

Introduction to Blockchain Data

Company: Anyblock Analytics

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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



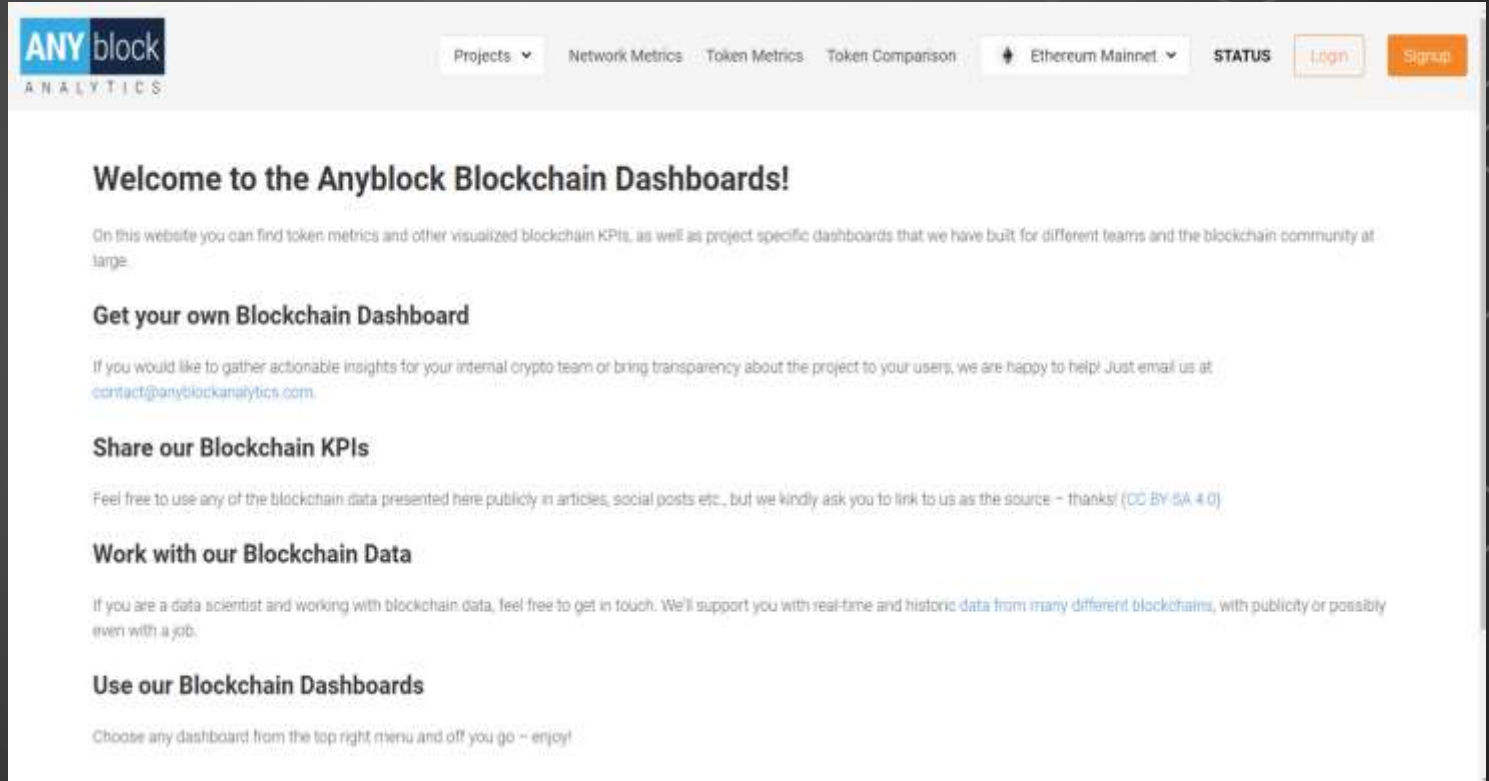
6. Websites to Retrieve Data

Anyblock Analytics Dashboards
Etherscan



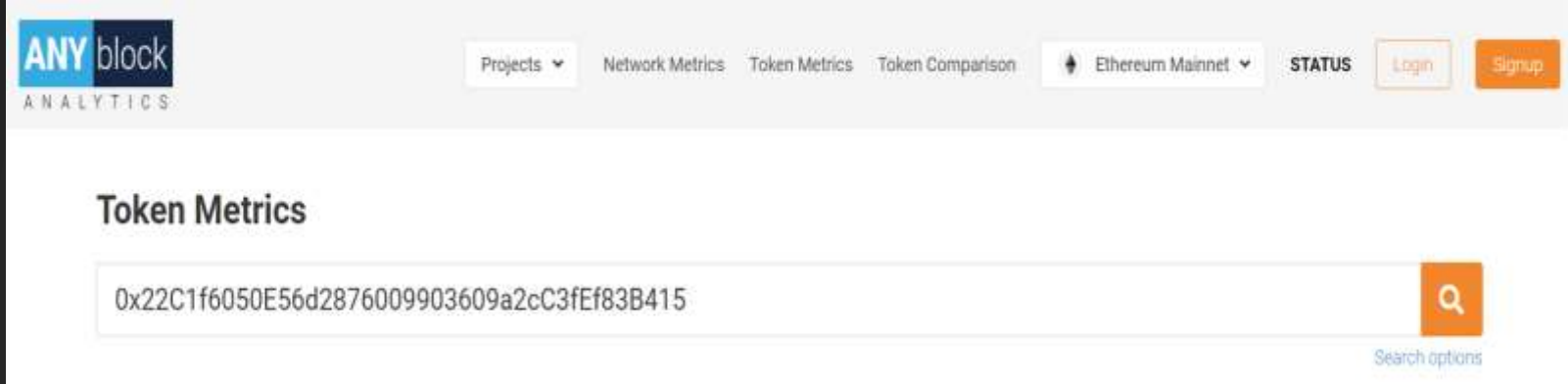
Resource 1: Anyblock Dashboards

- [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 bar with links: 'Projects' (with a dropdown arrow), 'Network Metrics', 'Token Metrics', 'Token Comparison', 'Ethereum Mainnet' (with a dropdown arrow), 'STATUS', a 'Login' button, and a 'Signup' button. The main content area has a large heading 'Welcome to the Anyblock Blockchain Dashboards!'. Below this, a paragraph states: '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.' This is followed by 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.' 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)'. This is followed by 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.' The final section is 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



