

```
In [1]: # Import necessary libraries
import pandas as pd # Pandas for data manipulation
import matplotlib.pyplot as plt # Matplotlib for basic plotting
import seaborn as sns # Seaborn for statistical data visualization
```

```
In [2]: # Read the CSV file into a DataFrame
df = pd.read_csv("all_seasons.csv")
```

```
In [3]: # Rename selected columns for better readability
df.rename(columns = {'player_name':'name', 'team_abbreviation':'team', 'player_height':'
                    'pts':'avg_pts', 'reb':'avg_reb', 'ast':'avg_ast'}, inplace = True)
```

```
In [4]: # Display the first few rows of the DataFrame
df.head()
```

```
Out[4]:
```

	Unnamed: 0	name	team	age	height	weight	college	country	draft_year	draft_round
0	0	Randy Livingston	HOU	22.0	193.04	94.800728	Louisiana State	USA	1996	2
1	1	Gaylon Nickerson	WAS	28.0	190.50	86.182480	Northwestern Oklahoma	USA	1994	2
2	2	George Lynch	VAN	26.0	203.20	103.418976	North Carolina	USA	1993	1
3	3	George McCloud	LAL	30.0	203.20	102.058200	Florida State	USA	1989	1
4	4	George Zidek	DEN	23.0	213.36	119.748288	UCLA	USA	1995	1

5 rows x 22 columns

```
In [15]: # Top Scorers
NumTopScorers = 10
top_scorers_names = df.groupby(['name'])['pts'].sum().sort_values(ascending=False).index
top_scorers_names
```

```
Out[15]: Index(['LeBron James', 'Kobe Bryant', 'Dirk Nowitzki', 'Carmelo Anthony',
                'Kevin Durant', 'Tim Duncan', 'Paul Pierce', 'Vince Carter',
                'Kevin Garnett', 'James Harden'],
                dtype='object', name='name')
```

```
In [25]: # Display the first 10 rows of data
df.head(11)
```

```
Out[25]:
```

	Unnamed: 0	name	team	age	height	weight	college	country	draft_year	draft_round
0	0	Randy Livingston	HOU	22.0	193.04	94.800728	Louisiana State	USA	1996	2
1	1	Gaylon Nickerson	WAS	28.0	190.50	86.182480	Northwestern Oklahoma	USA	1994	2
2	2	George Lynch	VAN	26.0	203.20	103.418976	North Carolina	USA	1993	1
3	3	George McCloud	LAL	30.0	203.20	102.058200	Florida State	USA	1989	1
4	4	George Zidek	DEN	23.0	213.36	119.748288	UCLA	USA	1995	1

5	5	Gerald Wilkins	ORL	33.0	198.12	102.058200	Tennessee-Chattanooga	USA	1985	2
6	6	Gheorghe Muresan	WAS	26.0	231.14	137.438376	None	USA	1993	2
7	7	Glen Rice	CHH	30.0	203.20	99.790240	Michigan	USA	1989	1
8	8	Glenn Robinson	MIL	24.0	200.66	106.594120	Purdue	USA	1994	1
9	9	Grant Hill	DET	24.0	203.20	102.058200	Duke	USA	1994	1
10	10	Gary Trent	POR	22.0	203.20	113.398000	Ohio	USA	1995	1

11 rows × 28 columns

```
In [39]: # Display the last few rows of the data
df.tail()
```

Out[39]:

	Unnamed: 0	name	team	age	height	weight	college	country	draft_year	draft_round
12839	12839	Joel Embiid	PHI	29.0	213.36	127.005760	Kansas	Cameroon	2014	1
12840	12840	John Butler Jr.	POR	20.0	213.36	86.182480	Florida State	USA	Undrafted	Undrafted
12841	12841	John Collins	ATL	25.0	205.74	102.511792	Wake Forest	USA	2017	1
12842	12842	Jericho Sims	NYK	24.0	208.28	113.398000	Texas	USA	2021	2
12843	12843	JaMychal Green	GSW	33.0	205.74	102.965384	Alabama	USA	Undrafted	Undrafted

5 rows × 28 columns

```
In [6]: # Calculate cumulative sums for points, rebounds, and assists
df['total_pts'] = df.groupby('name')['pts'].cumsum()
df['total_reb'] = df.groupby('name')['reb'].cumsum()
df['total_ast'] = df.groupby('name')['ast'].cumsum()
```

```
In [7]: # Display the first few rows of the DataFrame for Kyrie Irving
df[df['name']=='Kyrie Irving'].head()
```

Out[7]:

	Unnamed: 0	name	team	age	height	weight	college	country	draft_year	draft_round	...	us
6734	6734	Kyrie Irving	CLE	20.0	190.5	86.636072	Duke	Australia	2011	1	...	
7594	7594	Kyrie Irving	CLE	21.0	190.5	86.636072	Duke	Australia	2011	1	...	
8027	8027	Kyrie Irving	CLE	22.0	190.5	87.543256	Duke	Australia	2011	1	...	
8508	8508	Kyrie Irving	CLE	23.0	190.5	87.543256	Duke	Australia	2011	1	...	
8984	8984	Kyrie Irving	CLE	24.0	190.5	87.543256	Duke	Australia	2011	1	...	

5 rows × 28 columns

```
In [30]: # Calculate Total Points, Rebounds, and Assists
df['pts'] = (df['gp']*df['avg_pts']).astype(int)
df['reb'] = (df['gp']*df['avg_reb']).astype(int)
df['ast'] = (df['gp']*df['avg_ast']).astype(int)
```

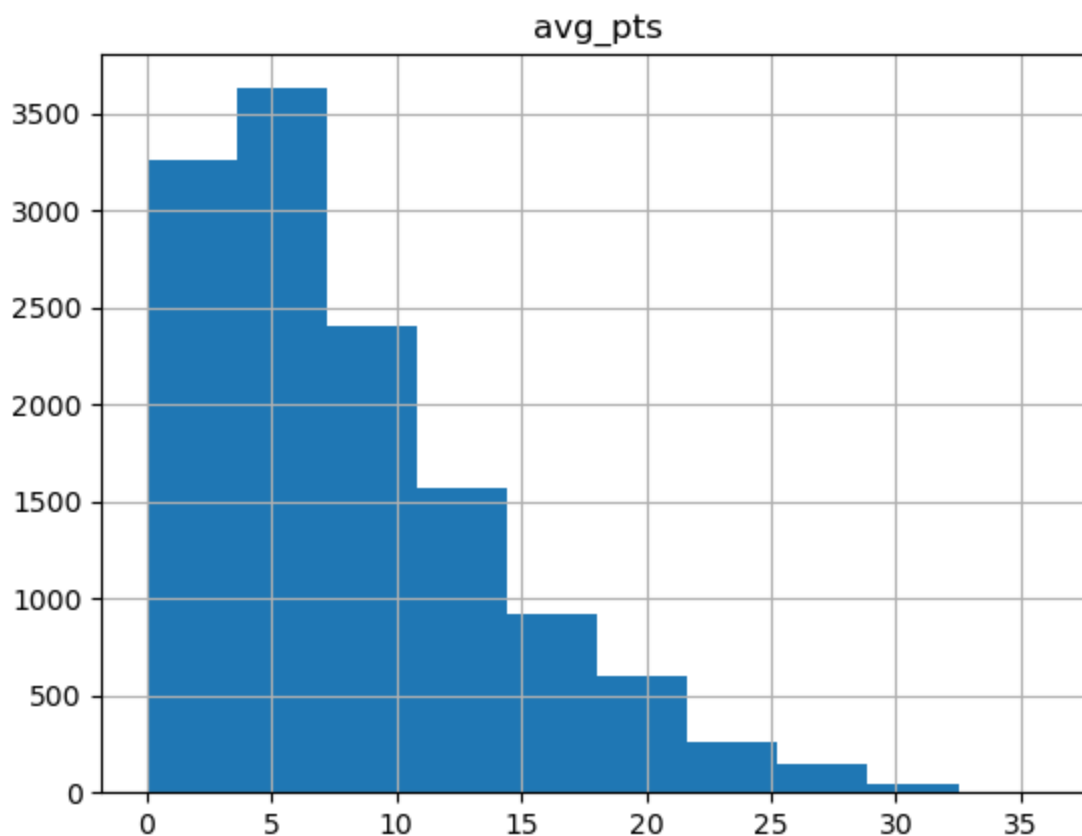
```
In [31]: # Display first few rows
df.head()
```

```
Out[31]:
```

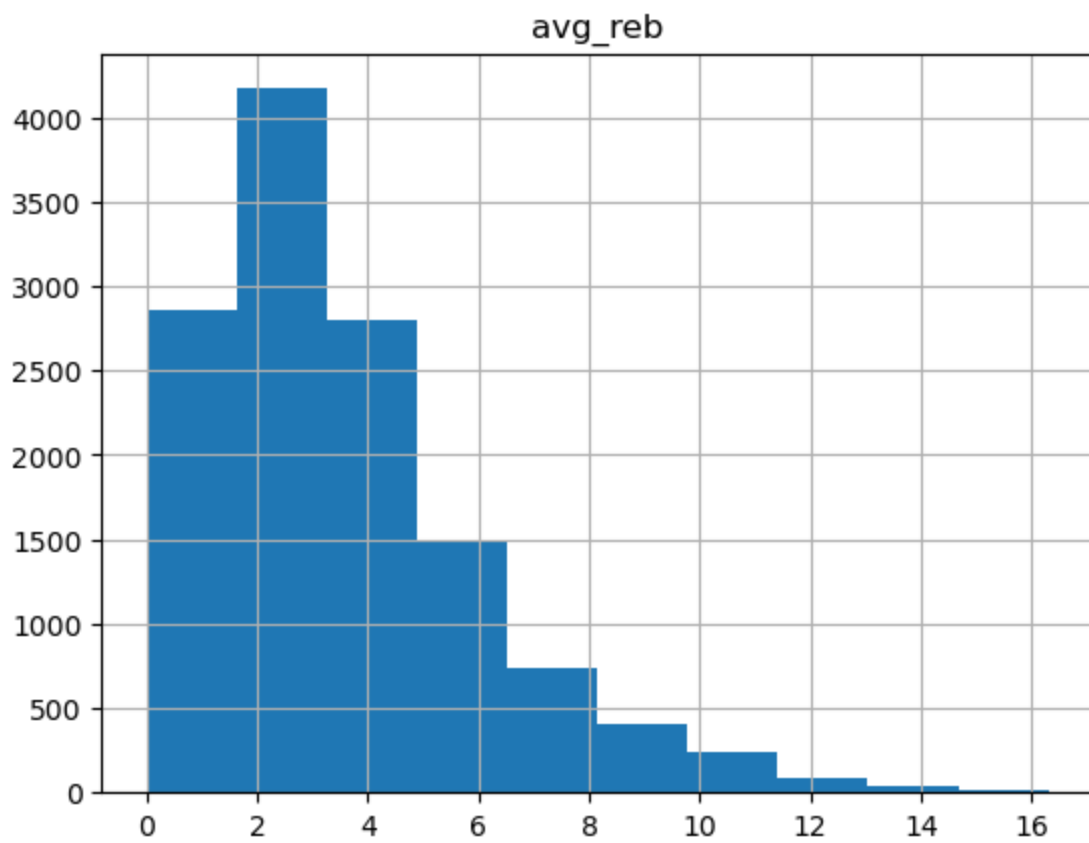
	Unnamed: 0	name	team	age	height	weight	college	country	draft_year	draft_round
0	0	Randy Livingston	HOU	22.0	193.04	94.800728	Louisiana State	USA	1996	2
1	1	Gaylon Nickerson	WAS	28.0	190.50	86.182480	Northwestern Oklahoma	USA	1994	2
2	2	George Lynch	VAN	26.0	203.20	103.418976	North Carolina	USA	1993	1
3	3	George McCloud	LAL	30.0	203.20	102.058200	Florida State	USA	1989	1
4	4	George Zidek	DEN	23.0	213.36	119.748288	UCLA	USA	1995	1

5 rows × 28 columns

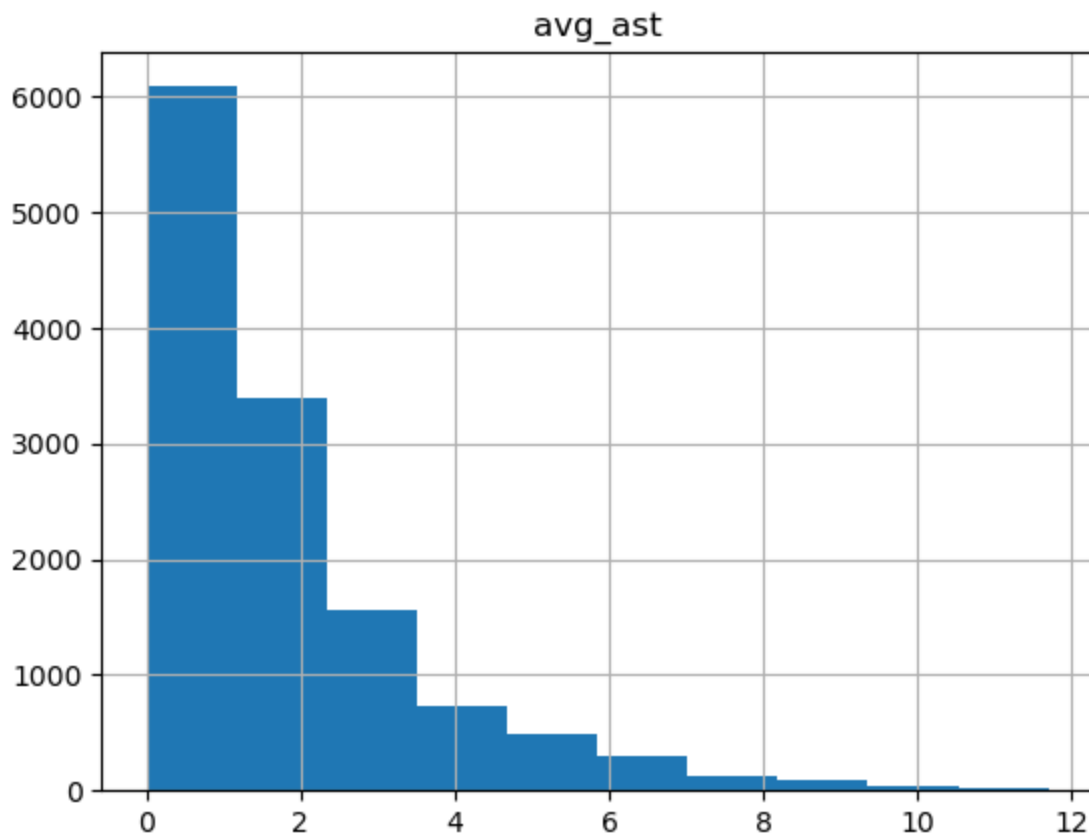
```
In [35]: df.hist(['avg_pts']); # Histograms for Average Points
```



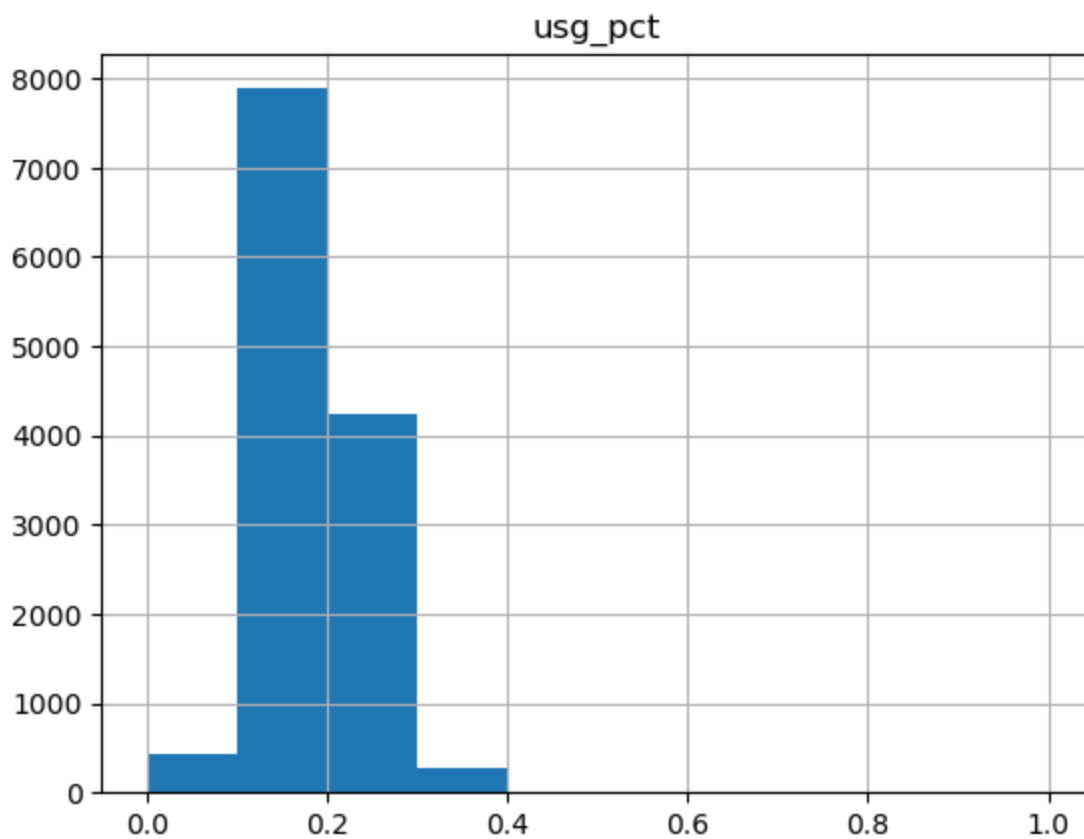
```
In [32]: # Average Rebounds
df.hist(['avg_reb']);
```



```
In [36]: # Average Assists  
df.hist(['avg_ast']);
```



```
In [38]: # Usage Percentage  
df.hist(['usg_pct']);
```



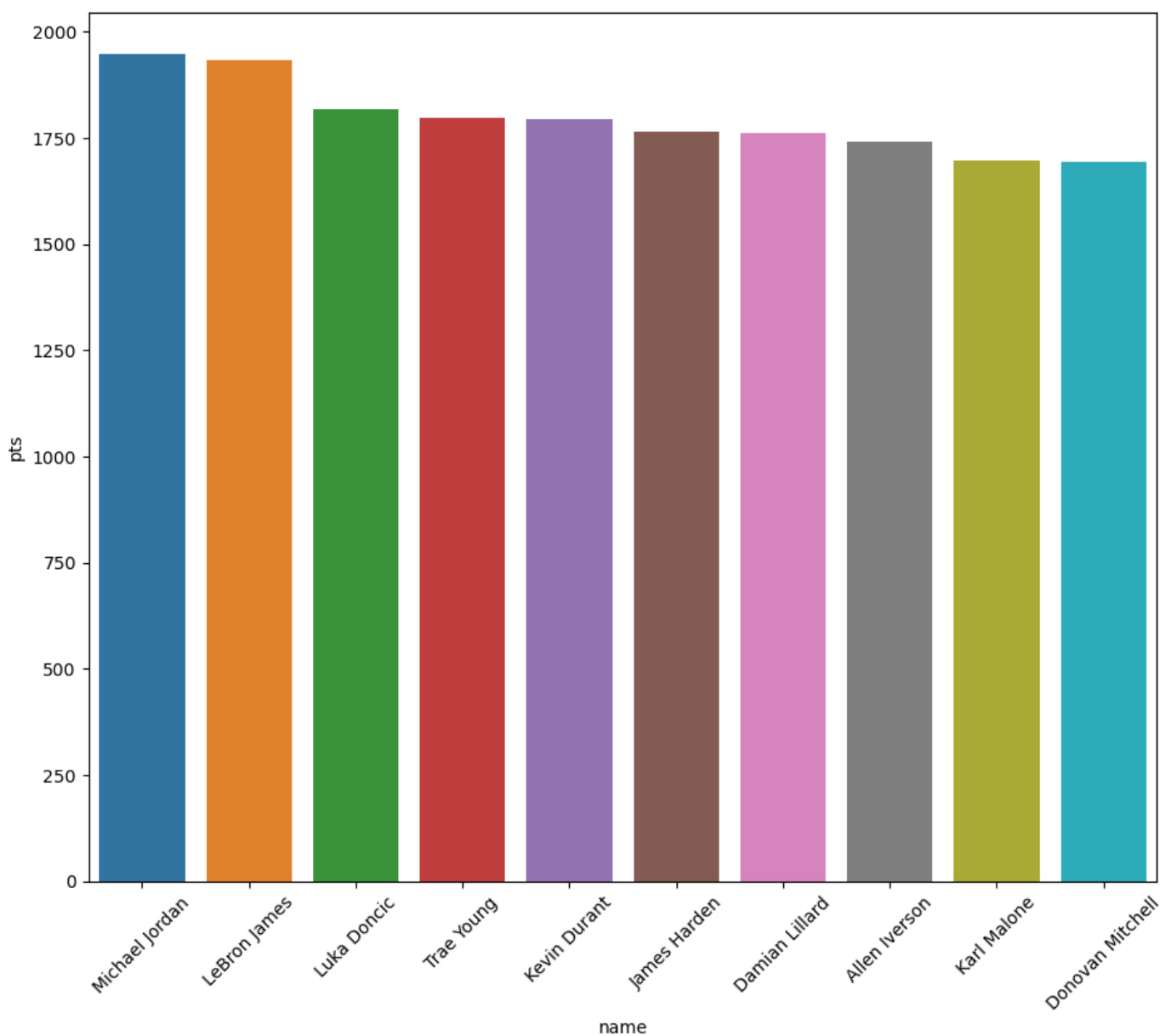
```
In [8]: # Create a DataFrame containing mean points for the top 10 players
pts_data = pd.DataFrame(df.groupby('name')['pts'].mean().sort_values(ascending = False)).
```

```
In [9]: # Display the resulting DataFrame
pts_data
```

```
Out[9]:
```

	name	pts
0	Michael Jordan	1948.500000
1	LeBron James	1932.050000
2	Luka Doncic	1818.800000
3	Trae Young	1797.200000
4	Kevin Durant	1792.400000
5	James Harden	1763.285714
6	Damian Lillard	1762.090909
7	Allen Iverson	1741.142857
8	Karl Malone	1697.875000
9	Donovan Mitchell	1694.166667

```
In [11]: # Create a bar plot for the top 10 players with the highest mean points
plt.figure(figsize = (11,9) , dpi = 100)
sns.barplot(data = pts_data , x = 'name' , y = 'pts')
plt.xticks(rotation = 45);
```



```
In [40]: !pip install -U notebook-as-pdf
```

```
Requirement already satisfied: notebook-as-pdf in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (0.5.0)
Requirement already satisfied: nbconvert in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from notebook-as-pdf) (6.5.4)
Requirement already satisfied: pypeteer in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from notebook-as-pdf) (1.0.2)
Requirement already satisfied: PyPDF2 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from notebook-as-pdf) (3.0.1)
Requirement already satisfied: lxml in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (4.9.2)
Requirement already satisfied: beautifulsoup4 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (4.12.2)
Requirement already satisfied: bleach in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (4.1.0)
Requirement already satisfied: defusedxml in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (0.7.1)
Requirement already satisfied: entrypoints>=0.2.2 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (0.4)
Requirement already satisfied: jinja2>=3.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (3.1.2)
Requirement already satisfied: jupyter-core>=4.7 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (5.3.0)
Requirement already satisfied: jupyterlab-pygments in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (0.1.2)
```

Requirement already satisfied: MarkupSafe>=2.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (2.1.1)

Requirement already satisfied: mistune<2,>=0.8.1 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (0.8.4)

Requirement already satisfied: nbclient>=0.5.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (0.5.13)

Requirement already satisfied: nbformat>=5.1 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (5.7.0)

Requirement already satisfied: packaging in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (23.0)

Requirement already satisfied: pandocfilters>=1.4.1 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (1.5.0)

Requirement already satisfied: pygments>=2.4.1 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (2.15.1)

Requirement already satisfied: tinycss2 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (1.2.1)

Requirement already satisfied: traitlets>=5.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbconvert->notebook-as-pdf) (5.7.1)

Requirement already satisfied: appdirs<2.0.0,>=1.4.3 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from pypeteer->notebook-as-pdf) (1.4.4)

Requirement already satisfied: certifi>=2021 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from pypeteer->notebook-as-pdf) (2023.7.22)

Requirement already satisfied: importlib-metadata>=1.4 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from pypeteer->notebook-as-pdf) (6.0.0)

Requirement already satisfied: pyee<9.0.0,>=8.1.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from pypeteer->notebook-as-pdf) (8.2.2)

Requirement already satisfied: tqdm<5.0.0,>=4.42.1 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from pypeteer->notebook-as-pdf) (4.65.0)

Requirement already satisfied: urllib3<2.0.0,>=1.25.8 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from pypeteer->notebook-as-pdf) (1.26.16)

Requirement already satisfied: websockets<11.0,>=10.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from pypeteer->notebook-as-pdf) (10.4)

Requirement already satisfied: zipp>=0.5 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from importlib-metadata>=1.4->pypeteer->notebook-as-pdf) (3.11.0)

Requirement already satisfied: platformdirs>=2.5 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from jupyter-core>=4.7->nbconvert->notebook-as-pdf) (2.5.2)

Requirement already satisfied: jupyter-client>=6.1.5 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbclient>=0.5.0->nbconvert->notebook-as-pdf) (7.4.9)

Requirement already satisfied: nest-asyncio in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbclient>=0.5.0->nbconvert->notebook-as-pdf) (1.5.6)

Requirement already satisfied: fastjsonschema in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbformat>=5.1->nbconvert->notebook-as-pdf) (2.16.2)

Requirement already satisfied: jsonschema>=2.6 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from nbformat>=5.1->nbconvert->notebook-as-pdf) (4.17.3)

Requirement already satisfied: soupsieve>1.2 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from beautifulsoup4->nbconvert->notebook-as-pdf) (2.4)

Requirement already satisfied: six>=1.9.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from bleach->nbconvert->notebook-as-pdf) (1.16.0)

Requirement already satisfied: webencodings in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from bleach->nbconvert->notebook-as-pdf) (0.5.1)

Requirement already satisfied: attrs>=17.4.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from jsonschema>=2.6->nbformat>=5.1->nbconvert->notebook-as-pdf) (22.1.0)

Requirement already satisfied: pyrsistent!=0.17.0,!0.17.1,!0.17.2,>=0.14.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from jsonschema>=2.6->nbformat>=5.1->nbconvert->notebook-as-pdf) (0.18.0)

Requirement already satisfied: python-dateutil>=2.8.2 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from jupyter-client>=6.1.5->nbclient>=0.5.0->nbconvert->notebook-as-pdf) (2.8.2)

Requirement already satisfied: pyzmq>=23.0 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from jupyter-client>=6.1.5->nbclient>=0.5.0->nbconvert->notebook-as-pdf) (23.2.0)

Requirement already satisfied: tornado>=6.2 in /Users/sameerbaloch/anaconda3/lib/python3.11/site-packages (from jupyter-client>=6.1.5->nbclient>=0.5.0->nbconvert->notebook-as-pdf) (6.3.2)

In [41]: !pyppeteer-install

chromium is already installed.

In []: