```
import pandas as pd
import seaborn as sns
from matplotlib import dates as mpl_date
import matplotlib.pyplot as plt
```

```
df= pd.read_csv("CPU.csv")
```

```
df.drop(columns=df.columns[0], axis=1, inplace=True)
```

```
df.head(10)
```

	Time	Time_Elapsed	CPU_Precentage
0	04:18:35	0.101619	38.5
1	04:18:35	0.303596	22.5
2	04:18:36	0.507279	19.5
3	04:18:36	0.708261	22.5
4	04:18:36	0.909353	17.5
5	04:18:36	1.110466	50.0
6	04:18:36	1.311423	27.5
7	04:18:37	1.513453	87.2
8	04:18:37	1.714719	83.7
9	04:18:37	1.923213	78.6

```
df.describe()
```

	Time_Elapsed	CPU_Precentage
count	125501.000000	125501.000000
mean	12970.533870	19.507065
std	7479.023695	22.063576
min	0.101619	2.400000
25%	6502.351799	9.800000
50%	12970.002852	12.200000
75%	19454.696844	16.700000
max	25921.115942	100.000000

```
dfH = []
dfm = []
dfs = []
for index, row in df.iterrows():
    timestamp = row['Time']
    H,m,s = timestamp.split(':')
    dfH.append(H)
    dfm.append(m)
    dfs.append(s)

df['H'] = dfH
df['m'] = dfm
df['s'] = dfs

print(type(df))
df
```

```
<class 'pandas.core.frame.DataFrame'>
```

	Time	Time_Elapsed	CPU_Precentage	H	m	s
0	04:18:35	0.101619	38.5	04	18	35
1	04:18:35	0.303596	22.5	04	18	35
2	04:18:36	0.507279	19.5	04	18	36
3	04:18:36	0.708261	22.5	04	18	36
4	04:18:36	0.909353	17.5	04	18	36
...	...	...	...	...	...	...
125496	11:30:35	25920.309742	7.5	11	30	35
125497	11:30:36	25920.511587	10.0	11	30	36
125498	11:30:36	25920.712685	15.4	11	30	36
125499	11:30:36	25920.915095	15.0	11	30	36
125500	11:30:36	25921.115942	7.7	11	30	36

125501 rows × 6 columns

```
Time = []
for index, row in df.iterrows():
    Time.append(row['H']+':'+row['m']+':'+row['s'])

newDF = pd.DataFrame()
newDF['Time'] = Time
newDF['CPU_Precentage'] = df['CPU_Precentage']
newDF['Time'] = pd.to_datetime(newDF['Time'])
newDF
```

```
<ipython-input-7-47720ab77c2c>:8: UserWarning: Could not infer format, so each eleme
  newDF['Time'] = pd.to_datetime(newDF['Time'])
```

	Time	CPU_Precentage
0	2024-06-22 04:18:35	38.5
1	2024-06-22 04:18:35	22.5
2	2024-06-22 04:18:36	19.5
3	2024-06-22 04:18:36	22.5
4	2024-06-22 04:18:36	17.5
...	...	...
125496	2024-06-22 11:30:35	7.5
125497	2024-06-22 11:30:36	10.0
125498	2024-06-22 11:30:36	15.4
125499	2024-06-22 11:30:36	15.0
125500	2024-06-22 11:30:36	7.7

125501 rows × 2 columns

```
!pip install pandasql
```

```
Collecting pandasql
  Downloading pandasql-0.7.3.tar.gz (26 kB)
  Preparing metadata (setup.py) ... done
Requirement already satisfied: numpy in /usr/local/lib/python3.10/dist-packages (fro
Requirement already satisfied: pandas in /usr/local/lib/python3.10/dist-packages (fr
Requirement already satisfied: sqlalchemy in /usr/local/lib/python3.10/dist-packages
Requirement already satisfied: python-dateutil>=2.8.2 in /usr/local/lib/python3.10/d
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.10/dist-packag
Requirement already satisfied: tzdata>=2022.1 in /usr/local/lib/python3.10/dist-pack
Requirement already satisfied: typing-extensions>=4.6.0 in /usr/local/lib/python3.10
Requirement already satisfied: greenlet!=0.4.17 in /usr/local/lib/python3.10/dist-pa
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.10/dist-packages (
Building wheels for collected packages: pandasql
  Building wheel for pandasql (setup.py) ... done
  Created wheel for pandasql: filename=pandasql-0.7.3-py3-none-any.whl size=26771 sh
  Stored in directory: /root/.cache/pip/wheels/e9/bc/3a/8434bdcccf5779e72894a9b24fec
Successfully built pandasql
Installing collected packages: pandasql
Successfully installed pandasql-0.7.3
```

```
from pandasql import sqldf
```

```
sql = lambda q: sqldf(q, globals())
newDF = sqldf("SELECT * FROM newDF WHERE Time BETWEEN '2024-06-22 04:18:35  ' AND '2024-(
newDF
```