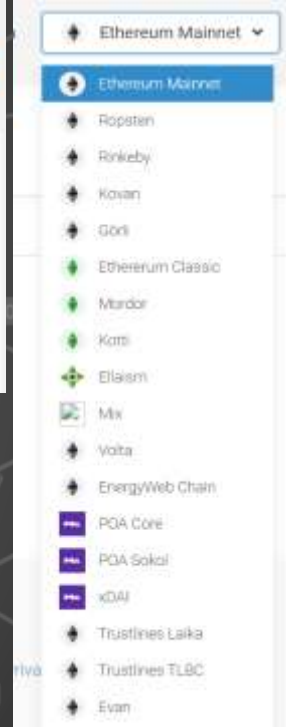
ANY block ANALYTICS

Projects Network Metrics Token Metrics Token Comparison Ethereum Mainnet STATUS Login Signup

Token Metrics

0x22C1f6050E56d2876009903609a2cC3fEf83B415

Search options



- Token Metrics (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

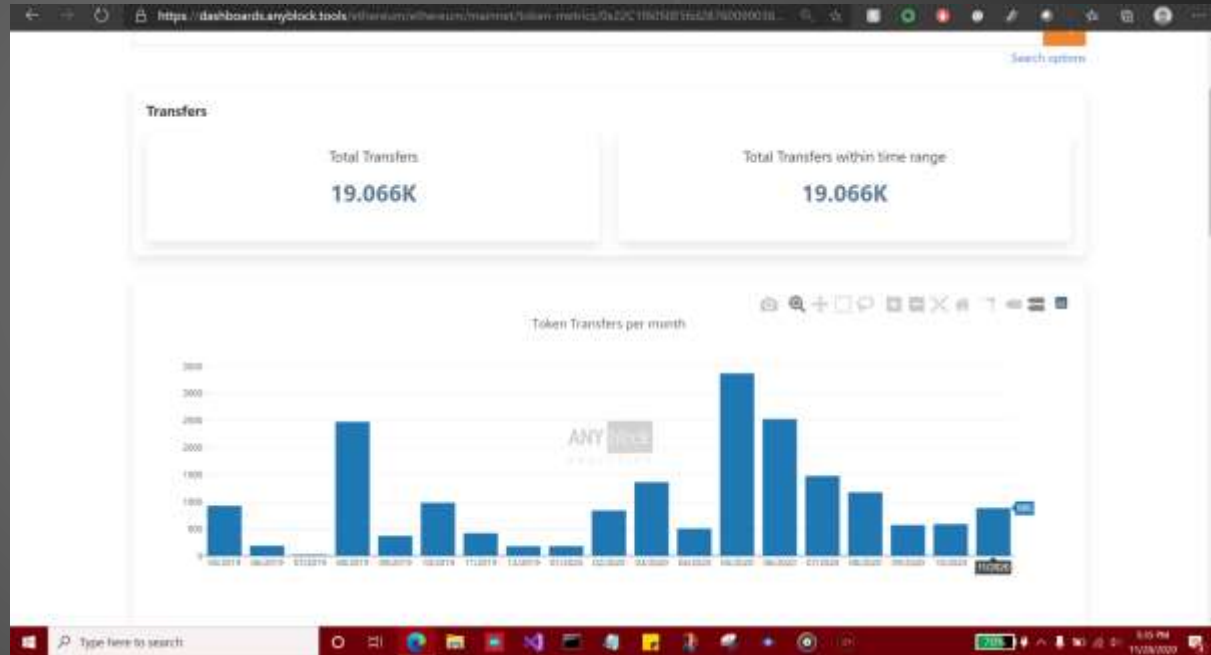
7. Anyblock Server Results

Blockchain Dash Board Results



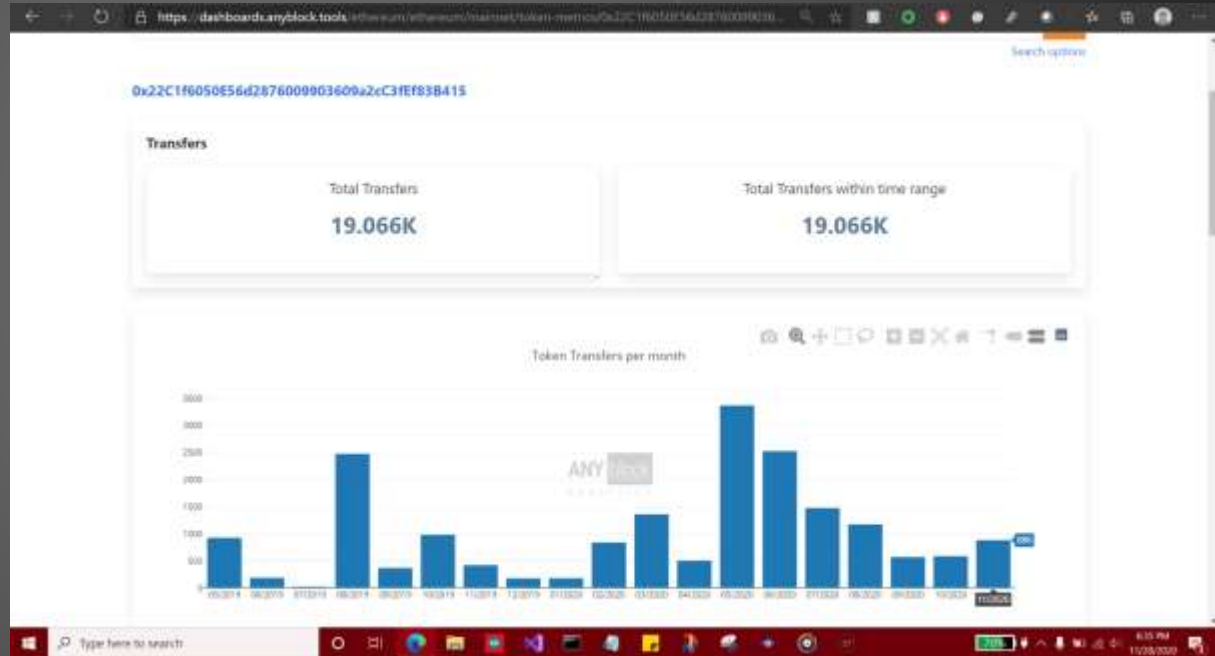
Day 1: 5:35 PM, 11/28/20

- 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



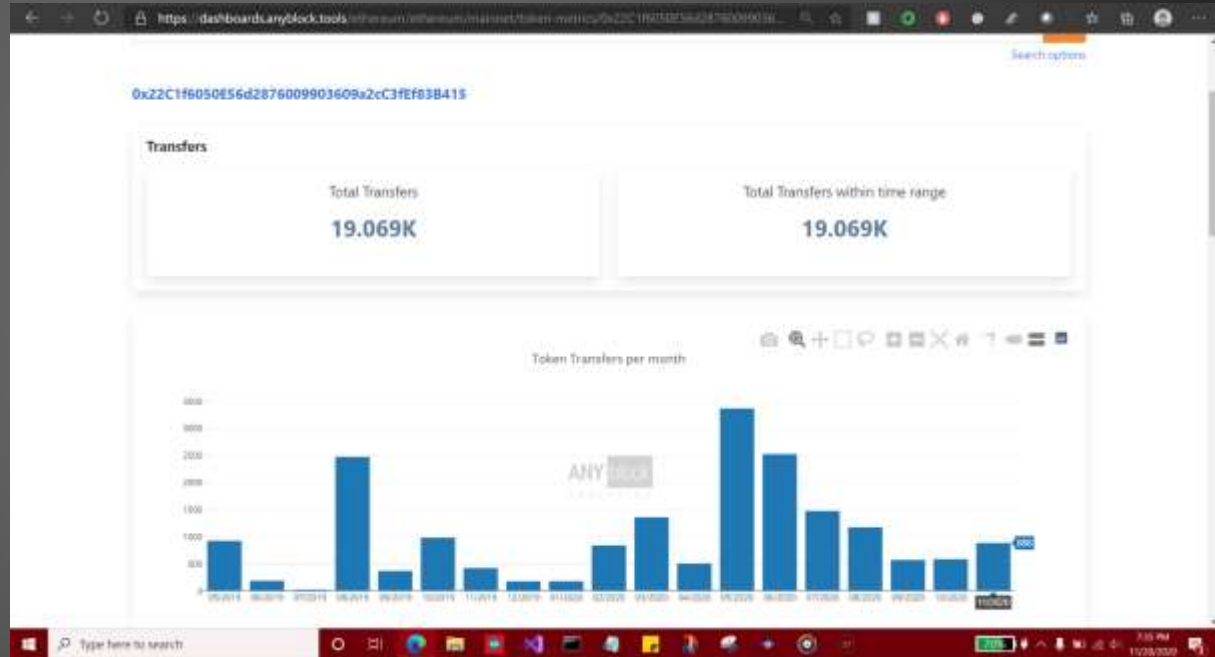
Day 1: 6:35 PM, 11/28/20

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



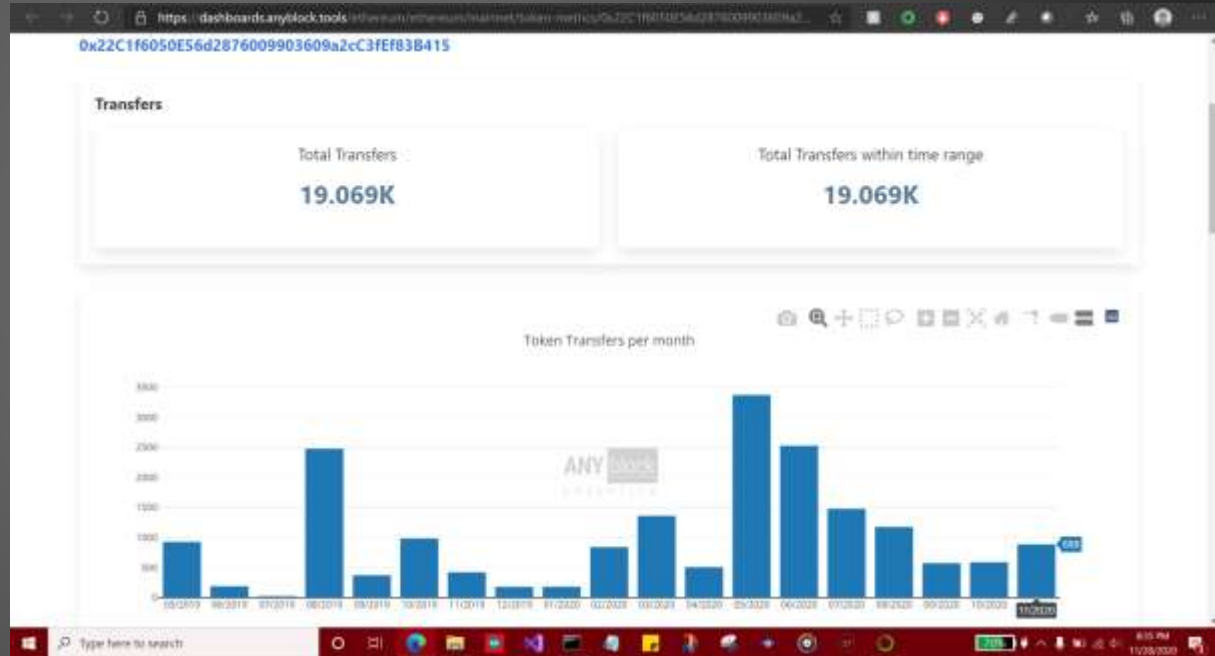
Day 1: 7:35 PM, 11/28/20

- Another hour has passed
- Total transactions increased by 3



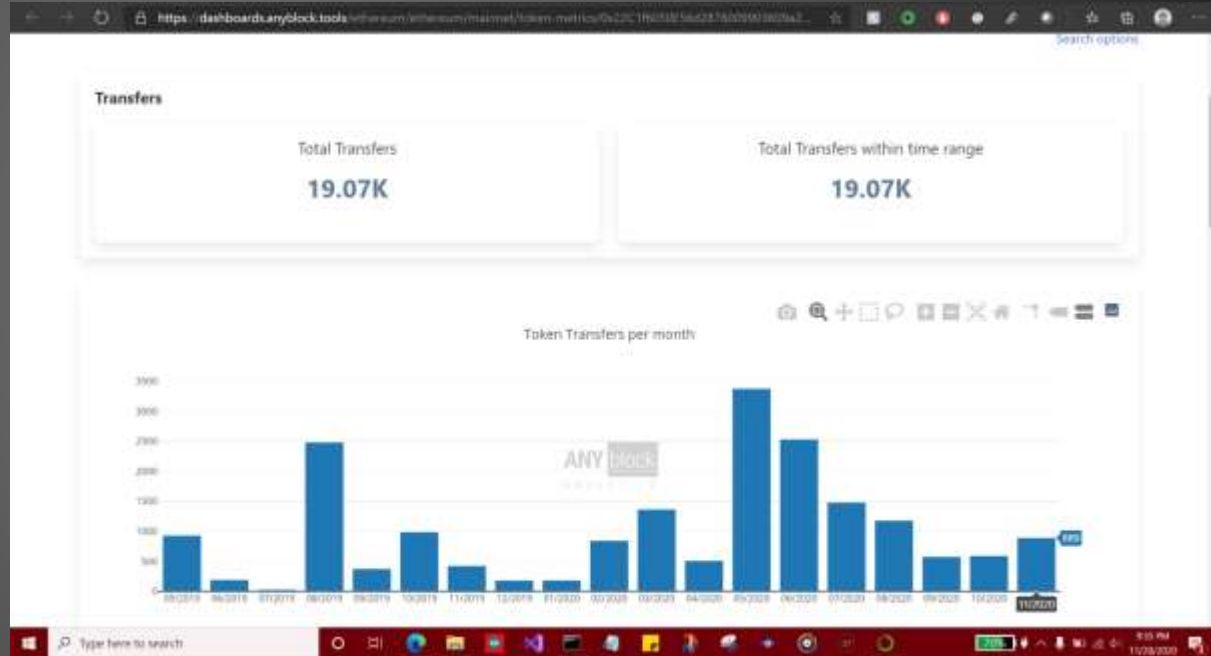
Day 1: 8:35 PM, 11/28/20

- Another hour passed
- Transactions remained the same



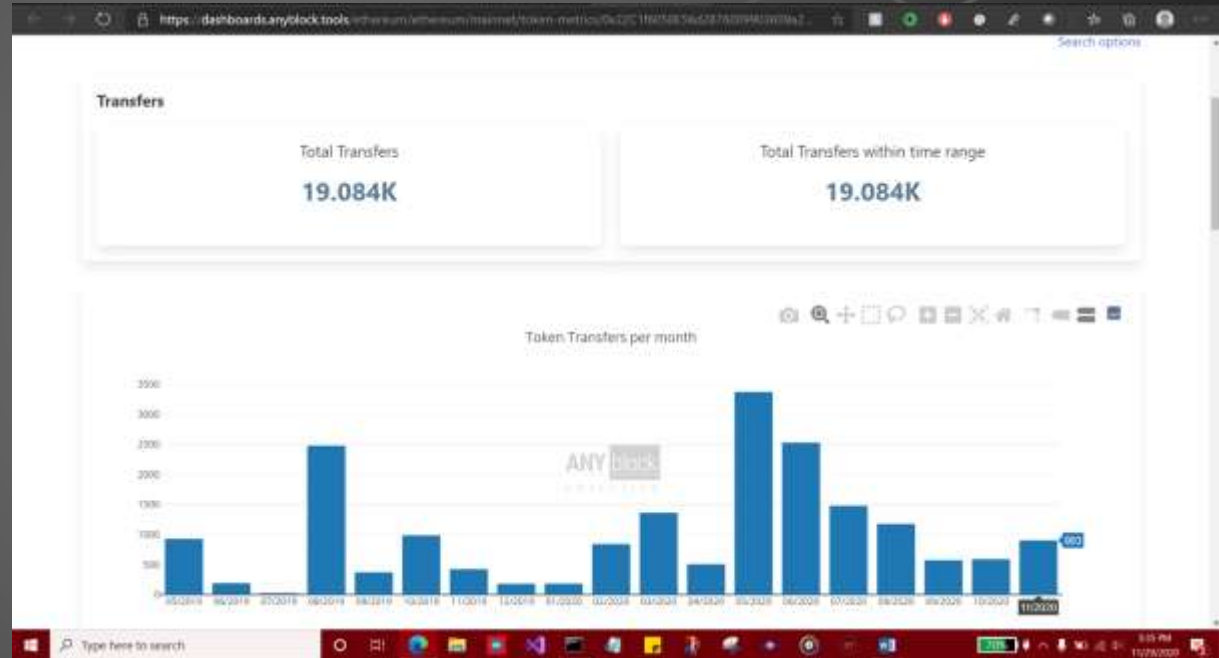
Day 1: 9:35 PM, 11/28/20

- 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



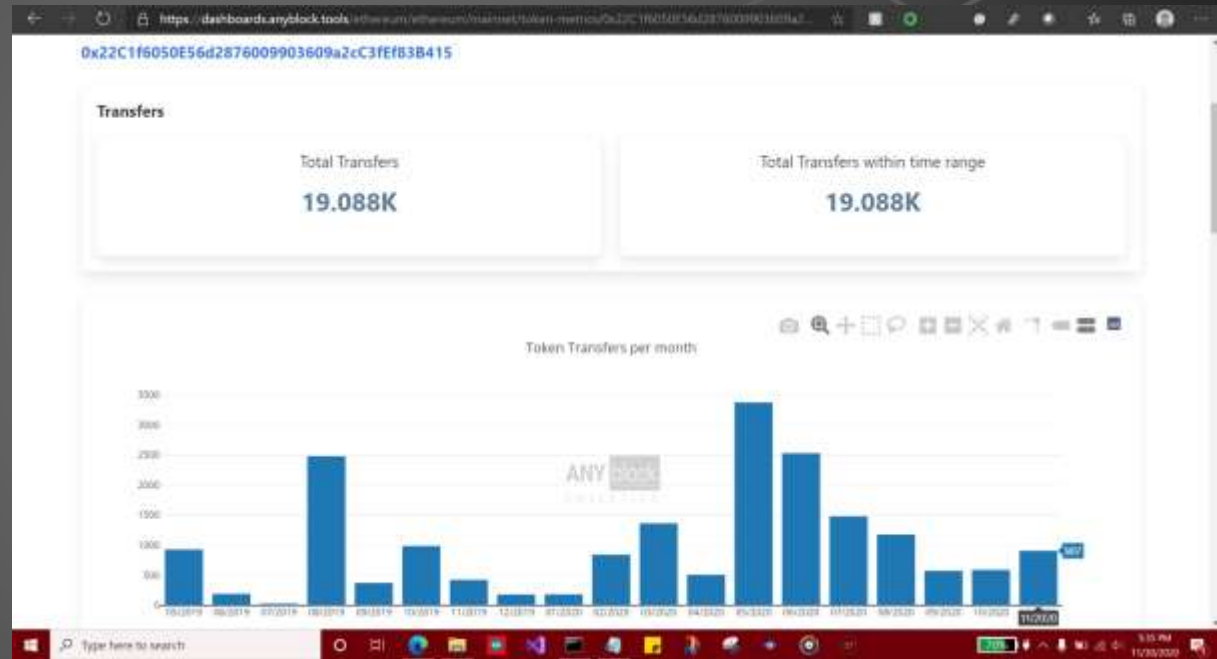
Day 2: 5:35 PM, 11/29/20

- 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

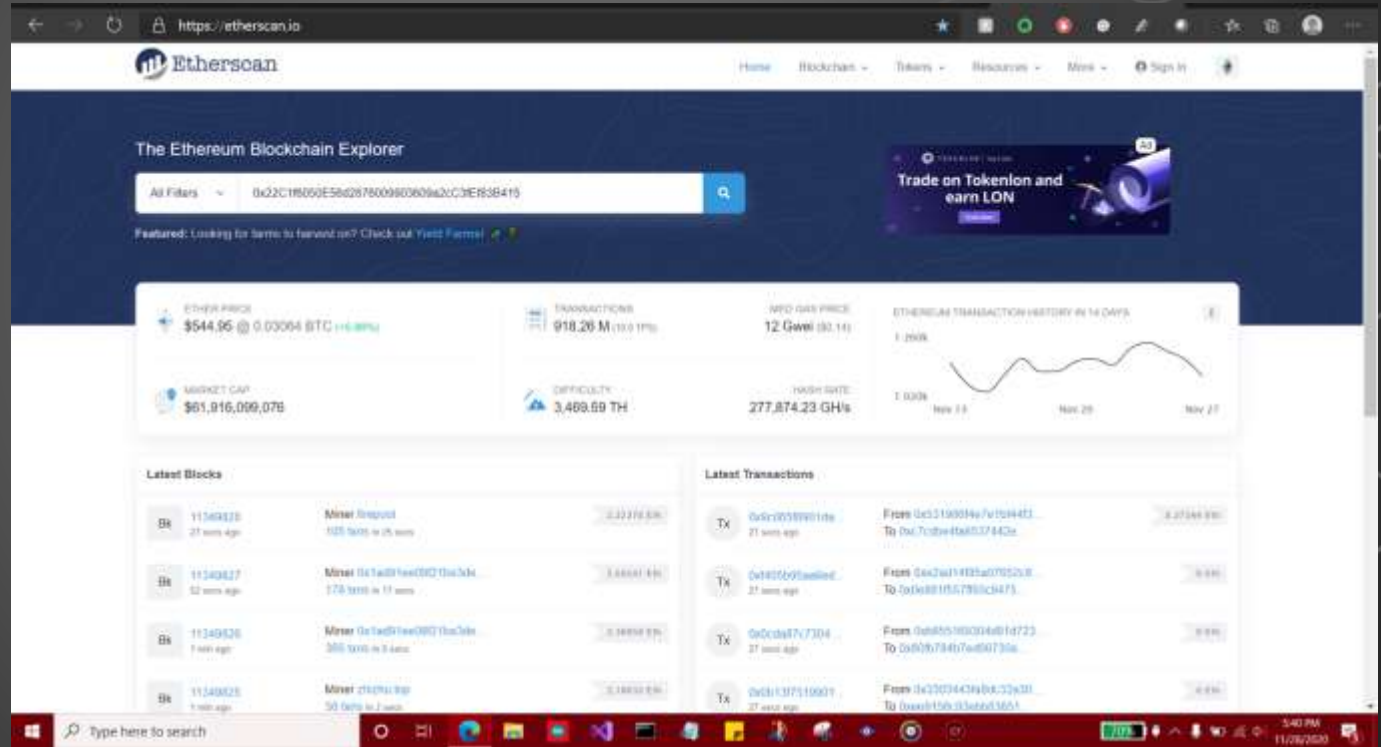
- Since one day has passed, there will be more transactions
- Transactions increased from 19,084 to 19,088



Resource 2: Etherscan

⬡ [Ethereum
\(ETH\)
Blockchain
Explorer
