

# Introduction to Blockchain Data

**Company: Anyblock Analytics**

Chaitanya Vallabhaneni



# 1. Blockchain Data

Explaining what blockchain is  
Other variables to consider



# What is BlockChain Data?

- Strings of Numbers and Letters
- Withholds classified information
- Runs and Protects Online Currency
- Often Associated with BitCoin: a cryptocurrency coin
- We will work two different cryptocurrencies: Ethereum and xDAI



## 2. Examining Blockchain Data

Methods to analyze blockchain data



# How to Examine Blockchain Data

- ⬡ Query Data with ElasticSearch API or SQL Access
- ⬡ Use different Blockchain Data Servers
- ⬡ Decode the Data or Perform Exploratory Data Analysis (EDA)



# 3. Tokens

The significance of a Token  
How it runs blockchain



# The Significance of Tokens

- ⬡ Data that runs the Digital Currency
- ⬡ Each token has a value = net worth
- ⬡ Digital Money not actual money





# 4. Identifying a Token

How an token looks like

How to tell the significance of each token





# An Example of a Token

- POAP (Proof of Attendance of Protocol) (1)
  - 0x22C1f6050E56d2876009903609a2cC3fEf83B415
- POAP tokens are free! It's an open source community initiative
- For our demonstrations the token above was used
- Don't be overwhelmed by its many letters and numbers
- It is meant to be decoded and find metrics



# 5. Metrics

Token Facts  
Token Statistics



# Token Metrics

- ⬡ Facts about tokens
- ⬡ Common metrics:
  1. Token from which account
  2. Token transfers per day
  3. Token transfers monthly
  4. Token transfers yearly
  5. Token net worth, highest and lowest  
usd value



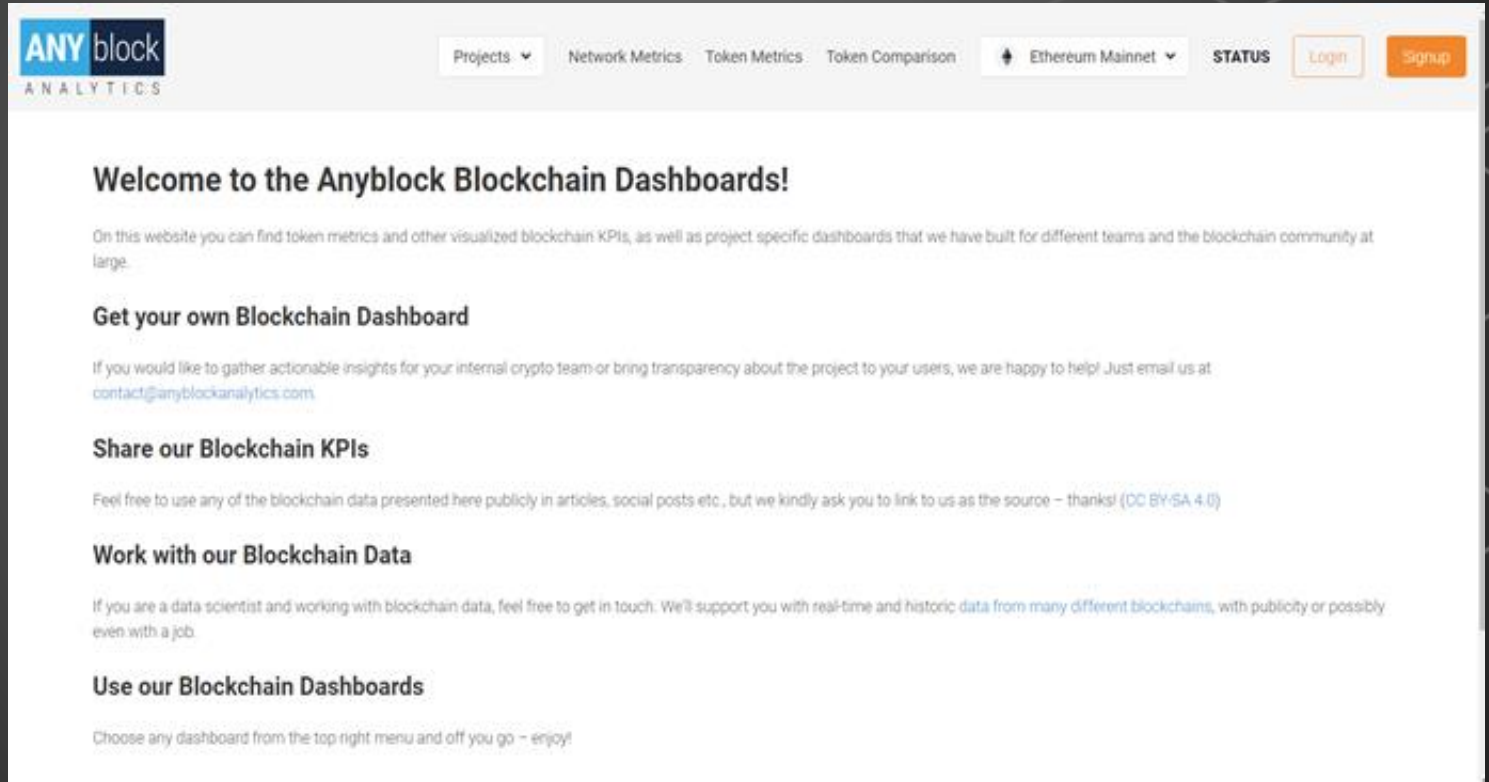
# 6. Websites to Retrieve Data

Anyblock Analytics Dashboards  
Etherscan



# Resource 1: Anyblock Dashboards

- [Welcome to the Anyblock Blockchain Dashboards!](#)
- (2)
- [Go to Token Metrics](#)



