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crypto\_sentiment.ipynb > Markdown Python 3

## News Headlines Sentiment

Use the news api to pull the latest news articles for bitcoin and ethereum and create a DataFrame of sentiment scores for each coin.

Use descriptive statistics to answer the following questions:

1. Which coin had the highest mean positive score?
2. Which coin had the highest negative score?
3. Which coin had the highest positive score?

```
[1]: # Initial imports
import os
import pandas as pd
from dotenv import load_dotenv
from nltk.sentiment.vader import SentimentIntensityAnalyzer
analyzer = SentimentIntensityAnalyzer()

%matplotlib inline

[2]: # Read your api key environment variable
load_dotenv()
api_key = os.getenv("NEWS_API_KEY")

[3]: # Create a newsapi client
from newsapi import NewsApiClient

[4]: newsapi = NewsApiClient(api_key=api_key)

[5]: # Fetch the Bitcoin news articles
btc_headlines = newsapi.get_everything(
    q="bitcoin",
    language="en",
    sort_by="relevancy"
)

[6]: # Fetch the Ethereum news articles
eth_headlines = newsapi.get_everything(
    q="ethereum",
    language="en",
    sort_by="relevancy"
)

[7]: # Create the Bitcoin sentiment scores DataFrame
sentiments = []

for articles in btc_headlines["articles"]:
    try:
        text = articles["content"]
        results = analyzer.polarity_scores(text)
        compound = results["compound"]
        pos = results["pos"]
        neu = results["neu"]
        neg = results["neg"]

        sentiments.append({
            "text": text,
            "Compound": compound,
            "Positive": pos,
            "Negative": neg,
            "Neutral": neu,
        })
    except AttributeError:
        pass

btc = pd.DataFrame(sentiments)
btc.head()
```

	text	Compound	Positive	Negative	Neutral
0	Just hackers burning up Oday like it's a fire ...	0.0258	0.061	0.059	0.880
1	Reuters had previously reported the FBI would ...	0.0772	0.038	0.000	0.962
2	Most of these accounts tweeted some variant of...	0.0000	0.000	0.000	1.000
3	Our investigation and cooperation with law enf...	0.5994	0.149	0.000	0.851
4	The bitcoin bulls are back in town.\n\nThe pri...	0.6369	0.140	0.000	0.860

```
[8]: # Create the ethereum sentiment scores DataFrame
sentiments = []

for articles in eth_headlines["articles"]:
    try:
        text = articles["content"]
        results = analyzer.polarity_scores(text)
        compound = results["compound"]
        pos = results["pos"]
        neu = results["neu"]
        neg = results["neg"]

        sentiments.append({
            "text": text,
            "Compound": compound,
            "Positive": pos,
            "Negative": neg,
            "Neutral": neu,
        })
    except AttributeError:
        pass

eth = pd.DataFrame(sentiments)
eth.head()
```

	text	Compound	Positive	Negative	Neutral
0	According to a public letter from the U.S. Com...	0.5719	0.132	0.000	0.868
1	When the inventor of AWS Lambda, Tim Wagner, a...	0.2263	0.053	0.000	0.947
2	Enlarge: A screenshot from Wozniak's lawsuit s...	-0.6808	0.000	0.177	0.823
3	Crypto has been on a tear in the last week.\n...	0.0000	0.000	0.000	1.000
4	<ul><li>Bitcoin crossed the \$1,000 level and ...	-0.4215	0.000	0.083	0.917

```
[9]: # Describe the Bitcoin Sentiment
btc.describe()
```

	Compound	Positive	Negative	Neutral
count	20.000000	20.000000	20.000000	20.000000
mean	-0.214625	0.046000	0.090200	0.863800
std	0.462797	0.044974	0.084929	0.077649
min	-0.880400	0.000000	0.000000	0.687000
25%	-0.629500	0.000000	0.000000	0.834250
50%	-0.235650	0.044000	0.073800	0.858500
75%	0.089900	0.066250	0.145500	0.919500
max	0.636900	0.149000	0.277000	1.000000

```
[10]: # Describe the Ethereum Sentiment
eth.describe()
```