\(etherscan.io\)](https://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 displays the Etherscan interface for a specific contract address: 0x22C110050E56d2876009903609a2c3E1B3B415. The page is titled 'Contract' and shows the following details:

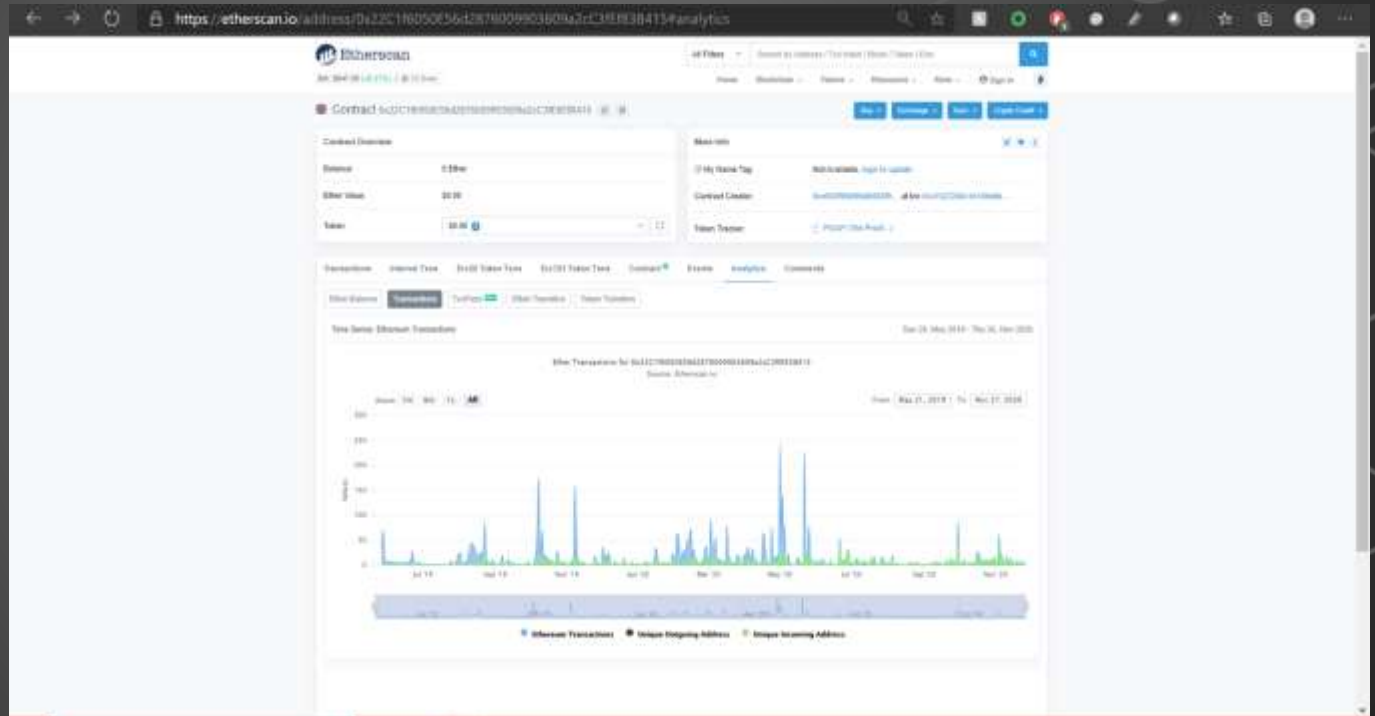
- Contract Overview:**
 - Balance: 0 Ether
 - Ether Value: \$0.00
 - Token: 30.00
- More Info:**
 - My Name Tag: Not Available, login to update
 - Contract Creator: 0x5E950a55248391... at 1m Dec 11 22:00:1e 134448
 - Token Tracker: PGAP (The Proof...)