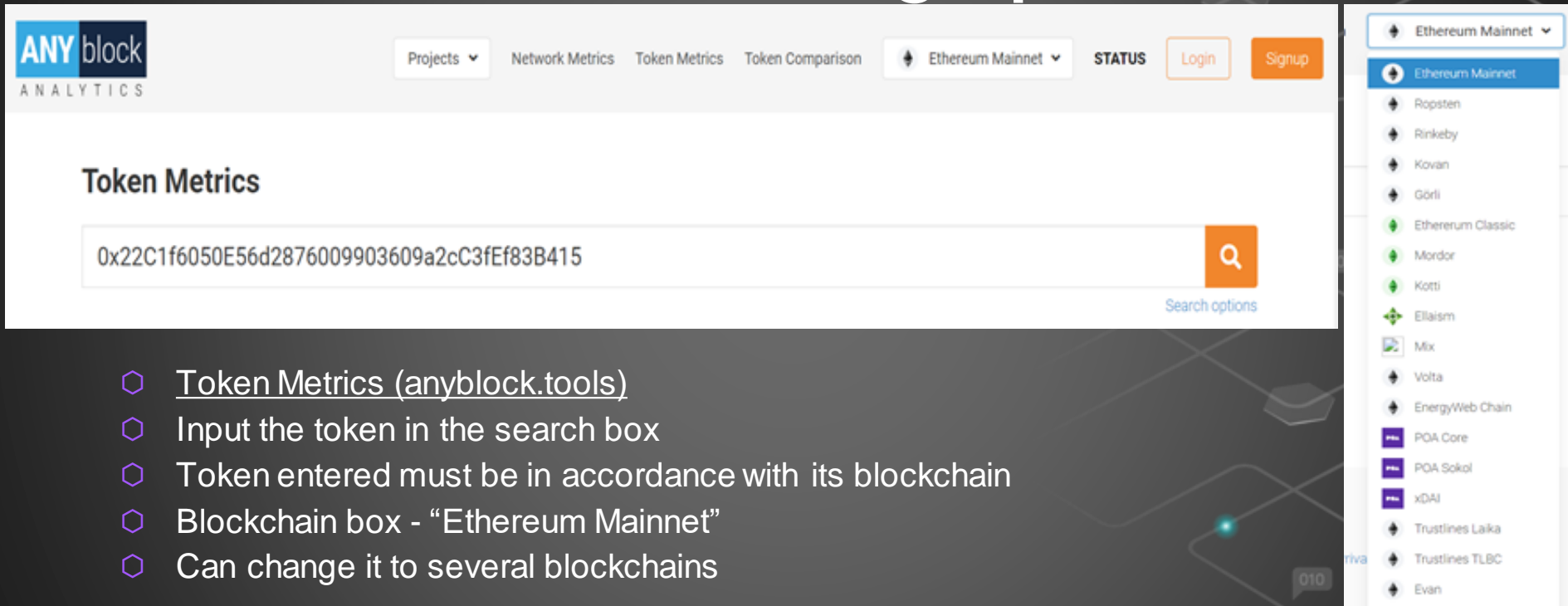
The screenshot shows the Anyblock Analytics website. The header features the 'ANY block ANALYTICS' logo on the left. To its right is a navigation menu with links: 'Projects' (with a dropdown arrow), 'Network Metrics', 'Token Metrics', 'Token Comparison', 'Ethereum Mainnet' (with a dropdown arrow), 'STATUS', 'Login', and 'Signup'. The main content area has a heading 'Welcome to the Anyblock Blockchain Dashboards!' followed by a paragraph: 'On this website you can find token metrics and other visualized blockchain KPIs, as well as project specific dashboards that we have built for different teams and the blockchain community at large.' Below this is a section titled 'Get your own Blockchain Dashboard' with a paragraph: 'If you would like to gather actionable insights for your internal crypto team or bring transparency about the project to your users, we are happy to help! Just email us at [contact@anyblockanalytics.com](mailto:contact@anyblockanalytics.com)'.

Next is a section titled 'Share our Blockchain KPIs' with a paragraph: 'Feel free to use any of the blockchain data presented here publicly in articles, social posts etc., but we kindly ask you to link to us as the source – thanks! (CC BY-SA 4.0)'.

Then is a section titled 'Work with our Blockchain Data' with a paragraph: 'If you are a data scientist and working with blockchain data, feel free to get in touch. We'll support you with real-time and historic data from many different blockchains, with publicity or possibly even with a job.'

Finally, there is a section titled 'Use our Blockchain Dashboards' with a paragraph: 'Choose any dashboard from the top right menu and off you go – enjoy!'

# Resource 1: Customizing Options



**ANY block ANALYTICS**

Projects Network Metrics Token Metrics Token Comparison

Ethereum Mainnet STATUS Login Signup

## Token Metrics

0x22C1f6050E56d2876009903609a2cC3fEf83B415

Search options

Ethereum Mainnet

- Ropsten
- Rinkeby
- Kovan
- Gorli
- Ethereum Classic
- Mordor
- Kotti
- Ellatism
- Mix
- Volta
- EnergyWeb Chain
- POA Core
- POA Sokol
- xDAI
- Trustlines Laika
- Trustlines TLBC
- Evan

- Token Metrics ([anyblock.tools](https://anyblock.tools))
- Input the token in the search box
- Token entered must be in accordance with its blockchain
- Blockchain box - “Ethereum Mainnet”
- Can change it to several blockchains