	Compound	Positive	Negative	Neutral
count	20.000000	20.000000	20.000000	20.000000
mean	-0.214625	0.046000	0.090200	0.863800
std	0.462797	0.044974	0.084929	0.077649
min	-0.880400	0.000000	0.000000	0.687000
25%	-0.629500	0.000000	0.000000	0.834250
50%	-0.235650	0.044000	0.073800	0.858500
75%	0.089900	0.066250	0.145500	0.919500
max	0.636900	0.149000	0.277000	1.000000

count	17.000000	17.000000	17.000000	17.000000
mean	0.169512	0.089353	0.053235	0.057471
std	0.488875	0.077845	0.050950	0.087565
min	-0.680800	0.000000	0.000000	0.660000
25%	-0.340000	0.000000	0.000000	0.814000
50%	0.361200	0.083000	0.051000	0.868000
75%	0.571900	0.136000	0.088000	0.917000
max	0.728600	0.226000	0.177000	1.000000

### Questions:

**Important note:** The sample answers may vary depending on when this code is running since news may change over time.

Q: Which coin had the highest mean positive score?

A: Ethereum had a slightly higher mean positive score.

Q: Which coin had the highest compound score?

A: Bitcoin had the highest compound score

Q. Which coin had the highest positive score?

A: Bitcoin had the highest Positive score

## Tokenizer

In this section, you will use NLTK and Python to tokenize the text for each coin. Be sure to

1. Lowercase each word
  2. Remove Punctuation
  3. Remove Stopwords

```
[11]: from nltk.tokenize import word_tokenize, sent_tokenize
      from nltk.corpus import stopwords
      from nltk.stem import WordNetLemmatizer, PorterStemmer
      from string import punctuation
      import re
```

```
[12]: wnl = WordNetLemmatizer()
stop = stopwords.words('english')
stop.append("n't")
stop.append("it's")
stop.append("s")
stop.append("n'th")
stop.append("_")
stop.append("\\")

[13]: def tokenizer(text):
    """Tokenizes text."""
    # Create a list of the words
    words = word_tokenize(text)

    # Convert the words to lowercase
    words = list(filter(lambda w: w.lower(), words))

    # Remove the punctuation
    words = list(filter(lambda t: t not in punctuation, words))

    # Remove the stopwords
    words = list(filter(lambda b: b.lower() not in stop, words))

    # Lemmatize Words into root words
    words = [wnl.lemmatize(w) for w in words]
    return words
```

```
[14]: btc["tokens"] = btc.text.apply(tokenizer)
btc.head()
```

[14]:		text	Compound	Positive	Negative	Neutral	tokens
0		Just hackers burning up 0day like it's a fire ...	0.0258	0.061	0.059	0.880	[hacker, burning, 0day, like, 'fire, sale, ...]
1		Reuters had previously reported the FBI would ...	0.0772	0.038	0.000	0.962	[Reuters, previously, reported, FBI, would, ...]
2		Most of these accounts tweeted some variant of...	0.0000	0.000	0.000	1.000	[account, tweeted, variant, message, someone, ...]
3		Our investigation and cooperation with law enf...	0.5994	0.149	0.000	0.851	[investigation, cooperation, law, enforcement, ...]
4		The bitcoin bulls are back in town.\n\nThe prh...	0.6369	0.140	0.000	0.860	[bitcoin, bull, back, town, price, bitcoin, su..., 10]

```
[15]: eth[\"tokens\"] = eth.text.apply(tokenizer)
eth.head()
```

		text	Compound	Positive	Negative	Neutral	tokens
0	According to a public letter from the U.S. Com...	0.5719	0.132	0.000	0.868	[According, public, letter, U.S., Comptroller,...	
1	When the inventor of AWS Lambda, Tim Wagner, a...	0.2263	0.053	0.000	0.947	[inventor, AWS, Lambda, Tim, Wagner, forme,...	
2	Enlarge  A screenshot from Wozniak's lawsuit s...	-0.6808	0.000	0.177	0.823	[Enlarge , screenshot, Wozniak, lawsuit, show...	
3	Crypto has been on a tear in the last week.\n ...	0.0000	0.000	0.000	1.000	[Crypto, tear, last, week, Bitcoin, 18, last, ...	
4	<ul><li>Bitcoin crossed the \$11,000 level and ...	-0.4215	0.000	0.083	0.917	[ui, li, Bitcoin, crossed, 11,000, level, trad...	

## NGrams and Frequency Analysis

In this section you will look at the ngrams and word frequency for each coin.

