```
from google.colab import files
uploaded = files.upload()
```

```
Choose Files astute-chart…05d75.json
• astute-charter-213919-5ec1a3605d75.json(application/json) - 2391 bytes, last modified: 3/25/2025 - 100% done
Saving astute-charter-213919-5ec1a3605d75.json to astute-charter-213919-5ec1a3605d75.json
```

```
import os
os.environ["GOOGLE_APPLICATION_CREDENTIALS"] = "astute-charter-213919-5ec1a3605d75.json"
```

```
from google.cloud import bigquery
client = bigquery.Client()

query = """ SELECT receipt_contract_address, COUNT(*) AS contract_deployments
FROM bigquery-public-data.crypto_ethereum.transactions
WHERE receipt_contract_address IS NOT NULL
GROUP BY receipt_contract_address
ORDER BY contract_deployments DESC LIMIT 10 """

df = client.query(query).to_dataframe()
df.head()
```

	receipt_contract_address	contract_deployments
0	0x824f9851585a0a44646ede85a8421f64c8185a49	1
1	0xd7a7776add9f09eb2ceaa99f3b3e97f423c19c91	1
2	0xf7cb463f71e76f31568b3ff90b2d9b047fb05398	1
3	0xa758fac9993f0e226ee0e2a1b374fd1d912cb44a	1
4	0xad327b1a67fa4ffa6b06f7a1204d7c01f233ae4e	1

Next steps: Generate code with df | View recommended plots | New interactive sheet

```
from google.cloud import bigquery
client = bigquery.Client()

query = """ SELECT AVG(confirmation_time_sec) AS avg_block_confirmation_time_sec
FROM (
  SELECT number, timestamp, LAG(timestamp) OVER (ORDER BY number) AS prev_timestamp,
   TIMESTAMP_DIFF(timestamp, LAG(timestamp) OVER (ORDER BY number), SECOND) AS confirmation_time_sec
   FROM bigquery-public-data.crypto_ethereum.blocks )
   WHERE confirmation_time_sec IS NOT NULL """
```

```
df = client.query(query).to_dataframe()
df.head()
```

	avg_block_confirmation_time_sec
0	78.777093

```
from google.cloud import bigquery
client = bigquery.Client()

query = """ SELECT *
FROM bigquery-public-data.crypto_ethereum.transactions
LIMIT 10 """

df = client.query(query).to_dataframe()
df.head()
```

	hash	nonce	transaction_index	from_address	
0	0x561ea0de300af7700ff4b013ddefb4310fdc666d8d09...	544	105	0xb981290d9d804075986482f0302c03a3cd2aff32	0x0000000000c2d145a252
1	0x71af03fea0537d46ac6c6dacf91001c1c13d2ecb76f7...	29	32	0x2d3608218deec0802ced63806702e413cf81eeff	0xa9ac43f5b5e38155a288
2	0x98b68854766094142d1030066aeebcb24bd3969bf508...	4146947	324	0x974caa59e49682cda0ad2bbe82983419a2ecc400	0xdac17f958d2ee523a220
3	0x2f28eb57ddfc969e7c0dc8960d5a8b40b6c04a019bba...	11084704	27	0xdfd5293d8e347dfe59e90efd55b2956a1343963d	0x3073f7aaa4db83f95e
4	0xb2863baacae1bc1b97c4cf833da5c1d5e7c5fb44446d...	37017	74	0x147ac0b39675769e55a0f0e7fdd3641b47963661	0xdac17f958d2ee523a220

5 rows × 25 columns

```
from google.cloud import bigquery
client = bigquery.Client()

query = """ SELECT
  DATE(block_timestamp) AS transaction_date,
  AVG(gas_price) / 1e9 AS avg_gas_price_gwei
FROM `bigquery-public-data.crypto_ethereum.transactions`
GROUP BY transaction_date
ORDER BY transaction_date DESC
LIMIT 3 """

df = client.query(query).to_dataframe()
df.head()
```

	transaction_date	avg_gas_price_gwei
0	2025-03-25	1.839871
1	2025-03-24	2.091352
2	2025-03-23	1.641668

Next steps: Generate code with df | View recommended plots | New interactive sheet

```
from google.cloud import bigquery
client = bigquery.Client()

query = """ SELECT
from_address,
to_address,
value / 1e18 AS eth_value,
block_number
FROM bigquery-public-data.crypto_ethereum.transactions
WHERE LOWER(to_address) IN (
'0x2c4bd064b998838076fa341a83d007fc2fa50957',
'0x5d22045daceab03b158031ecb7d9d06fad24609b'
)
ORDER BY block_number DESC
LIMIT 100 """

df = client.query(query).to_dataframe()
df.head()
```

	from_address	to_address	eth_value	block_number
0	0x5acaf86db8c7e24da9ef91a73707dfe5f076091a	0x5d22045daceab03b158031ecb7d9d06fad24609b	0E-9	22016001
1	0xc451b0191351ce308fdfd779d73814c910fc5ecb	0x5d22045daceab03b158031ecb7d9d06fad24609b	0E-9	22015956
2	0x5acaf86db8c7e24da9ef91a73707dfe5f076091a	0x5d22045daceab03b158031ecb7d9d06fad24609b	0E-9	21981539
3	0x8a6c80aab6497e2db35817817b593b79d78f6ae5	0x5d22045daceab03b158031ecb7d9d06fad24609b	0E-9	21977563
4	0x8a6c80aab6497e2db35817817b593b79d78f6ae5	0x5d22045daceab03b158031ecb7d9d06fad24609b	0E-9	21967625

Next steps: Generate code with df | View recommended plots | New interactive sheet

```
from google.cloud import bigquery
client = bigquery.Client()
```

```
query = """ SELECT number, timestamp FROM bigquery-public-data.crypto_ethereum.blocks ORDER BY number DESC LIMIT 5 """

df = client.query(query).to_dataframe()
df.head()
```

	number	timestamp
0	22124561	2025-03-25 14:37:47+00:00
1	22124560	2025-03-25 14:37:35+00:00
2	22124559	2025-03-25 14:37:23+00:00
3	22124558	2025-03-25 14:37:11+00:00
4	22124557	2025-03-25 14:36:59+00:00

Next steps: Generate code with df | View recommended plots | New interactive sheet

```
from google.cloud import bigquery
import pandas as pd

client = bigquery.Client()

query = """
SELECT DATE(block_timestamp) AS transaction_date,
       AVG(gas_price) / 1e9 AS avg_gas_price_gwei
FROM `bigquery-public-data.crypto_ethereum.transactions`
GROUP BY transaction_date
ORDER BY transaction_date DESC
LIMIT 300;
"""

df = client.query(query).to_dataframe()
print(df.head())
```

```
  transaction_date  avg_gas_price_gwei
0       2025-03-25            1.839731
1       2025-03-24            2.091352
2       2025-03-23            1.641668
3       2025-03-22            2.044824
4       2025-03-21            1.882264
```

```
import matplotlib.pyplot as plt

plt.figure(figsize=(12,6))
plt.plot(df['transaction_date'], df['avg_gas_price_gwei'], marker='o', linestyle='-')
```

```
plt.plot(df['transaction_date'], df['avg_gas_price_gwei'], marker='o', linestyle='-')
plt.xlabel('Date')
plt.ylabel('Avg Gas Price (Gwei)')
plt.title('Ethereum Gas Price Trends Over Time')
plt.xticks(rotation=45)
plt.show()
```