# 7. Anyblock Server Results

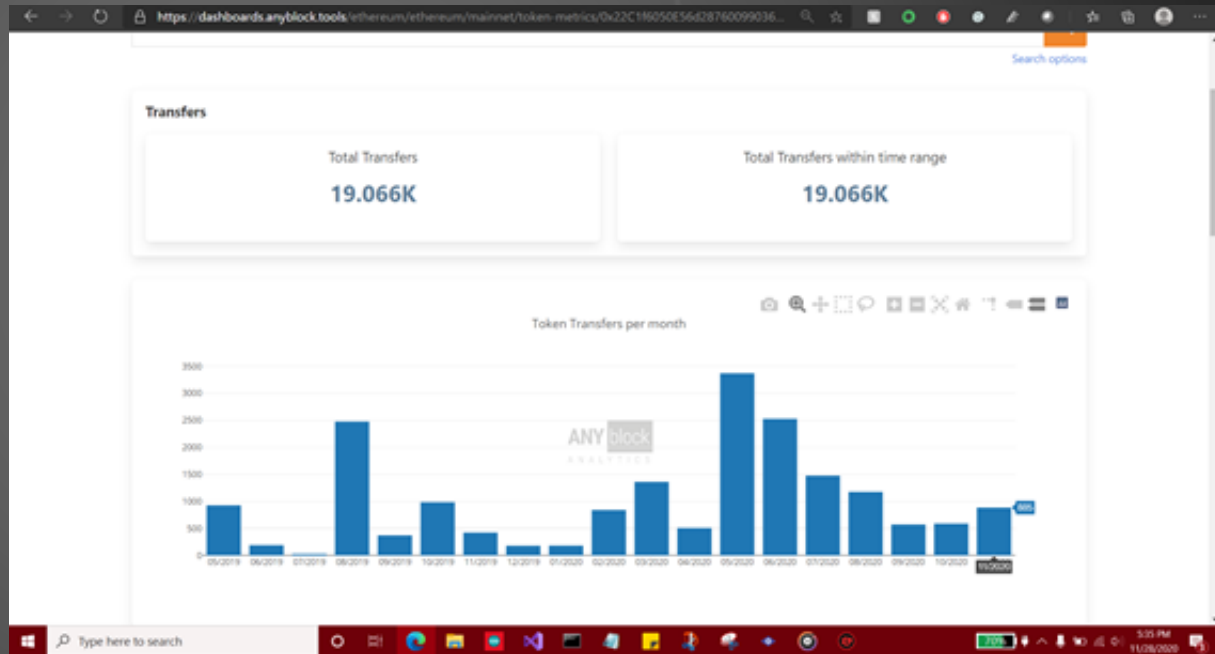
Blockchain Dash Board Results





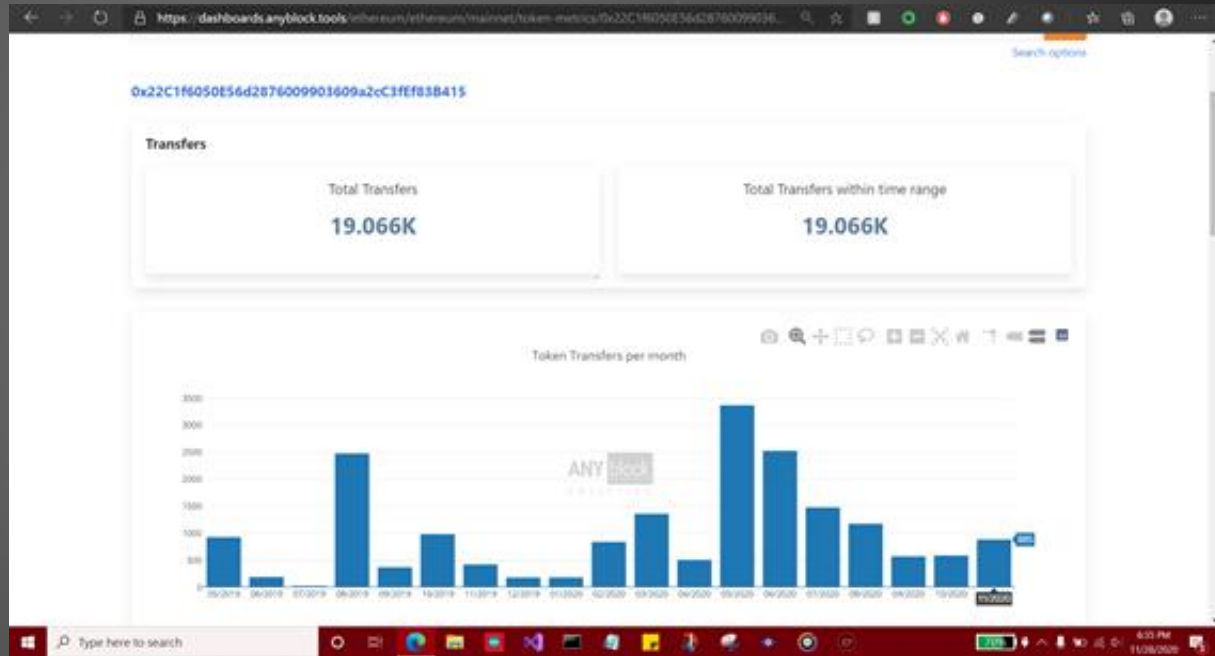
# Day 1: 5:35 PM, 11/28/20

- The token shows the total of transactions
- A bar graph shows the spread of token transfers per month
- More tokens is transferred overtime
- A gradual change is seen normally per day



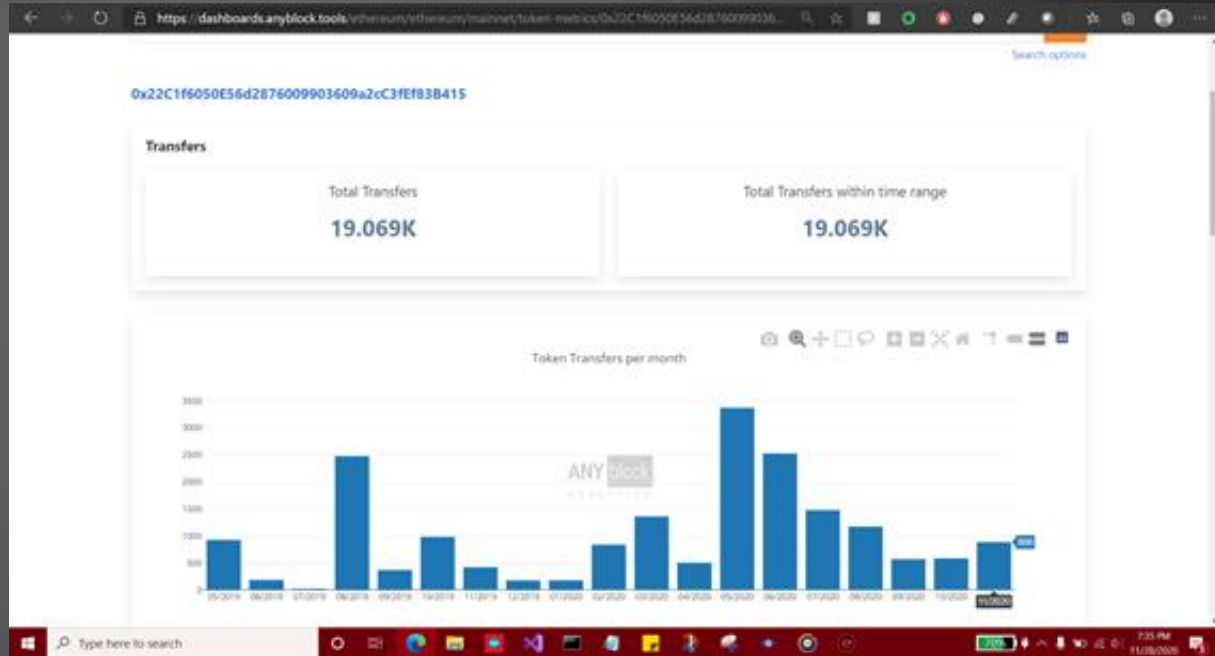
# Day 1: 6:35 PM, 11/28/20

- An hour has passed and total token remain the same
- Expect changes in a few hours



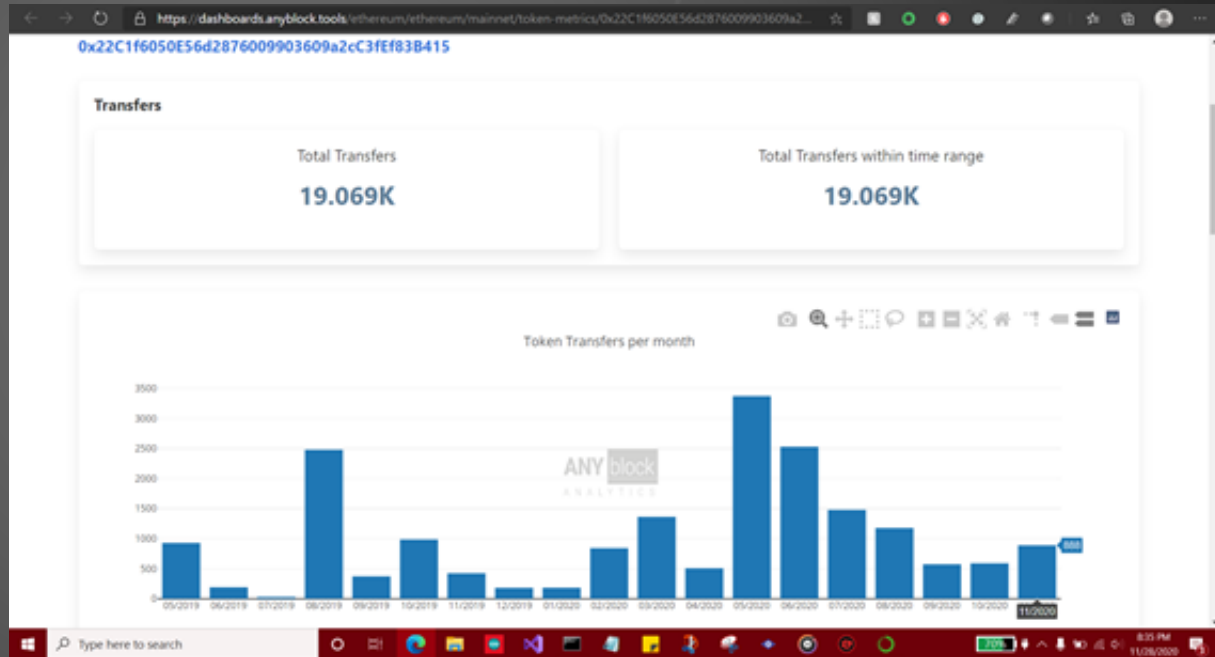
# Day 1: 7:35 PM, 11/28/20

- Another hour has passed
- Total transactions increased by 3



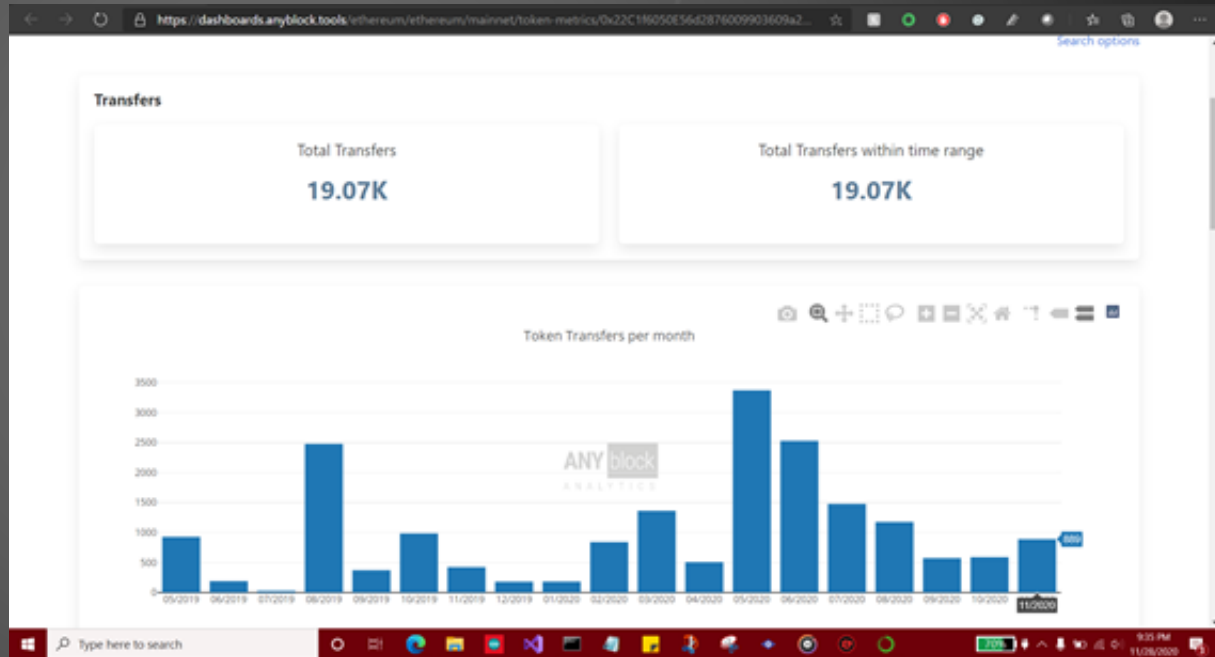
# Day 1: 8:35 PM, 11/28/20

- Another hour passed
- Transactions remained the same



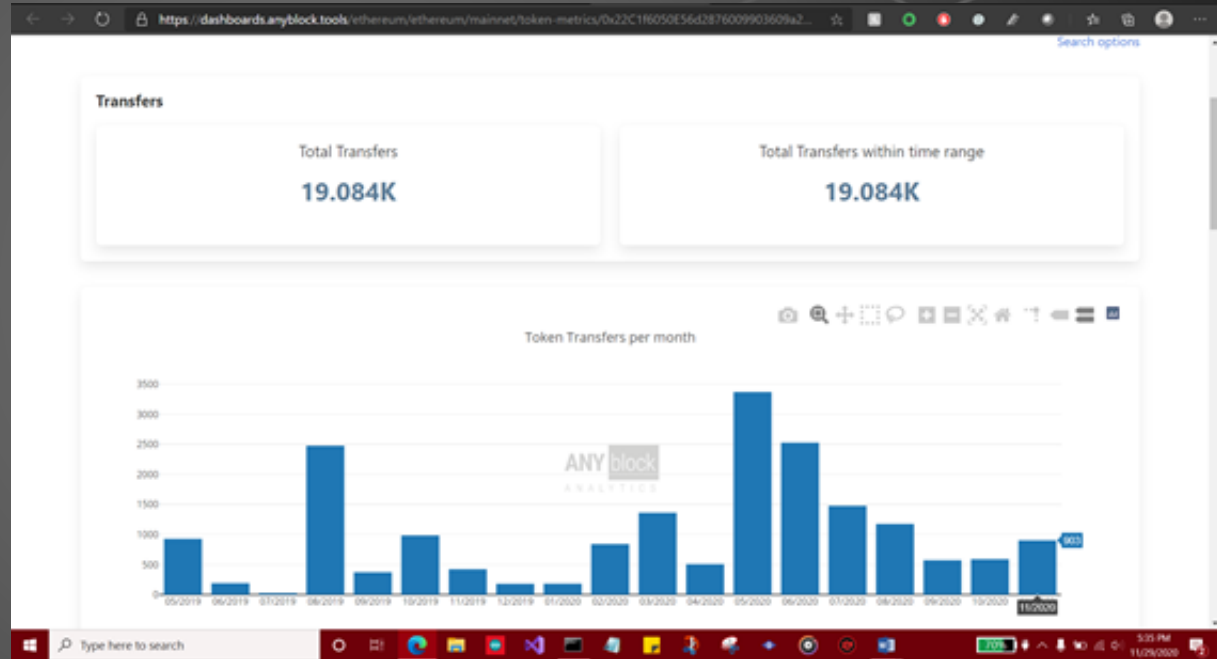
# Day 1: 9:35 PM, 11/28/20

- Another hour has passed
- One more transaction
- To observe a gradual change, it is best to check every 24 hours
- Not an active poap token



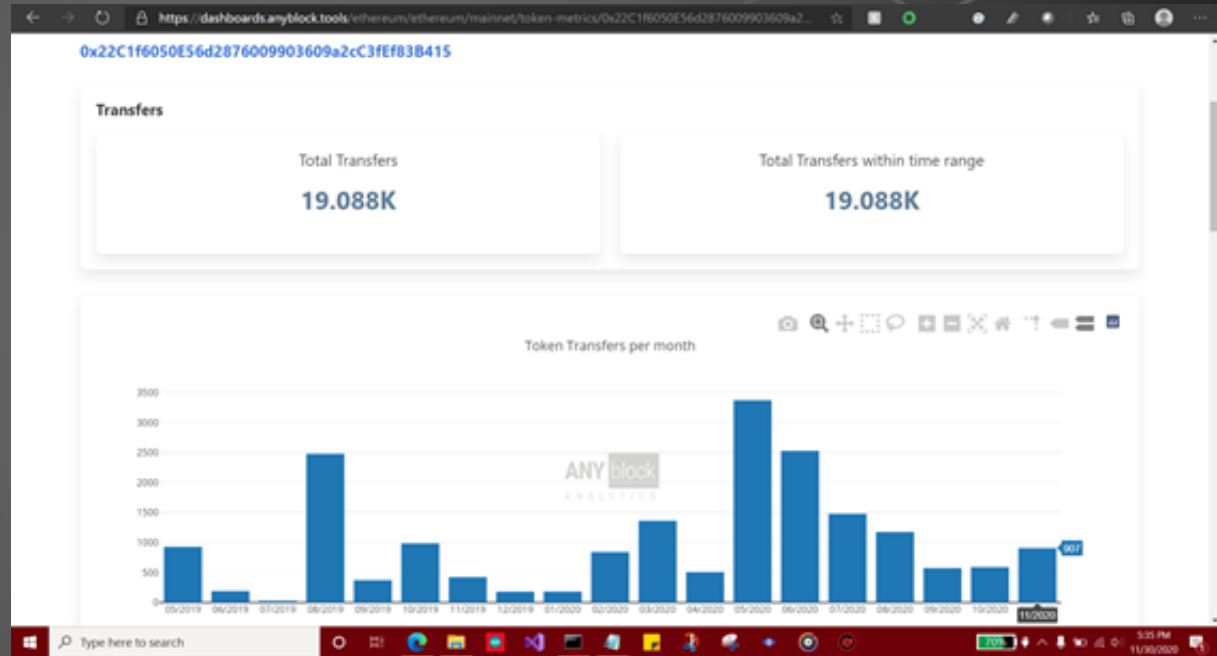
# Day 2: 5:35 PM, 11/29/20

- Since one day has passed, there will be more transactions
- Transactions increased from 19,070 to 19,084