1. Use NLTK to produce the n-grams for N = 2.
  2. List the top 10 words for each coin.

```
[16]: from collections import Counter  
from nltk import ngrams  
  
[17]: N = 2  
ngrams = ngrams(tokenizer(btc.text.str.cat()), N)
```

```
[17]: counter = Counter(gensim_labeled['tokens'].value_counts())
[18]: print(counter.most_common(10))
```

```
({'key', 'Twitter'}, 1),
({'Twitter', 'kingdom'}, 1)]
```

[18]: N = 2  
grams = ngrams(tokenizer(eth.text.str.cat()), N)  
Counter(grams).most\_common(20)

```
[18]: [({'last', 'week'}, 2),
({'Satoshi', 'Nakamoto'}, 2),
({'paper', 'wallet'}, 2),
({'according', 'public'}, 1),
({'public', 'letter'}, 1),
({'letter', 'U.S.'}, 1),
({'U.S.', 'Comptroller'}, 1),
({'Comptroller', 'Currency'}, 1),
({'Currency', 'federal'}, 1),
({'federal', 'group'}, 1),
({'group', 'responsible'}, 1),
({'responsible', 'security'}, 1),
({'security', 'banking'}, 1),
({'banking', 'system'}, 1),
({'system', 'bank'}, 1),
({'bank', 'allowed'}, 1),
({'allowed', 'hold'}, 1),
({'hold', 'cryptocurrencies'}, 1),
({'cryptocurrencies', 'doc.'}, 1),
({'doc.', '#1760'}, 1)]
```

[19]: def token\_count(tokens, N=3):
 """Returns the top N tokens from the frequency
 table"""
 return Counter(tokens).most\_common(N)

```
[20]: # Get the top 10 words
all_tokens = tokenizer(btc.text.str.cat())
token_count(all_tokens, 10)
```

```
[20]: [('char', 20),
('account', 12),
('Twitter', 11),
('bitcoin', 8),
('scam', 6),
('holder', 5),
('investigation', 5),
('..', 4),
('would', 4),
('hack', 4)]
```

[21]: # Get the top 10 words
all\_tokens = tokenizer(eth.text.str.cat())
token\_count(all\_tokens, 10)

```
[21]: [('char', 16),
('Bitcoin', 10),
('Ethereum', 7),
('blockchain', 4),
('crypto', 4),
('wallet', 4),
('cryptocurrency', 4),
('..', 3),
('new', 3),
('last', 3)]
```

## Word Clouds

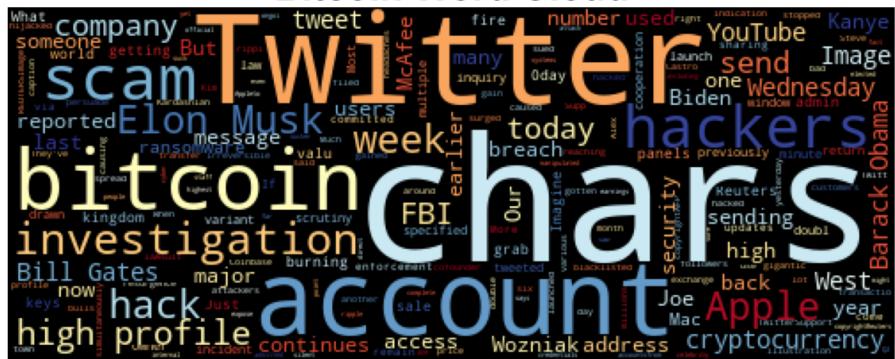
In this section, you will generate word clouds for each coin to summarize the news for each coin.

```
[22]: from wordcloud import WordCloud
import matplotlib.pyplot as plt
plt.style.use('seaborn-whitegrid')
import matplotlib as mpl
mpl.rcParams['figure.figsize'] = [20.0, 10.0]

[23]: def wordcloud(text, title=""):
    df_cloud = WordCloud(width=500, colormap='RdYlBu').generate(text)
    plt.imshow(df_cloud)
    plt.axis("off")
    fontdict = {"fontsize": 48, "fontweight": "bold"}
    plt.title(title, fontdict=fontdict)
    plt.show()

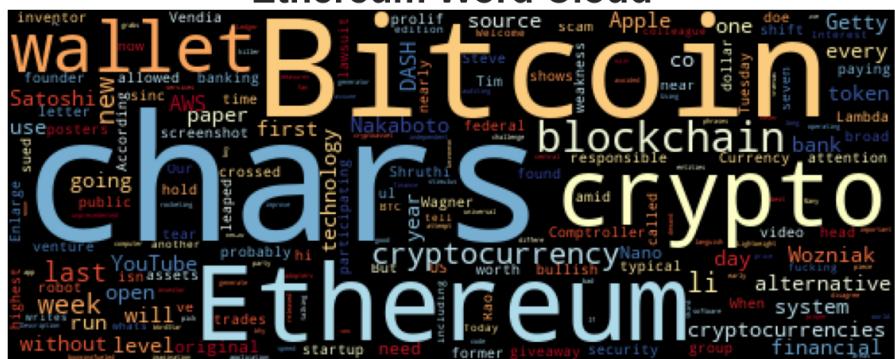
[24]: wordcloud(htc.txt.str.cat()), title="Bitcoin Word Cloud")
```