Below the overview, there is a 'Transactions' tab selected, showing a list of transactions. The table has columns: Tx Hash, Block, Age, From, To, Value, and Tx Fee. The first transaction is pending, while the others are completed.

Tx Hash	Block	Age	From	To	Value	Tx Fee
0x17a2581873183630	(pending)	3 days 10 hrs ago	0x1c10V0208A888888	0x22c110050e56d2876009903609a2c3e1b3b415	0 Ether	(pending)
0x4881fa3c0a8c393a	11348923	3 hrs 13 mins ago	0x721602031104862	0x22c110050e56d2876009903609a2c3e1b3b415	0 Ether	0.00000000
0x8070a1100a75dab01	11348941	10 hrs 24 mins ago	0x4a02088b3c7508a	0x22c110050e56d2876009903609a2c3e1b3b415	0 Ether	0.00000000
0x0b0a8888888888888888	11344262	20 hrs 24 mins ago	0xab2c8a7878d7a7	0x22c110050e56d2876009903609a2c3e1b3b415	0 Ether	0.00000000
0x00000000000000000000	11344000	20 hrs 58 mins ago	0x2935a2b2c110053	0x22c110050e56d2876009903609a2c3e1b3b415	0 Ether	0.00000000
0x52f1a2620910888888	11340243	1 day 11 hrs ago	0x40c10d8888888888	0x22c110050e56d2876009903609a2c3e1b3b415	0 Ether	0.00000000

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



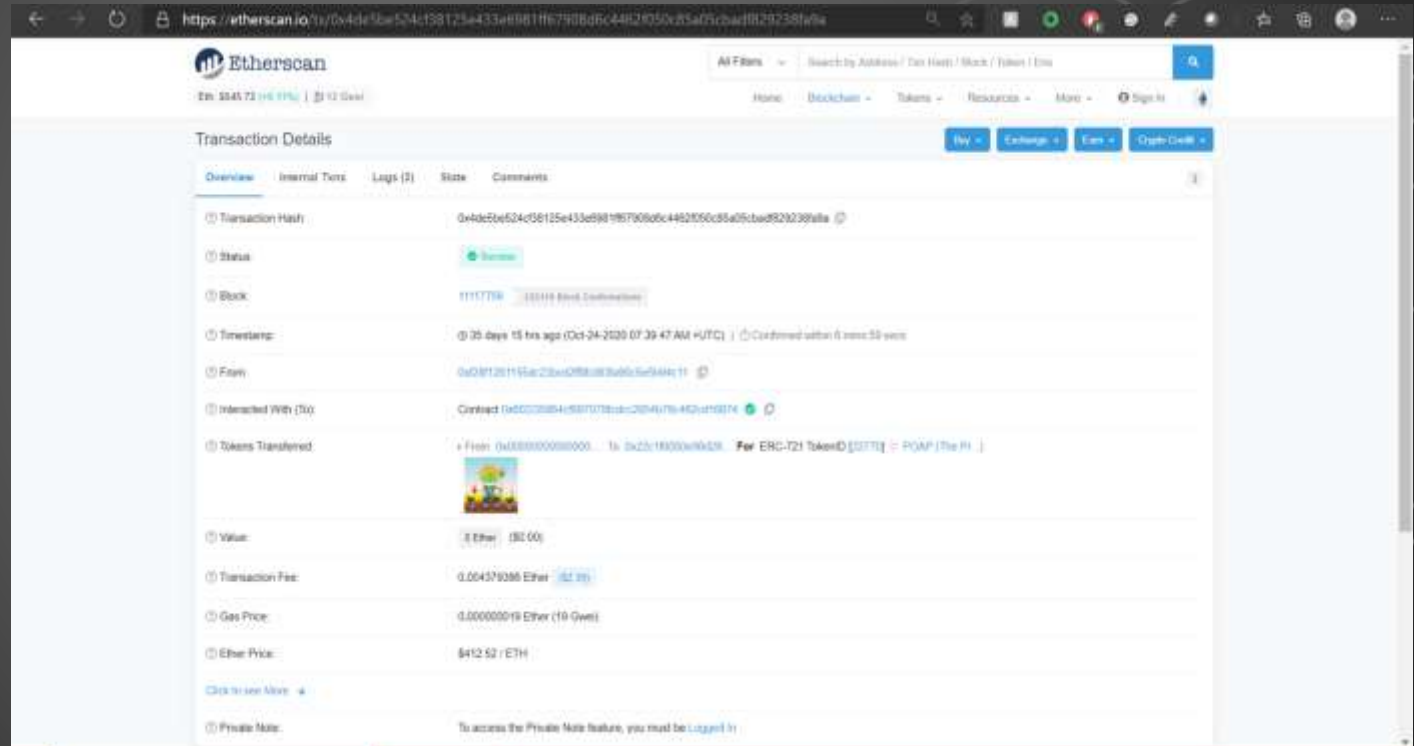
Broken Txn

Shows which transactions are POAP tokens

[illegible]

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. The top navigation bar includes the Etherscan logo, a search bar, and links for Home, Blockchain, Tokens, Resources, and More. The main content area is titled "Transaction Details" and shows a transaction hash: 0x4dc524c58125e433e598196790806c44628050c83a0fcbad8829238f9fa. The transaction status is "Success". The transaction details include the block number (11117798), timestamp (35 days 15 hrs ago), from address (0x081261155a22b0c098a083a065e5944c11), and to address (0x23183000a0652). The transaction value is 0.004579385 Ether. The transaction fee is 0.00000019 Ether. The gas price is 0.00000019 Ether (19 Gwei). The ether price is \$412.52 / ETH. The transaction is labeled as "ERC-721 TokenID [02770] POAP (The R)".

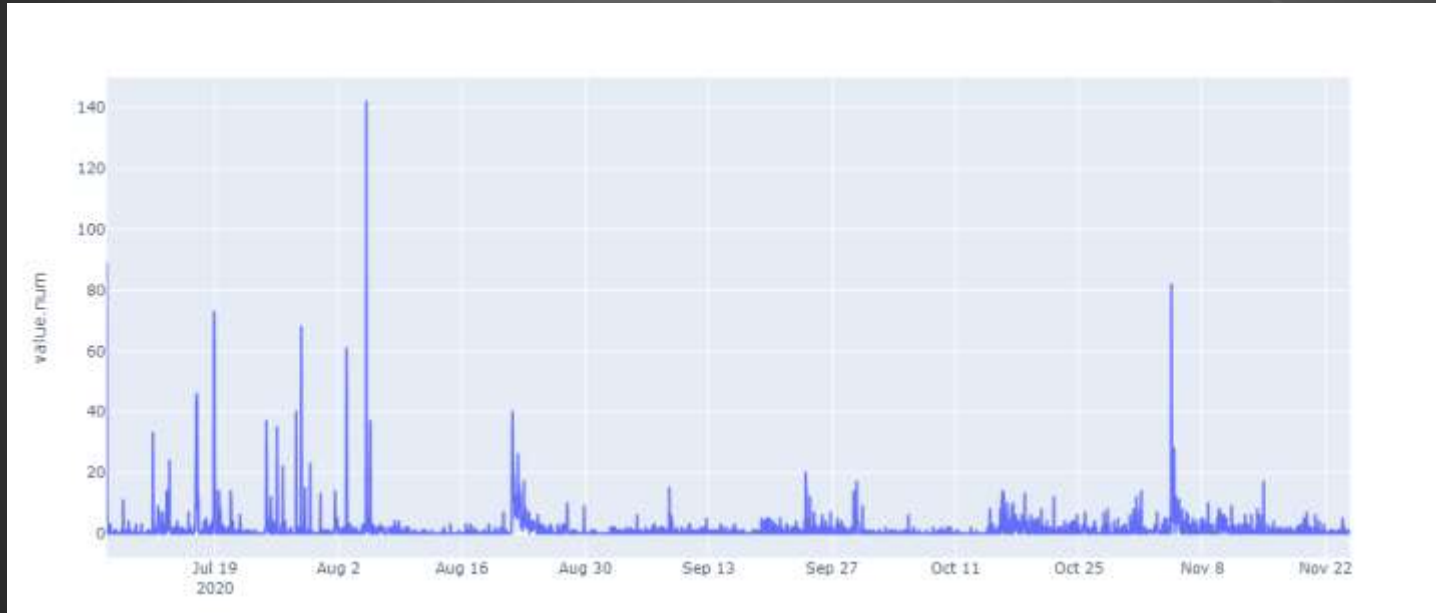
Transaction Hash	0x4dc524c58125e433e598196790806c44628050c83a0fcbad8829238f9fa
Status	Success
Block	11117798
Timestamp	35 days 15 hrs ago (Oct-24-2020 07:39:47 AM +UTC)
From	0x081261155a22b0c098a083a065e5944c11
Interacted With (To)	Contract (0x23183000a0652)
Tokens Transferred	+ From: 0x00 To: 0x23183000a0652 For ERC-721 TokenID [02770] POAP (The R)
Value	0.004579385 Ether
Transaction Fee	0.00000019 Ether
Gas Price	0.00000019 Ether (19 Gwei)
Ether Price	\$412.52 / ETH

8. Additional Data

Using Python to Further Analyze Token
Data



Number of POAP Transactions '20



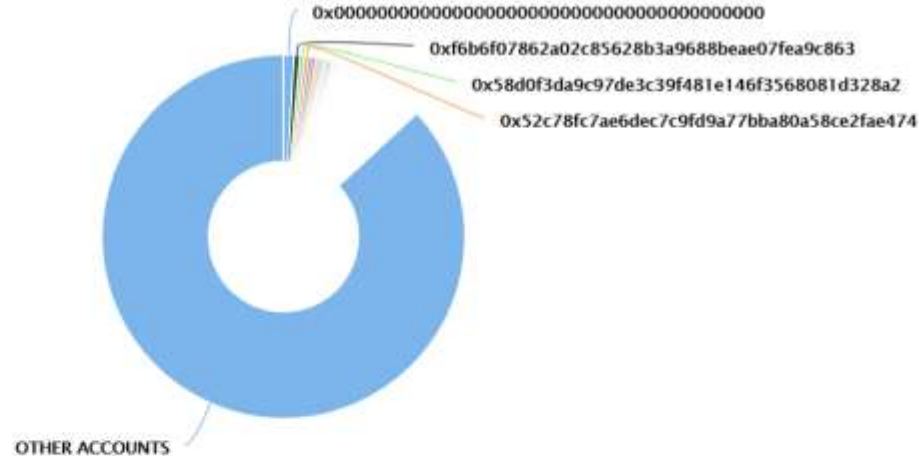
POAP Token Holdings

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	245
	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	196
2020-11-08	eth	516
	x dai	0
2020-11-15	eth	246
	x dai	0
2020-11-22	eth	107
	x dai	0
2020-11-29	eth	100
	x dai	0
2020-12-06	eth	5
	x dai	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
	x dai	0