# Day 3: 5:35 PM, 11/30/20

- Since one day has passed, there will be more transactions
- Transactions increased from 19,084 to 19,088

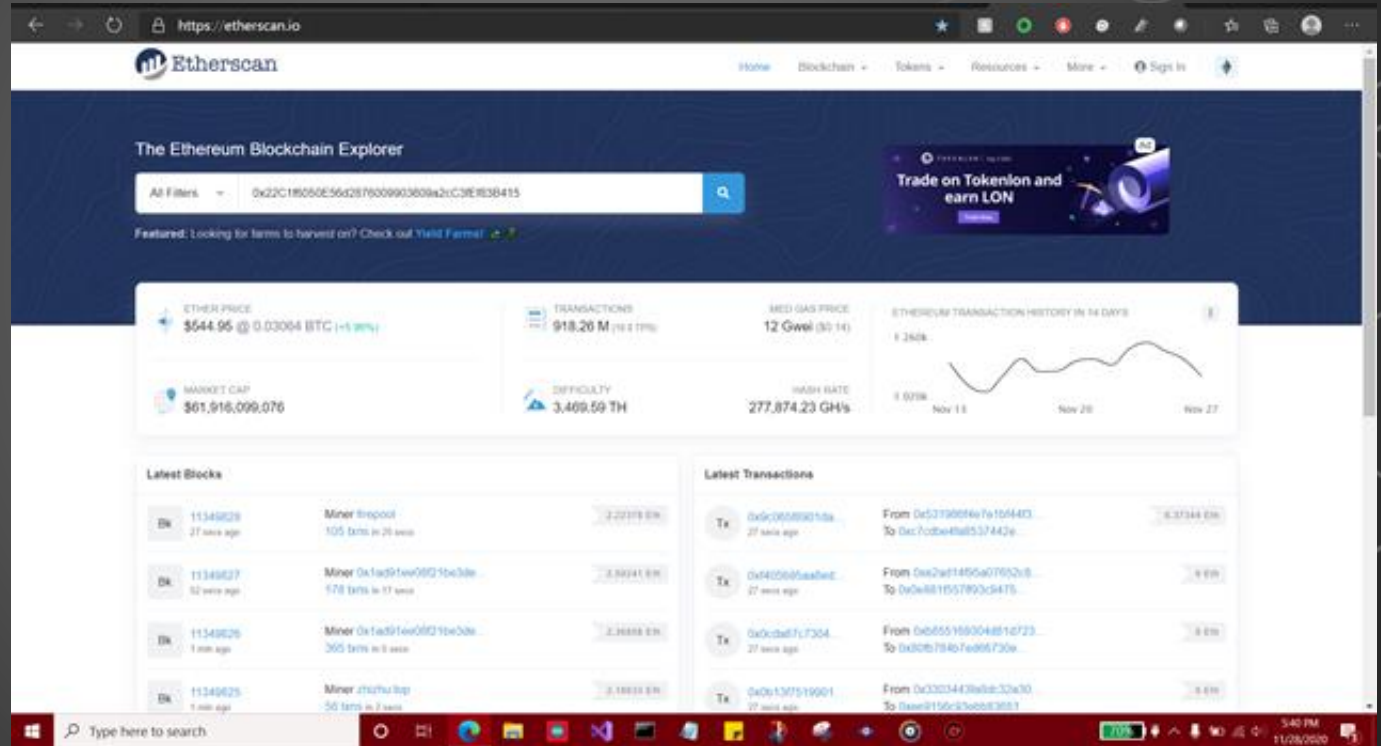




# Resource 2: Etherscan

○ Ethereum  
(ETH)  
Blockchain  
Explorer  
(etherscan.io)  
(3)

○ Input the token  
into the search  
box



# Etherscan Statistics

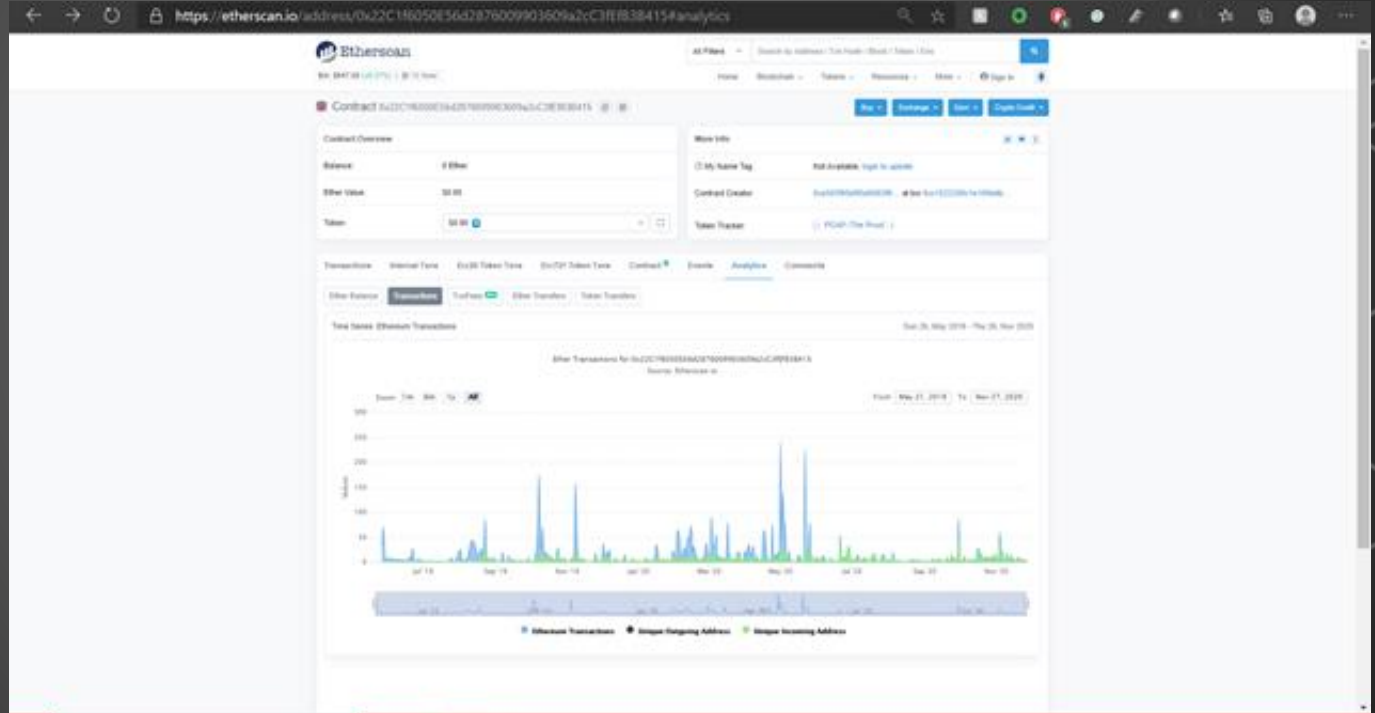
- Gives Balance, Ether Value, and Token Net Worth
- By default shows transactions
- Transactions show how many unique tokens there are

The screenshot shows the Etherscan website interface. At the top, the URL is <https://etherscan.io/address/0x22c18050e56d2876009903609a2c3f838415>. The page title is "Contract 0x22c18050e56d2876009903609a2c3f838415". The "Contract Overview" section shows a balance of 0 Ether, an ether value of \$0.00, and a token value of \$0.00. The "More Info" section shows a contract creator of 0x032950a650083f9 at block 1522208. The "Transactions" section shows a list of 25 transactions from a total of 5,844. The table below lists the first six transactions.

Txn Hash	Block	Age	From	To	Value	Txn Fee
0x17a2551e13f383c38	(pending)	5 days 10 hrs ago	0x1c1f24b2d6a9999af	0x22c18050e56d2876	0 Ether	(pending)
0xd4891fa20cd863838	11348833	3 hrs 13 mins ago	0x731c330811084862	0x22c18050e56d2876	0 Ether	0.000179168
0xab70a158a75da8a6	11348941	10 hrs 24 mins ago	0x45ad2958b2c75868a	0x22c18050e56d2876	0 Ether	0.000119687
0xdc5pad8958b1b1629	11349052	20 hrs 24 mins ago	0xab2c45e757f8b17a7	0x22c18050e56d2876	0 Ether	0.000846537
0xeef6075cb09597a4a	11349068	20 hrs 58 mins ago	0x28f29a2b6c4100a55	0x22c18050e56d2876	0 Ether	0.0008351247
0x03f1a2620b18b848f	11349243	1 day 11 hrs ago	0xf0ac13a999b12a55f	0x22c18050e56d2876	0 Ether	0.0004851217

# Etherscan: Analytics -> Transactions

- The graph shows every POAP token transaction
- From its starting date to present



# Etherscan Transaction Graph

Zoomed in view of the Ethereum Transaction Graph

Touch the graph to see a day's ethereum transactions

Shows:

1. Ethereum Transactions
2. Unique Outgoing Address
3. Unique Incoming Address



# Etherscan Statistics: Erc721 Token Txns



Shows which transactions are POAP tokens

The screenshot displays the Etherscan.io interface for a specific ERC721 token contract. The URL in the browser is <https://etherscan.io/address/0x22c1f6050e56d2876009903609a2cc3f883b415#tokenserc721>. The page title is "Contract 0x22c1f6050e56d2876009903609a2cc3f883b415". The "Contract Overview" section shows the token name as "POAP", the token symbol as "POAP", and the token type as "ERC721". The "More Info" section shows the contract creator as "0x0000000000000000000000000000000000000000" and the token transfer as "POAP (The Poap)". The "Transactions" section shows a list of transactions, with the first transaction being "0x0000000000000000000000000000000000000000" to "0x0000000000000000000000000000000000000000" for 1 POAP token. The table below shows a list of transactions with columns for Txn Hash, Age, From, To, Token ID, and Token.

Txn Hash	Age	From	To	Token ID	Token
0x0000000000000000000000000000000000000000	18 days 18 hrs ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1010	POAP (The Poap)
0x0000000000000000000000000000000000000000	200 days 23 hrs ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1000	POAP (The Poap)
0x0000000000000000000000000000000000000000	200 days 1 hr ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	999	POAP (The Poap)
0x0000000000000000000000000000000000000000	210 days 18 hrs ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1001	POAP (The Poap)
0x0000000000000000000000000000000000000000	210 days 18 hrs ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1002	POAP (The Poap)
0x0000000000000000000000000000000000000000	210 days 20 hrs ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1003	POAP (The Poap)
0x0000000000000000000000000000000000000000	210 days 18 hrs ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1004	POAP (The Poap)
0x0000000000000000000000000000000000000000	220 days 23 hrs ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1005	POAP (The Poap)
0x0000000000000000000000000000000000000000	231 days 1 hr ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1006	POAP (The Poap)
0x0000000000000000000000000000000000000000	231 days 1 hr ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1007	POAP (The Poap)
0x0000000000000000000000000000000000000000	254 days 1 hr ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1008	POAP (The Poap)
0x0000000000000000000000000000000000000000	256 days 2 hrs ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1009	POAP (The Poap)
0x0000000000000000000000000000000000000000	271 days 20 hrs ago	0x0000000000000000000000000000000000000000	0x0000000000000000000000000000000000000000	1010	POAP (The Poap)

# Clicking on a Particular Token:

- Gives Balance, Ether Value, and Token Net Worth
- Transactions show how many tokens are in the POAP token

The screenshot shows the Etherscan website interface. At the top, the URL is <https://etherscan.io/tx/0x4de5be524cf38125e433e6981f67908b96c44621050c85a05cbadff829238fa9a>. The page title is "Transaction Details". The transaction hash is 0x4de5be524cf38125e433e6981f67908b96c44621050c85a05cbadff829238fa9a. The status is "Success". The block number is 11117756. The timestamp is 35 days 15 hrs ago (Oct-24-2020 07:38:47 AM +UTC). The transaction is confirmed within 6 mins 59 secs. The "From" field shows the contract address 0x2912811554c230cc09b0305a90c5e5b94c11. The "Tokens Transferred" section shows a transfer of 8 ERC-721 TokenID [12770] from 0x0000000000000000000000000000000000000000 to 0x22c18090e56d38. The "Value" field shows 8 Ether (\$0.00). The "Transaction Fee" is 0.004379386 Ether (\$3.39). The "Gas Price" is 0.00000019 Ether (19 Gwei). The "Ether Price" is \$412.52 / ETH. The "Private Note" field is empty, with a message: "To access the Private Note feature, you must be Logged In".

Transaction Hash	0x4de5be524cf38125e433e6981f67908b96c44621050c85a05cbadff829238fa9a
Status	Success
Block	11117756
Timestamp	35 days 15 hrs ago (Oct-24-2020 07:38:47 AM +UTC)
From	0x2912811554c230cc09b0305a90c5e5b94c11
Interacted With (To)	Contract 0x0223596a4f570736a0c2354b75c402e19574
Tokens Transferred	8 From: 0x0000000000000000000000000000000000000000 To: 0x22c18090e56d38 For ERC-721 TokenID [12770] POAP (The Pr...)
Value	8 Ether (\$0.00)
Transaction Fee	0.004379386 Ether (\$3.39)
Gas Price	0.00000019 Ether (19 Gwei)
Ether Price	\$412.52 / ETH
Private Note	To access the Private Note feature, you must be Logged In

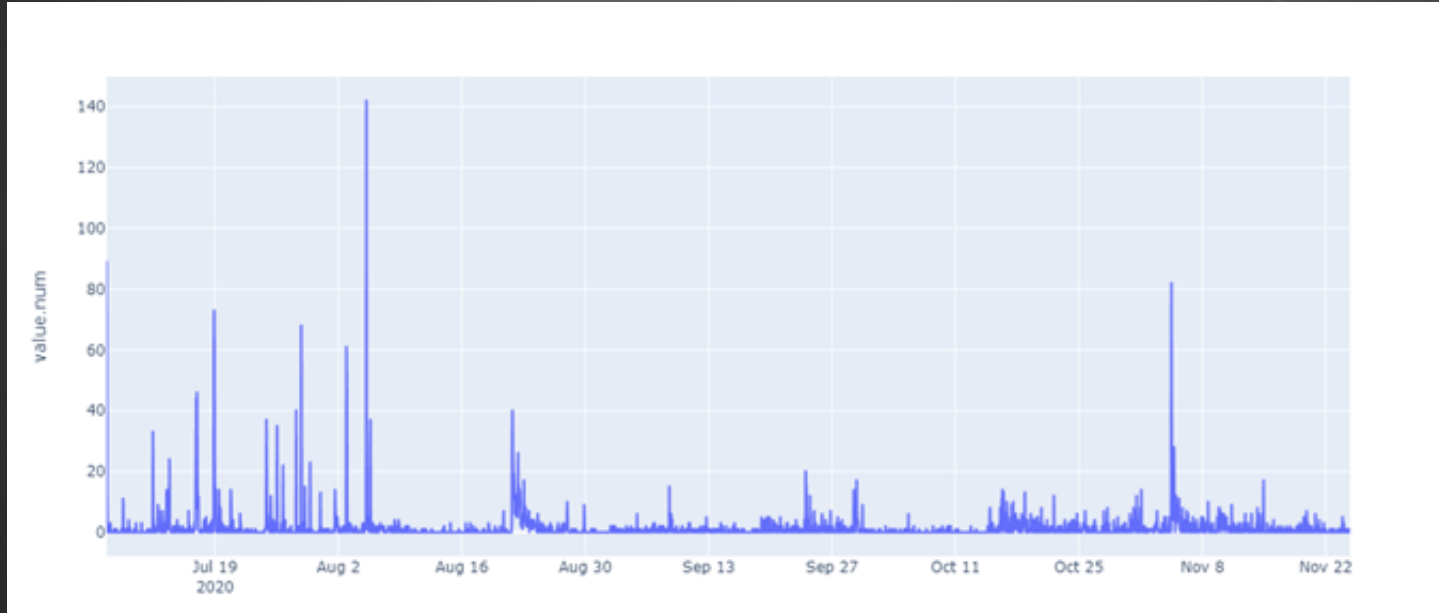
# 8. Additional Data

Using Python to Further Analyze Token Data





# Number of POAP Transactions '20



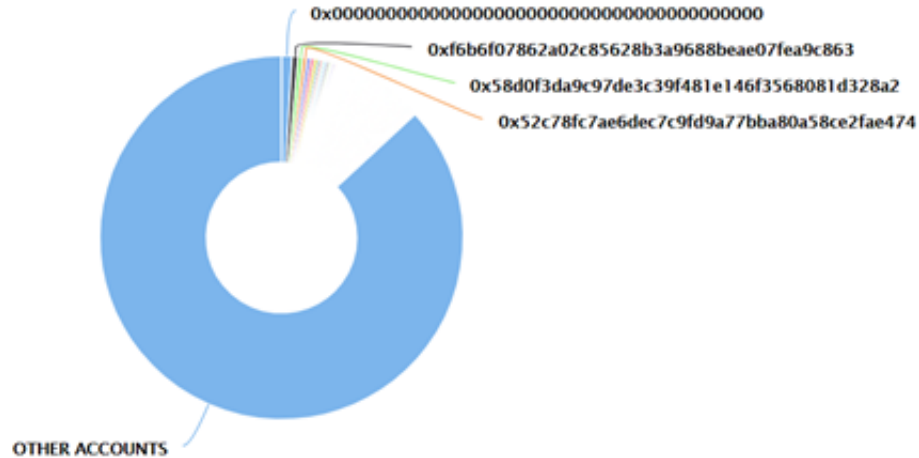
# POAP Token Holdings

The top 100 holders collectively own 13.15% (2,321.00 Tokens) of POAP

Token Total Supply: 17,649.00 Token | Total Token Holders: 9,271

## POAP Top 100 Token Holders

Source: Etherscan.io



(A total of 2,321.00 tokens held by the top 100 accounts from the total supply of 17,649.00 token)

# Token Transaction History

value.num		
datetime	network	
2020-07-12	eth	150
2020-07-19	eth	563
2020-07-26	eth	273
2020-08-02	eth	364
2020-08-09	eth	351
2020-08-16	eth	22
2020-08-23	eth	500
2020-08-30	eth	136
2020-09-06	eth	67
2020-09-13	eth	119
2020-09-20	eth	108
2020-09-27	eth	222
2020-10-04	eth	103
2020-10-11	eth	36
2020-10-18	eth	272
2020-10-25	eth	208
2020-11-01	eth	198
2020-11-08	eth	516
	xdai	0
2020-11-15	eth	246
	xdai	0
2020-11-22	eth	107
	xdai	0
2020-11-29	eth	100
	xdai	0

value.num		
datetime	network	
2020-07-31	eth	1177
2020-08-31	eth	1182
2020-09-30	eth	607
2020-10-31	eth	711
2020-11-30	eth	984
	xdai	0

value.num		
datetime	network	
2020-12-31	eth	4661
	xdai	0

# Token Transaction History: New Month, Week

value.num		
datetime	network	
2020-07-12	eth	145
2020-07-19	eth	563
2020-07-26	eth	273
2020-08-02	eth	364
2020-08-09	eth	351
2020-08-16	eth	22
2020-08-23	eth	500
2020-08-30	eth	136
2020-09-06	eth	67
2020-09-13	eth	119
2020-09-20	eth	108
2020-09-27	eth	222
2020-10-04	eth	103
2020-10-11	eth	36
2020-10-18	eth	272
2020-10-25	eth	208
2020-11-01	eth	198
2020-11-08	eth	516
	xdai	0
2020-11-15	eth	246
	xdai	0
2020-11-22	eth	107
	xdai	0
2020-11-29	eth	100
	xdai	0
2020-12-06	eth	5
	xdai	0

value.num		
datetime	network	
2020-07-31	eth	1172
2020-08-31	eth	1182
2020-09-30	eth	607
2020-10-31	eth	711
2020-11-30	eth	989
	xdai	0

