

```
In [33]: import math
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

```
In [34]: result = pd.read_csv("shastaTron.csv")
result.shape
```

```
Out[34]: (1146, 9)
```

```
In [35]: kk = result[["block_confirmation", "Confirmed_time"]]
kk.head(10)
```

```
Out[35]:
```

	block_confirmation	Confirmed_time
0	Confirmed by 83 blocks	4 mins 43 secs ago
1	Confirmed by 54 blocks	3 mins 10 secs ago
2	Confirmed by 50 blocks	2 mins 56 secs ago
3	Confirmed by 64 blocks	3 mins 47 secs ago
4	Confirmed by 23 blocks	1 min 16 secs ago
5	Confirmed by 54 blocks	3 mins 9 secs ago
6	Confirmed by 86 blocks	5 mins 4 secs ago
7	Confirmed by 77 blocks	4 mins 27 secs ago
8	Confirmed by 46 blocks	2 mins 45 secs ago
9	Confirmed by 38 blocks	2 mins 4 secs ago

```
In [36]: def block(k):
    if k!=k:
        return 0
    return int(k[13:15])

def timec(k):
    r=0
    i=0
    j=""
    while k[i]!=' ':
        j+=k[i]
        i+=1
    if k[i+1]=="m":
        r=int(j)*60
    elif k[i+1]=="s":
        return int(j)
    i+=1
    while k[i]!=' ':
        i+=1
    if k[i+1]=="a":
        return r
    j=""
    i+=1
    while k[i]!=' ':
        j+=k[i]
        i+=1
    return r+int(j)
```

```
In [37]: arr = []
for i in range(0,result.shape[0]):
    d = block(result['block_confirmation'].iloc[i])
    if d!=0:
        t=timec((result['Confirmed_time'].iloc[i]))
        arr.append(7 * t / d)
```

```
In [38]: df = pd.DataFrame(arr)
df.describe()
```

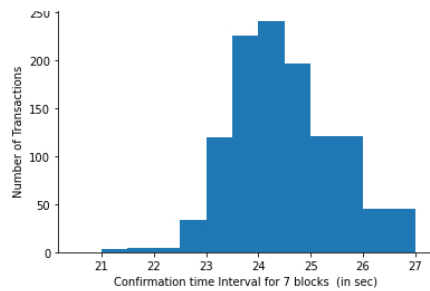
```
# 7 CONFIRMATIONS
```

```
Out[38]:
```

	0
count	1018.000000
mean	26.305858
std	21.165783
min	21.000000
25%	23.722222
50%	24.220307
75%	24.782282
max	256.200000

```
In [51]: plt.hist(arr, bins = [20.5,21,21.5,22,22.5,23,23.5,24,24.5,25,26,27])
plt.title("histogram")
plt.xlabel("Confirmation time Interval for 7 blocks (in sec)")
plt.ylabel("Number of Transactions")
plt.show()
```

histogram



```
In [41]: ar = []
for i in range(0,result.shape[0]):
    d = block(result['block_confirmation'].iloc[i])
    if d!=0:
        t=timec((result['Confirmed_time'].iloc[i]))
        ar.append(12 * t / d)
```

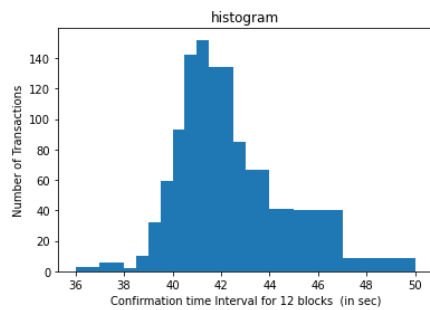
```
In [42]: df = pd.DataFrame(ar)
df.describe()

# 12
```

```
Out[42]:
```

	0
count	1018.000000
mean	45.095757
std	36.284199
min	36.000000
25%	40.666667
50%	41.520525
75%	42.483912
max	439.200000

```
In [50]: plt.hist(ar, bins = [36,37,38,38.5,39,39.5,40,40.5,41,41.5,42,42.5,43,44,45,47,50])
plt.title("histogram")
plt.xlabel("Confirmation time Interval for 12 blocks (in sec)")
plt.ylabel("Number of Transactions")
plt.show()
```



```
In [ ]:
```