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

9. Metric Findings

What the interns learned at Anyblock
Analytics

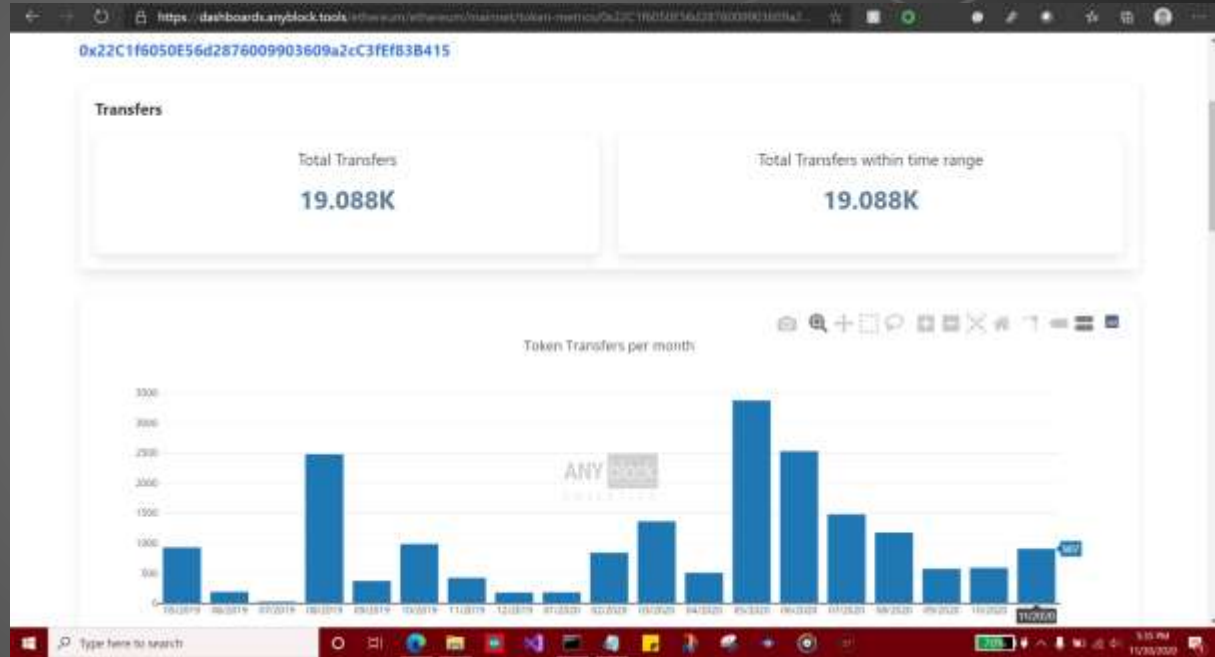


Metric Discoveries

○ 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

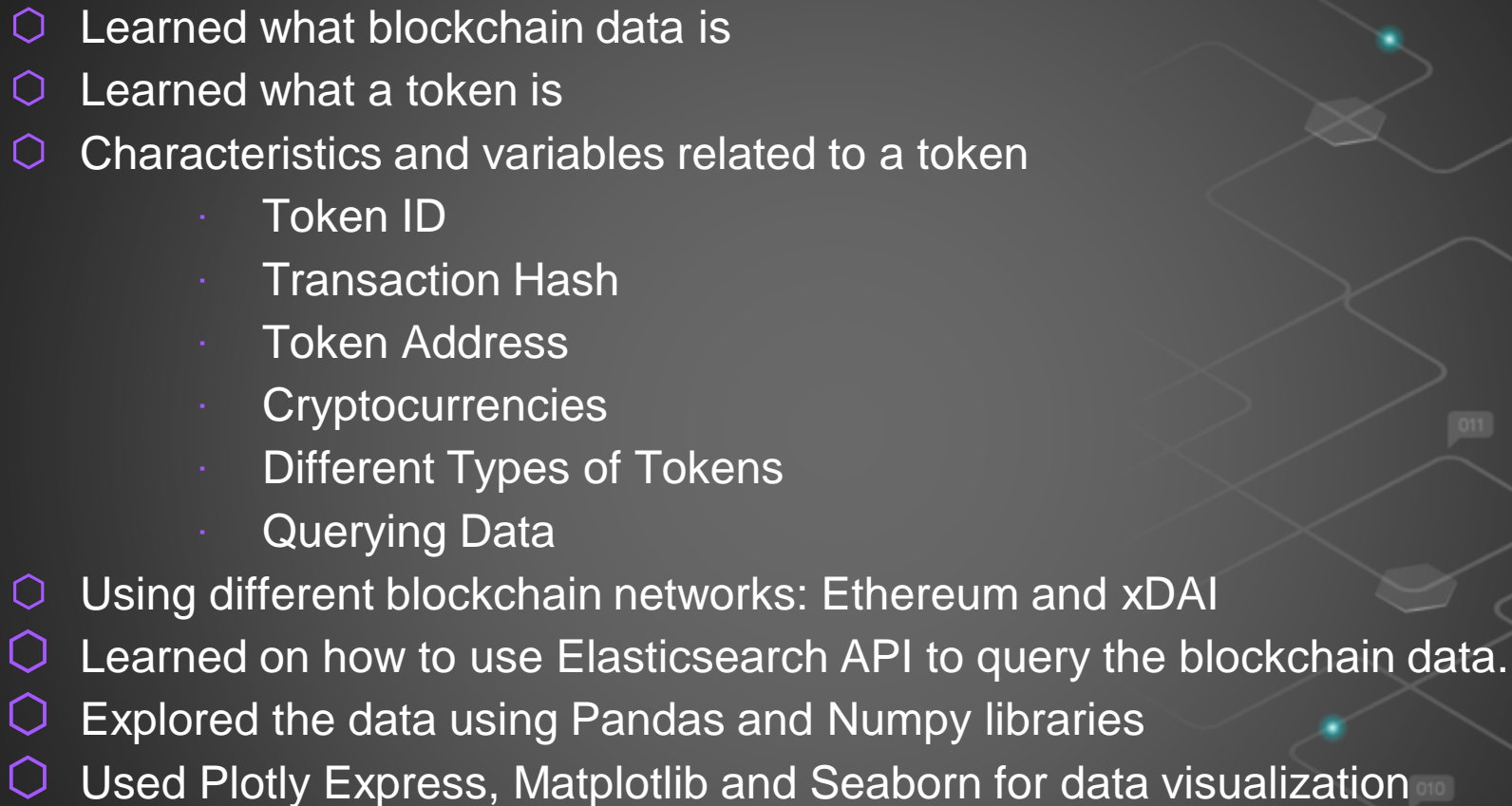
	A	B	C	D
1	Month	2019	2020	Total
2	January	0	187	187
3	February	0	841	841
4	March	0	1362	1362
5	April	0	507	507
6	May	928	3371	4299
7	June	190	2528	2718
8	July	18	1478	1496
9	August	2478	1176	3654
10	September	372	573	945
11	October	985	589	1574
12	November	123	907	1030
13	December	180		180
14	Total	5574	13514	19088
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

- On behalf from the three of us, we wanted to give thanks to:
 - CFO Friedrich “Freddy” Zwanzger
 - Data Scientist Yarkin Gocmen
 - Anyblock Analytics Team
 - i_XPERIENCE and Career Semester

An abstract geometric pattern on the right side of the slide, consisting of thin white lines forming a network of interconnected shapes. There are several small teal-colored dots and hexagonal shapes scattered throughout the pattern. Some of the shapes contain binary code: '001' in a small box at the top right, '011' in a small box in the middle right, and '010' in a small box at the bottom right.

THANK YOU!