value.num		
datetime	network	
2020-12-31	eth	4661
	xdai	0

# 9. Metric Findings

What the interns learned at Anyblock  
Analytics

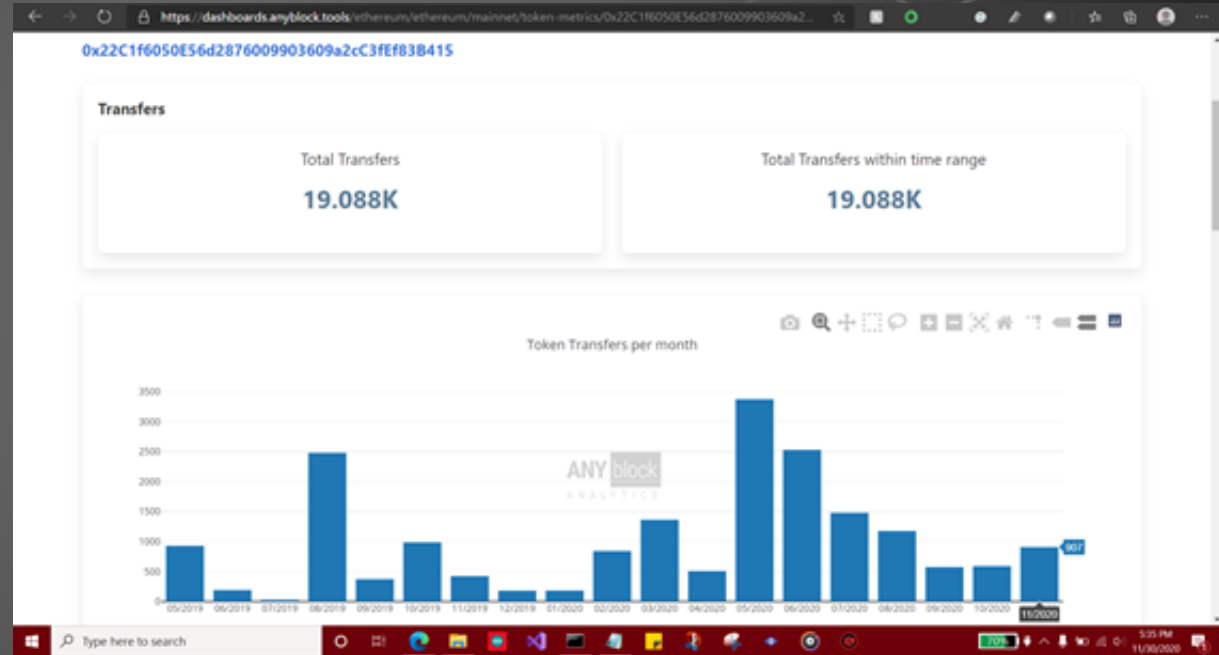


# Metric Discoveries

Token History: May 2019 - Present (Recorded 11/30/2020, 5:35 PM)

- Transactions:
1. Token Weekly
  2. Token Monthly
  3. Tokens Yearly
    - a. 2019: 5574
    - b. 2020: 13,514
    - c. Total: 19,088

	A	B	C	D
1	Month	2019	2020	Total
2	January	0	182	182
3	February	0	841	841
4	March	0	1362	1362
5	April	0	507	507
6	May	928	3371	4299
7	June	190	2528	2718
8	July	18	1478	1496
9	August	2478	1176	3654
10	September	372	573	945
11	October	985	589	1534
12	November	423	907	1330
13	December	180		180+
14	Total	5574	13514	19,088
15	*Data Recorded from 11/30/20			

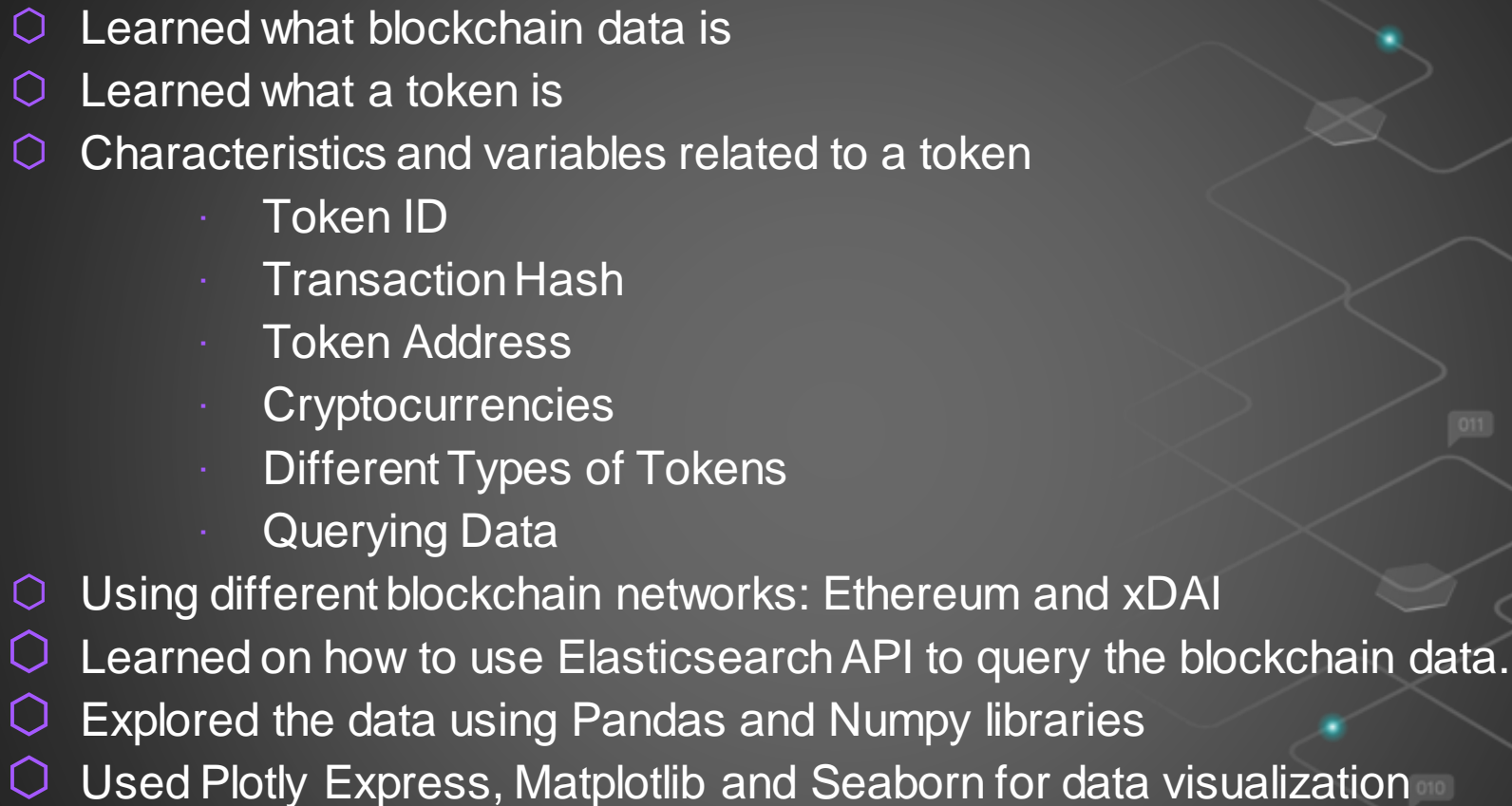


# 10. Learning Experiences

What the interns learned at Anyblock Analytics





- 
- Learned what blockchain data is
  - Learned what a token is
  - Characteristics and variables related to a token
    - Token ID
    - Transaction Hash
    - Token Address
    - Cryptocurrencies
    - Different Types of Tokens
    - Querying Data
  - Using different blockchain networks: Ethereum and xDAI
  - Learned on how to use Elasticsearch API to query the blockchain data.
  - Explored the data using Pandas and Numpy libraries
  - Used Plotly Express, Matplotlib and Seaborn for data visualization

# 11. Sources

Websites



# Sources

- ⬡ [POAP - Homepage](#) (1)
- ⬡ [Welcome to the Anyblock Blockchain Dashboards!](#) (2)
- ⬡ [Ethereum \(ETH\) Blockchain Explorer \(etherscan.io\)](#) (3)

# 12. Honorable Mentions

Giving Special Thanks



# Honorable Mentions

- ⬡ CFO Friedrich “Freddy” Zwanzger
- ⬡ Data Scientist Yarkin Gocmen
- ⬡ Anyblock Analytics Team
- ⬡ i\_XPERIENCE and Career Semester

An abstract geometric pattern in the background, featuring a network of thin white lines forming a grid-like structure. Several hexagons are integrated into the design, some containing small blue dots. Binary code (001, 011, 010) is visible in small speech bubble-like shapes. The overall aesthetic is technical and digital.

# THANK YOU!