

# DAY – 6

[10.02.2025]

Exp : 21-25

The image shows two Jupyter Notebook sessions side-by-side.

**Top Session:**

- Code cell 12 (5s):

```
from sklearn.neighbors import KNeighborsClassifier
import numpy as np
X, y = np.array([[1,2],[2,3],[6,5],[7,8]]), np.array([0,0,1,1])
k = int(input("Enter k: "))
model = KNeighborsClassifier(k).fit(X, y)
print("Prediction:", model.predict([list(map(float,input().split()))]))[0])
```
- Output:

```
... Enter k: 3
6 6
Prediction: 1
```

**Bottom Session:**

- Code cell 9 (0s):

```
import numpy as np, matplotlib.pyplot as plt
from scipy.stats import ttest_ind
c, t = np.random.normal(50,5,30), np.random.normal(55,5,30)
p = ttest_ind(t, c).pvalue
plt.hist(c, alpha=0.5); plt.hist(t, alpha=0.5)
plt.title(f"P-value = {p:.4f}"); plt.show()
```
- Output:A histogram comparing two datasets, 'c' and 't'. The x-axis ranges from approximately 40 to 68, and the y-axis ranges from 0 to 8. The distribution for 'c' (blue) peaks around 48, while the distribution for 't' (orange) peaks around 55. The title of the plot is "P-value = 0.0001".

Untitled0.ipynb

```
File Edit View Insert Runtime Tools Help  
Commands + Code + Text ▶ Run all  
[8] ✓ 0s  
import pandas as pd, numpy as np  
from scipy.stats import norm  
  
# Create a dummy customer_reviews.csv file  
dummy_data = {'rating': np.random.randint(1, 6, size=100)}  
df_dummy = pd.DataFrame(dummy_data)  
df_dummy.to_csv("customer_reviews.csv", index=False)  
  
r = pd.read_csv("customer_reviews.csv")["rating"]  
m, sd, n = r.mean(), r.std(), len(r)  
z = norm.ppf(0.975)  
print("Average:", m, "CI:", (m-z*sd/np.sqrt(n), m+z*sd/np.sqrt(n)))  
... Average: 3.22 CI: (np.float64(2.9392307151514516), np.float64(3.5007692848485488))
```

Untitled0.ipynb

```
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Commands + Code + Text ▶ Run all  
[6] ✓ 42s  
import numpy as np, pandas as pd  
from scipy.stats import norm  
  
# Create sample data if file not found  
try:  
    x = pd.read_csv("rare_elements.csv", header=None)[0]  
except FileNotFoundError:  
    x = pd.Series(np.random.normal(50, 10, 100))  
  
n, c = int(input("Sample size: ")), float(input("Confidence level: "))  
s = x.sample(n); m, sd = s.mean(), s.std()  
z = norm.ppf((1 + c) / 2)  
print("Mean:", m, "CI:", (m - z*sd/np.sqrt(n), m + z*sd/np.sqrt(n)))  
... Sample size: 86  
Confidence level: 76  
Mean: 50.765417110890574 CI: (np.float64(nan), np.float64(nan))
```

Untitled0.ipynb

```
File Edit View Insert Runtime Tools Help  
Commands + Code + Text ▶ Run all  
[14] ✓ 27s  
from sklearn.datasets import load_iris  
from sklearn.tree import DecisionTreeClassifier  
d = load_iris()  
model = DecisionTreeClassifier().fit(d.data, d.target)  
x = list(map(float, input("Enter 4 features: ").split()))  
print("Species:", d.target_names[model.predict([x])[0]])  
... Enter 4 features: 3.4 4.6 5.9 5.2  
Species: virginica
```