# Bitcoin Word Cloud



```
[25]: wordcloud(eth.text.str.cat(), title="Ethereum Word Cloud")
```

# Ethereum Word Cloud



In this section, you will build a named entity recognition model for both coins and visualize the tags using SpaCy.

```
[26]: import spacy  
from spacy import displacy  
  
[27]: # Optional - download a language model for Spacy  
# !python -m spacy download en_core_web_sm  
  
[28]: # Load the spaCy model  
nlp = spacy.load('en_core_web_sm')
```

## Bitcoin NER

```
[29]: # Concatenate all of the bitcoin text together  
all_btc_text = btc.text.str.cat()  
all_btc_text  
  
[29]: "Just hackers burning up 0day like it's a fire sale\nImagine getting the keys to the Twitter kingdom -- access to all the account admin panels in the world. What would you do? You could grab high-valu... [+8860 chars]Reuters had previously reported the FBI would launch an investigation into the hack.\n\nThe FBI inquiry is now one CARDINAL of multiple investigations into the incident, which has drawn scrutiny from a number o... [+966 chars]Most of these accounts tweeted some variant of the same message: If someone were to send Bitcoin to the address specified in the tweets during a 30-minute window, the account owner would return doubl... [+3388 chars]Our investigation and cooperation with law enforcement continues, and we remain committed to sharing any updates here. More to come via @TwitterSupport as our investigation continues.\n\nTwitter price on bitcoin surged today by $1,268.19, reaching a six-month high of $11,203.90, or a one-day gain of 12.73%.\nIllustration by Alex Castro.\n\nThe cryptocurrency exchange Coinbase said that it stopped around 1,100 customers from sending bitcoin to hackers who gained a... [+1775 chars]Bitcoin scams are causing a lot of headaches right now. They've gotten so bad that an Apple cofounder has sued YouTube because of them.\nSteve Wozniak filed a lawsuit against YouTube over a video he uploaded to the platform that showed him using a computer to access internal systems in a cyber-attack of celebrity accounts earlier this week.\n\nHackers had ... [+3944 chars]On the back of a major security breach last week that saw a bitcoin scam ripple through some of the highest profile accounts on Twitter, the company today reported Q2 earnings that point to the ongoing ... [+2014 chars]2020 sure does suck so far. But the year might not yet be a complete wash.\nJohn McAfee, the ec... [+3653 chars]San Francisco (CNN Business)Twitter(TWTR) accounts belonging to Joe Biden, Bill Gates, Elon Musk and Apple, among other prominent handles, were compromised on Wednesday and posted tweets that appear... [+440 chars]Something normal happened on Twitter earlier this afternoon. Someone claiming to be Elon Musk started tweeting an obvious scam to entice his loyal bootlickers to send bitcoin to a random cryptocurren... [+1211 chars]Twitter spectacularly shit the bed on Wednesday evening as it scrambled to stamp out a widespread hack of high-profile accounts.\nSoon after 6 pm ET, several verified Twitter accounts were blocked fr... [+1465 chars]The threat of ransomware may seem ubiquitous, but there haven't been too many strains tailored specifically to infect Apple's Mac computers since the first full-fledged Mac ransomware surfaced only f... [+3731 chars]In case you haven't heard, Barack Obama, Joe Biden, Elon Musk, Kanye West, Apple, and other public figures and companies were victims of a major hack by scammers asking for bitcoin. So, we thought t... [+3082 chars]"
```

```
[30]: # Run the NER processor on all of the text  
doc = nlp(all_btc_text)
```

```
# Add a title to the document  
doc.user_data["title"] = "bitcoin NER"
```

```
[31]: # Render the visualization  
displacy.render(doc, style='ent', jupyter=True)
```

## Bitcoin NER

Just hackers burning up 0day like it's a fire sale

Imagine getting the keys to the Twitter kingdom -- access to all the account admin panels in the world. What would you do? You could grab high-valu... [+8860 chars]Reuters had previously reported the FBI ORG would launch an investigation into the hack.

The FBI ORG inquiry is now one CARDINAL of multiple investigations into the incident, which has drawn scrutiny from a number o... [+966 chars]Most of these accounts tweeted some variant of the same message: If someone were to send Bitcoin to the address specified in the tweets during a 30-minute TIME window, the account owner would return doubl... [+3388 chars]Our investigation and cooperation with law enforcement continues, and we remain committed to sharing any updates here. More to come via @TwitterSupport as our investigation continues.

— Twitter Supp... [+1321 chars]The bitcoin bulls are back in town.

The price of bitcoin GPE surged today DATE by \$ 1,268.19 MONEY, reaching a six-month DATE high of \$ 11,203.90 MONEY, or a one-day DATE gain of 12.73% PERCENT. It's another indication of the resurgence of... [+2562 chars]The company blacklisted the bitcoin address.

Illustration by Alex Castro PERSON

The cryptocurrency exchange Coinbase ORG said that it stopped around 1,100 CARDINAL customers from sending bitcoin to hackers who gained a... [+1775 chars]Bitcoin scams are causing a lot of headaches right now. They've gotten so bad that an Apple ORG cofounder has sued YouTube PRODUCT because of them.

Steve Wozniak PERSON filed a lawsuit

this week DATE against YouTube PRODUCT over... [+3523 chars]Much as with Twitter ORG, the YouTube PRODUCT scams use Wozniak PERSON's image to persuade users that he would double any bitcoins they send him. "When users transfer their cryptocurrency, in an irreversible transaction... [+1242 chars]Image copyrightAFP/REUTERSImage caption

Kim Kardashian West, Kanye West GPE, Elon Musk ORG, Bill Gates PERSON and Barack Obama PERSON were all 'hacked'

The FBI ORG has launched an investigation after hackers hijacked Twitt PERSON ... [+6470 chars]A number of high-profile Twitter PERSON accounts were simultaneously hacked on Wednesday DATE by attackers who used the accounts some with millions CARDINAL of followers to spread a cryptocurrency scam.

@bitcoin, @ripl ORG ... [+2161 chars]A gigantic breach of Twitter's ORG security yesterday DATE caused various high-profile accounts from Bill Gates PERSON to Barack Obama PERSON, to even the ever-silent Apple PERSON tweet out scams and sucker people into sending m... [+7333 chars]Image copyrightReuters / AFP

Twitter ORG says hackers manipulated staff and used their credentials to access internal systems in a cyber-attack of celebrity accounts earlier this week DATE.

The hackers had ... [+4380 chars]On the back of a major security breach last week DATE that saw a bitcoin scam ripple through some of the highest profile accounts on Twitter ORG, the company today DATE reported Q2 earnings that point to the ongoing ... [+3994 chars]Last week DATE's hack of over 100 CARDINAL very high-profile Twitter ORG accounts did in fact expose the direct messages of many of those accounts, the company admitted today DATE including those of an elected official in ... [+2014 chars]2020 sure does suck so far. But the year DATE might not yet be a complete wash.

John McAfee PERSON still has to eat his dick on live television.

Three years ago DATE on this date DATE, on July 17, 2017 DATE, McAfee ORG, the ec ORG ... [+3653 chars]San Francisco ORG (CNN ORG Business)Twitter(TWTR) accounts belonging to Joe Biden PERSON, Bill Gates PERSON, Elon Musk ORG and Apple ORG, among other prominent handles, were compromised on Wednesday DATE and posted tweets that appear... [+440 chars]Something normal happened on Twitter ORG earlier this afternoon TIME. Someone claiming to be Elon Musk ORG started tweeting an obvious scam to entice his loyal bootlickers to send bitcoin to a random cryptocurren... [+1211 chars]Twitter spectacularly shit the bed on Wednesday evening TIME as it scrambled to stamp out a widespread hack of high-profile accounts.

Soon after 6 pm ET TIME, several verified Twitter ORG accounts were blocked fr... [+1465 chars]The threat of ransomware may seem ubiquitous, but there haven't been too many strains tailored specifically to infect Apple ORG's Mac ORG computers since the first ORDINAL full-fledged Mac ORG ransomware surfaced only f... [+3731 chars]In case you haven't heard, Barack Obama PERSON, Joe Biden PERSON, Elon Musk PERSON, Kanye West GPE, Apple ORG, and other public figures and companies were victims of a major hack by scammers asking for bitcoin. So, we thought t... [+3082 chars]

```
[32]: # List all Entities  
for ent in doc.ents:  
    print(ent.text, ent.label_)
```

Twitter ORG  
FBI ORG  
FBI ORG  
one CARDINAL  
Bitcoin GPE  
30-minute TIME  
bitcoin GPE  
today DATE  
1,268.19 MONEY  
six-month DATE  
11,203.90 MONEY  
one-day DATE  
12.73% PERCENT  
Also, justin PERSON  
Coinbase ORG  
around 1,100 CARDINAL  
Apple ORG  
YouTube PRODUCT  
Steve Wozniak PERSON  
this week DATE  
YouTube PRODUCT  
Twitter ORG  
YouTube PRODUCT  
Wozniak PERSON  
Kanye West GPE  
Elon Musk ORG  
Bill Gates PERSON  
Barack Obama PERSON  
FBI ORG  
Twitt PERSON  
Twitter PERSON  
Wednesday DATE  
millions CARDINAL  
@ripl ORG  
Twitter's ORG

yesterday DATE  
Bill Gates PERSON  
Barack Obama PERSON  
Appleto PERSON  
Twitter ORG  
earlier this week DATE  
last week DATE  
Twitter ORG  
today DATE  
week DATE  
100 CARDINAL  
Twitter ORG  
today DATE  
the year DATE  
John McAfee PERSON  
Three years ago DATE  
this date DATE  
July 17, 2017 DATE  
McAfee ORG  
cc ORG  
Francisco ORG  
CNN ORG  
Joe Biden PERSON  
Bill Gates PERSON  
Elon Musk ORG  
Apple ORG  
Wednesday DATE  
Twitter ORG  
earlier this afternoon TIME  
Elon Musk ORG  
Wednesday evening TIME  
6 pm ET TIME  
Twitter ORG  
Apple ORG  
Mac ORG  
first ORDINAL  
Mac ORG  
Barack Obama PERSON  
Joe Biden PERSON  
Elon Musk PERSON  
Kanye West GPE  
Apple ORG

## Ethereum NER

```
[33]: # Concatenate all of the bitcoin text together
all_eth_text = eth.text.str.cat()
all_eth_text
```

[According to a public letter from the U.S. Comptroller of the Currency, the federal group responsible for the security of the banking system, banks are now allowed to hold cryptocurrencies.\r\nThis doe... [+]1760 chars]When the inventor of AWS Lambda, Tim Wagner, the former head of blockchain at AWS, Shruthi Rao, co-found a startup, it's probably worth paying attention. Vendia, as the new venture is called, com... [+4751 chars]Enlarge! A screenshot from Wozniak's lawsuit shows a typical "Bitcoin GPE" giveaway scam video on YouTube PRODUCT .

4 CARDINAL with 4 CARDINAL posters participating

Apple ORG co-founder Steve Wozniak PERSON has sued YouTube ORG over the prolif... [+3424 chars]Crypto has been on a tear in the last week DATE .

Bitcoin GPE is up 18% PERCENT in the last seven days DATE :

Ethereum is up over 30% PERCENT in the last week DATE :

But this isn't the first ORDINAL time we've had a bullish run in crypto sinc... [+1941 chars]<ul><li> Bitcoin GPE crossed the \$ 11,000 MONEY level and trades near its highest level in nearly a year DATE on Tuesday DATE amid US OPE dollar weakness and a broad shift to alternative assets.</li><li>The token leaped as hi... [+2656 chars]Our robot colleague Satoshi Nakaboto ORG writes about Bitcoin GPE BTC every fucking day.

Welcome to another edition of Bitcoin GPE Today DATE , where I, Satoshi Nakaboto PERSON , tell you what's been going on with Bitcoin GPE in ... [+2946 chars]Interest in bitcoin GPE and other cryptocurrencies, including ethereum, is boomingfueled by unprecedented central bank stimulus measures and rocketing demand for alternative finance.

The bitcoin price, ... [+3141 chars]Lightweight, open-source, universal paper wallet generator

Description

Using third ORDINAL -party services to generate paper wallets should be avoided without proper code auditing by independent entities.

... [+2361 chars]Getty

You have to use phrases like Ethereum Is Going To The Moon because we are after all talking about cryptocurrency, the bad boy of the financial world.

I've never been a fan of Ethereum because ... [+4415 chars]Many who are new to crypto assume that there will only be one CARDINAL important cryptoasset in the long run, and that the challenge as an investor is to pick the best one.

We disagree.

Why? Because differe... [+9664 chars]getty

Every computer operating system needs a killer app. Without an application that grabs the imagination of the early adopters, a piece of technology will languish. The PC had WordStar FAC , the Apple ORG ... [+6518 chars]BITCOIN DASH ORG THE Bitcoin GPE is the original cryptocurrency, and was released as open-source software in 2009 DATE . CRYPTO UNIVERSE Dash PERSON is an attempt to improve on Bitcoin GPE in two CARDINAL main areas: speed of transac... [+8117 chars]If you're into cryptocurrency like Bitcoin GPE , Ethereum GPE , ERC20 ORG , and others, then you need a good crypto wallet. The Ledger Nano X Bluetooth WORK\_OF\_ART crypto hardware wallet is down to \$ 89.25 MONEY on Amazon ORG . The Nano X... [+2003 chars]Five years ago this week DATE , the first ORDINAL general-purpose blockchain went live on mainnet. Ethereum paved the way for a whole new use case for blockchain technology un tethered from Bitcoins ORG original vision... [+9252 chars]BUY BITCOIN WITH VENMO OWN Wallet helps users to keep their digital coins safe from external threats, while also offering a variety of useful features to both holders and traders. www.ownwallet.comSignal Mandelker PERSON , then- U.S. Treasury ORG undersecretary for terrorism and financial intelligence, speaks ... [...] during a 2018 DATE conference on cyber law enforcement at the Department of Justice ORG in Washington... [+5801 chars]In the race to become the dominant cryptocurrency platform, Ethereum is gaining on Bitcoin GPE . Take a look at the market capitalization of ether, the native token of the Ethereum blockchain. Currently,... [+6910 chars]

```
[34]: # List all Entities
for ent in eth_doc.ents:
    print(ent.text, ent.label_)
```

U.S. GPE  
AWS Lambda ORG  
Tim Wagner PERSON  
Shruthi Rao PERSON  
Vendia ORG  
Wozniak PERSON  
Bitcoin GPE  
YouTube PRODUCT  
4 CARDINAL  
4 ORDINAL  
Apple ORG  
Steve Wozniak PERSON  
YouTube ORG  
the last week DATE  
Bitcoin GPE  
18% PERCENT  
the last seven days DATE  
over 30% PERCENT

```
the last week DATE
first ORDINAL
Bitcoin GPE
11,000 MONEY
nearly a year DATE
Tuesday DATE
US GPE
Satoshi Nakaboto ORG
Bitcoin GPE
Bitcoin DATE
Today DATE
Satoshi Nakaboto PERSON
Bitcoin GPE
Bitcoin GPE
bitcoin GPE
three ORDINAL
one CARDINAL
WordStar FAC
Apple ORG
DASH ORG
Bitcoin GPE
2009 MONEY
CRYPTO UNIVERSE Dash PERSON
Bitcoin GPE
two CARDINAL
Bitcoin GPE
Ethereum GPE
ERC20 ORG
The Ledger Nano X Bluetooth WORK_OF_ART
89.25 MONEY
Amazon ORG
chars|Five years ago this week DATE
first ORDINAL
Bitcoins ORG
Microchip PERSON
U.S. Treasury ORG
2018 DATE
the Department of Justice ORG
Bitcoin GPE
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