	Time	CPU_Precentage
0	2024-06-22 04:18:35.000000	38.5
1	2024-06-22 04:18:35.000000	22.5
2	2024-06-22 04:18:36.000000	19.5
3	2024-06-22 04:18:36.000000	22.5
4	2024-06-22 04:18:36.000000	17.5
...	...	...
119	2024-06-22 04:19:00.000000	87.8
120	2024-06-22 04:19:00.000000	85.0
121	2024-06-22 04:19:00.000000	78.0
122	2024-06-22 04:19:00.000000	90.2
123	2024-06-22 04:19:00.000000	45.5

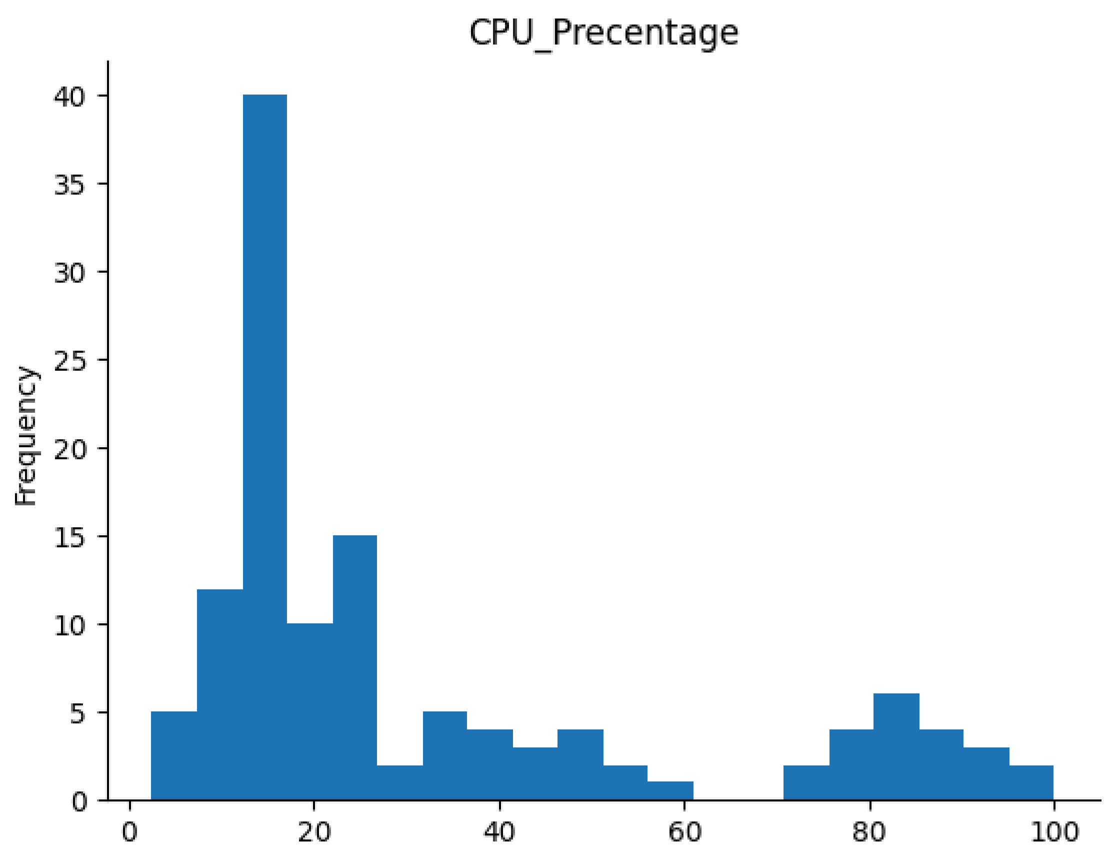
124 rows × 2 columns

Langkah berikutnya: Buat kode dengan `newDF` Lihat plot yang direkomendasikan

CPU_Precentage

```
# @title CPU_Precentage

from matplotlib import pyplot as plt
newDF['CPU_Precentage'].plot(kind='hist', bins=20, title='CPU_Precentage')
plt.gca().spines[['top', 'right',]].set_visible(False)
```



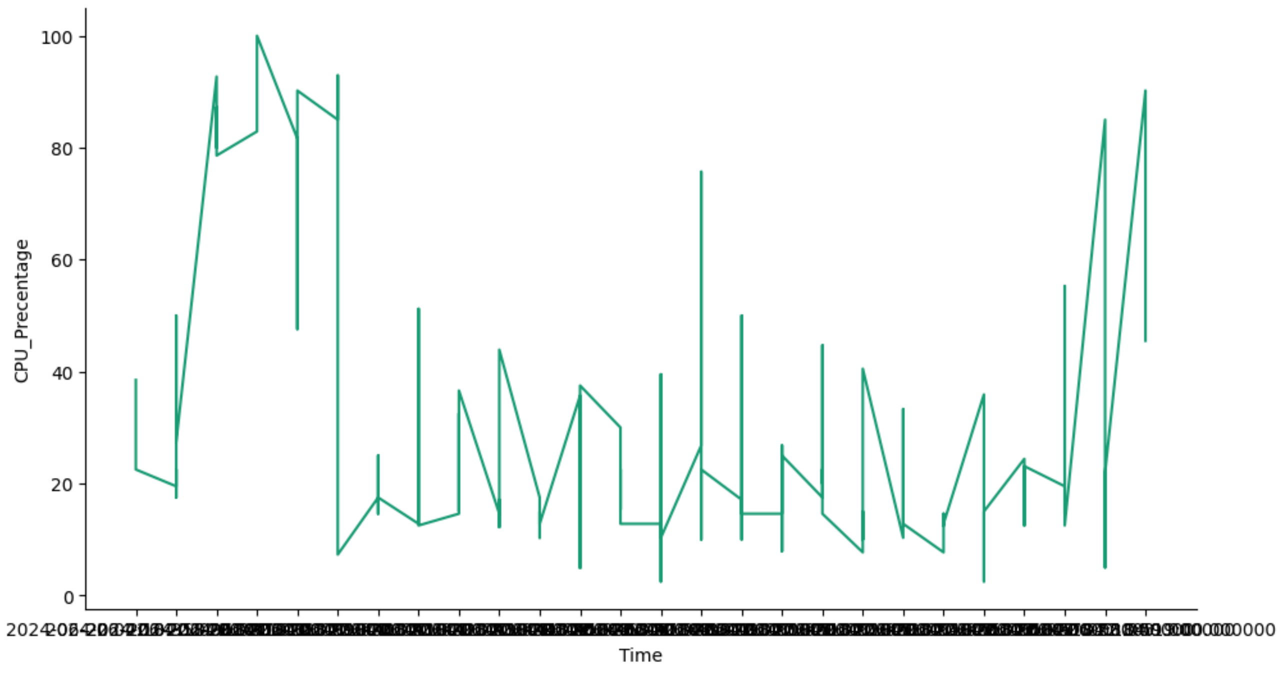
Time vs CPU_Precentage

```
# @title Time vs CPU_Precentage

from matplotlib import pyplot as plt
import seaborn as sns
def _plot_series(series, series_name, series_index=0):
  palette = list(sns.palettes.mpl_palette('Dark2'))
  xs = series['Time']
  ys = series['CPU_Precentage']

  plt.plot(xs, ys, label=series_name, color=palette[series_index % len(palette)])

fig, ax = plt.subplots(figsize=(10, 5.2), layout='constrained')
df_sorted = newDF.sort_values('Time', ascending=True)
_plot_series(df_sorted, '')
sns.despine(fig=fig, ax=ax)
plt.xlabel('Time')
_ = plt.ylabel('CPU_Precentage')
```

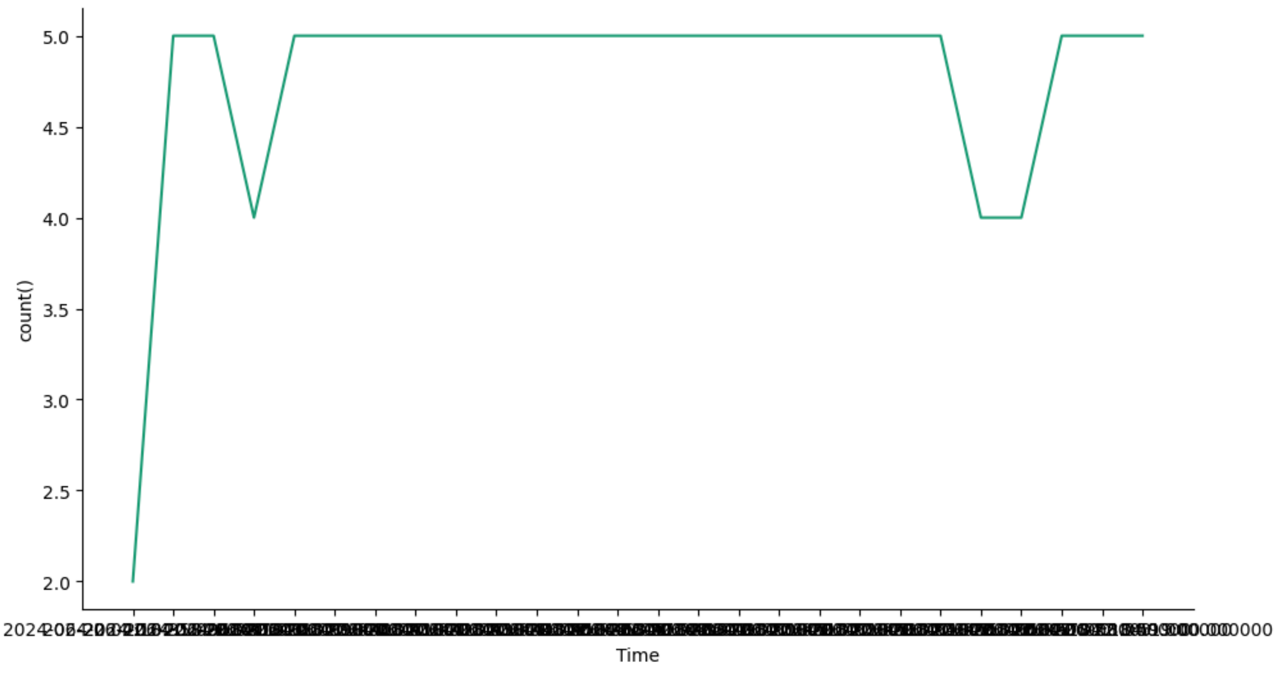


Time vs count()

```
# @title Time vs count()

from matplotlib import pyplot as plt
import seaborn as sns
def _plot_series(series, series_name, series_index=0):
  palette = list(sns.palettes.mpl_palette('Dark2'))
  counted = (series['Time']
                .value_counts()
              .reset_index(name='counts')
              .rename({'index': 'Time'}, axis=1)
              .sort_values('Time', ascending=True))
  xs = counted['Time']
  ys = counted['counts']
  plt.plot(xs, ys, label=series_name, color=palette[series_index % len(palette)])

fig, ax = plt.subplots(figsize=(10, 5.2), layout='constrained')
df_sorted = newDF.sort_values('Time', ascending=True)
_plot_series(df_sorted, '')
sns.despine(fig=fig, ax=ax)
plt.xlabel('Time')
_ = plt.ylabel('count()')
```



CPU_Precentage

```
# @title CPU_Precentage

from matplotlib import pyplot as plt
newDF['CPU_Precentage'].plot(kind='line', figsize=(8, 4), title='CPU_Precentage')
plt.gca().spines[['top', 'right']].set_visible(False)
```