3.23138
74	Shiba Inu	quote.USD.percent_change_7d	-4.13736
75	Shiba Inu	quote.USD.percent_change_30d	5.30742
76	Shiba Inu	quote.USD.percent_change_60d	52.05800
77	Shiba Inu	quote.USD.percent_change_90d	40.55135
78	Litecoin	quote.USD.percent_change_1h	0.38901
79	Litecoin	quote.USD.percent_change_24h	-0.58102
80	Litecoin	quote.USD.percent_change_7d	-4.78101
81	Litecoin	quote.USD.percent_change_30d	3.14179
82	Litecoin	quote.USD.percent_change_60d	40.65928
83	Litecoin	quote.USD.percent_change_90d	19.09770
84	TRON	quote.USD.percent_change_1h	0.34037
85	TRON	quote.USD.percent_change_24h	-1.94704
86	TRON	quote.USD.percent_change_7d	-1.04075
87	TRON	quote.USD.percent_change_30d	11.34519
88	TRON	quote.USD.percent_change_60d	26.08869
89	TRON	quote.USD.percent_change_90d	31.01251

In [48]:
```
df7['percent_change'] = df7['percent_change'].replace(['quote.USD.percent_change_1h','
df7
```

Out[48]:

	name	percent_change	values
0	Bitcoin	1h	-0.26138
1	Bitcoin	24h	-2.87387
2	Bitcoin	7d	4.02563
3	Bitcoin	30d	3.72322
4	Bitcoin	60d	40.78628
5	Bitcoin	90d	42.98174
6	Ethereum	1h	-0.46724
7	Ethereum	24h	-3.35301
8	Ethereum	7d	1.94969
9	Ethereum	30d	-0.51167
10	Ethereum	60d	32.00905
11	Ethereum	90d	34.32762
12	Tether	1h	0.00004
13	Tether	24h	-0.00309
14	Tether	7d	-0.01511
15	Tether	30d	-0.00211
16	Tether	60d	0.01214
17	Tether	90d	0.07317
18	BNB	1h	-0.11427
19	BNB	24h	-2.45031
20	BNB	7d	0.96763
21	BNB	30d	0.01237
22	BNB	60d	24.68659
23	BNB	90d	2.11288
24	USD Coin	1h	-0.00885
25	USD Coin	24h	0.00018
26	USD Coin	7d	-0.00123
27	USD Coin	30d	0.00220
28	USD Coin	60d	-0.01059
29	USD Coin	90d	-0.01746
30	XRP	1h	-0.07837
31	XRP	24h	-0.15079
32	XRP	7d	0.51500

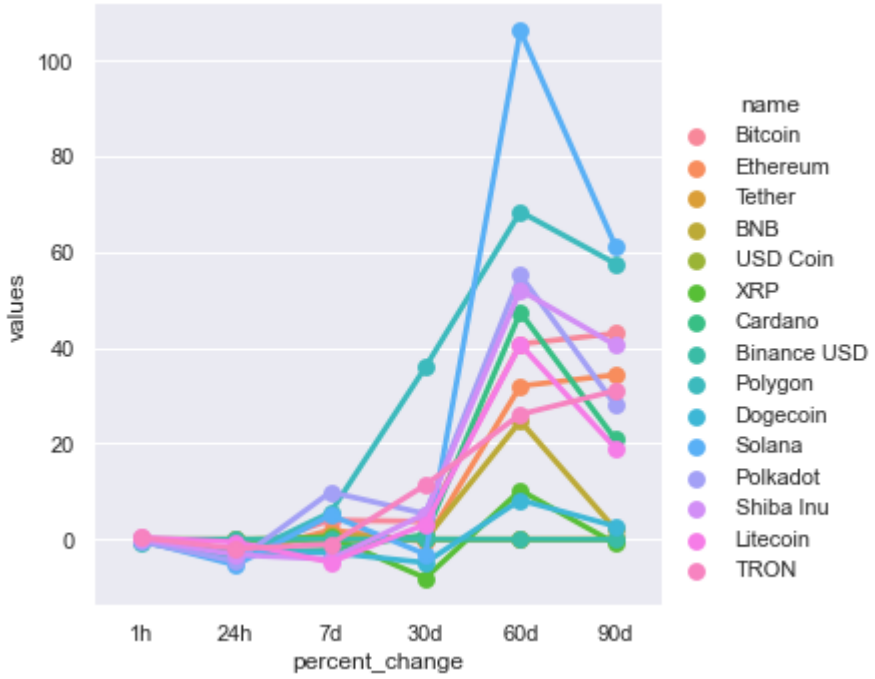
	name	percent_change	values
33	XRP	30d	-8.07877
34	XRP	60d	10.23802
35	XRP	90d	-0.86952
36	Cardano	1h	0.21571
37	Cardano	24h	-2.83281
38	Cardano	7d	-2.17844
39	Cardano	30d	0.96435
40	Cardano	60d	47.37183
41	Cardano	90d	20.92514
42	Binance USD	1h	0.00605
43	Binance USD	24h	0.00961
44	Binance USD	7d	0.03006
45	Binance USD	30d	0.01773
46	Binance USD	60d	0.00957
47	Binance USD	90d	-0.02078
48	Polygon	1h	-0.52985
49	Polygon	24h	-3.91998
50	Polygon	7d	5.59804
51	Polygon	30d	35.95237
52	Polygon	60d	68.40039
53	Polygon	90d	57.60394
54	Dogecoin	1h	-0.47705
55	Dogecoin	24h	-2.51139
56	Dogecoin	7d	-2.76136
57	Dogecoin	30d	-4.88025
58	Dogecoin	60d	8.21482
59	Dogecoin	90d	2.74006
60	Solana	1h	-0.21310
61	Solana	24h	-5.37716
62	Solana	7d	5.04499
63	Solana	30d	-3.09875
64	Solana	60d	106.16153
65	Solana	90d	61.31988

	name	percent_change	values
66	Polkadot	1h	-0.44110
67	Polkadot	24h	-4.62410
68	Polkadot	7d	9.86662
69	Polkadot	30d	5.33550
70	Polkadot	60d	55.15514
71	Polkadot	90d	28.09034
72	Shiba Inu	1h	0.01058
73	Shiba Inu	24h	-3.23138
74	Shiba Inu	7d	-4.13736
75	Shiba Inu	30d	5.30742
76	Shiba Inu	60d	52.05800
77	Shiba Inu	90d	40.55135
78	Litecoin	1h	0.38901
79	Litecoin	24h	-0.58102
80	Litecoin	7d	-4.78101
81	Litecoin	30d	3.14179
82	Litecoin	60d	40.65928
83	Litecoin	90d	19.09770
84	TRON	1h	0.34037
85	TRON	24h	-1.94704
86	TRON	7d	-1.04075
87	TRON	30d	11.34519
88	TRON	60d	26.08869
89	TRON	90d	31.01251

In [49]:
```
import seaborn as sns
import matplotlib.pyplot as plt
```

In [50]:
```
sns.catplot(x='percent_change', y='values', hue='name', data=df7, kind='point')
```

Out[50]:
```
<seaborn.axisgrid.FacetGrid at 0x2b367d1ca00>
```


100
80
60
40
20
0
values
1h
24h
7d
30d
60d
90d
percent_change
name
Bitcoin
Ethereum
Tether
BNB
USD Coin
XRP
Cardano
Binance USD
Polygon
Dogecoin
Solana
Polkadot
Shiba Inu
Litecoin
TRON

In [ ]: