

# DAY – 9

[13.02.2025]

Exp : 36 – 40

The screenshot shows a Jupyter Notebook interface with a dark theme. The top bar includes the CO logo, the file name "Untitled0.ipynb", and standard menu options: File, Edit, View, Insert, Runtime, Tools, Help. Below the menu is a toolbar with search, code, text, and run all buttons. The left sidebar contains icons for file operations like new, open, save, and refresh. The main area displays a Python script and its output.

```
import pandas as pd, matplotlib.pyplot as plt
df = pd.DataFrame([{"Name": ["A", "B", "C", "D", "E"], "Age": [22, 28, 30, 26, 32], "Goals": [10, 15, 7, 20, 5], "Salary": [50, 80, 60, 90, 70], "Position": ["FW", "MF", "DF", "FW", "GK"]})
print(df.nlargest(5, "Goals")[["Name", "Goals"]])
print("Avg Age:", df["Age"].mean())
df["Position"].value_counts().plot(kind="bar"); plt.show()
```

... Name Goals  
3 D 20  
1 B 15  
0 A 10  
2 C 7  
4 E 5  
Avg Age: 27.6

A bar chart titled "Position" is displayed. The x-axis categories are FW, MF, DF, and GK. The y-axis ranges from 0.00 to 2.00. The bars show values of approximately 2.00 for FW, 1.00 for MF, 1.00 for DF, and 1.00 for GK.

Untitled0.ipynb

File Edit View Insert Runtime Tools Help

Commands + Code + Text ▶ Run all

[30] ✓ 0s

```
import pandas as pd
data = {"City": ["A", "B", "C"], "Temp": [[20, 30, 25], [15, 18, 20], [25, 27, 26]]}
df = pd.DataFrame(data)
df["Std"] = df["Temp"].apply(lambda x: pd.Series(x).std())
print("Most Consistent City:", df.loc[df["Std"].idxmin(), "City"])
```

Most Consistent City: C

[31] ✓ 0s

```
import numpy as np, matplotlib.pyplot as plt
from sklearn.cluster import KMeans
X = np.array([[200,3],[300,4],[800,9],[900,10]])
k = KMeans(2).fit(X)
plt.scatter(X[:,0],X[:,1],c=k.labels_); plt.show()
```

...

CO Untitled0.ipynb ⭐ ⚙

File Edit View Insert Runtime Tools Help

Commands + Code + Text ▶ Run all ▶

[28] ✓ 0s

```
import pandas as pd, numpy as np
prices = pd.Series([100,102,98,105,110])
print("Mean:", prices.mean(), "Std Dev:", prices.std())
```

Mean: 103.0 Std Dev: 4.69041575982343

[29] ✓ 1s

▶ import numpy as np, matplotlib.pyplot as plt
study = np.array([2,4,6,8,10])
score = np.array([40,55,65,80,90])
print("Correlation:", np.corrcoef(study,score)[0,1])
plt.scatter(study,score); plt.show()

... Correlation: 0.9976086055845276

A scatter plot with 'study' on the x-axis (ranging from 2 to 10) and 'score' on the y-axis (ranging from 40 to 90). Five data points are plotted at (2, 40), (4, 55), (6, 65), (8, 80), and (10, 90), showing a clear positive linear trend.