

# Yash Nilesh Kasare (AI&DS) - 24

## Assignment - 06

1. Create a Pandas DataFrame from the following dataset:

Name Age Salary Department

John 25 50000 HR

Alice 30 70000 IT

Bob 35 60000 Finance

Carol 28 65000 Marketing

David 40 80000 IT

- Display the first and last two rows of the DataFrame.
- Retrieve the Salary column and compute its mean and standard deviation.
- Filter employees who are older than 30 and belong to the IT department.
- Add a new column Bonus where the bonus is 10% of the salary.

```
import pandas as pd
```

Step 1: Create the DataFrame

```
data = {  
    'Name': ['John', 'Alice', 'Bob', 'Carol', 'David'],  
    'Age': [25, 30, 35, 28, 40],  
    'Salary': [50000, 70000, 60000, 65000, 80000],  
    'Department': ['HR', 'IT', 'Finance', 'Marketing', 'IT']  
}  
  
df = pd.DataFrame(data)
```

Step 2: Display the first and last two rows

```
print("First two rows:")  
print(df.head(2))  
  
print("\nLast two rows:")  
print(df.tail(2))
```

First two rows:

|   | Name  | Age | Salary | Department |
|---|-------|-----|--------|------------|
| 0 | John  | 25  | 50000  | HR         |
| 1 | Alice | 30  | 70000  | IT         |

Last two rows:

|   | Name  | Age | Salary | Department |
|---|-------|-----|--------|------------|
| 3 | Carol | 28  | 65000  | Marketing  |
| 4 | David | 40  | 80000  | IT         |

Step 3: Retrieve Salary column and compute mean and std deviation

```
salary = df['Salary']
print("Salary Mean:", salary.mean())
print("Salary Standard Deviation:", salary.std())
```

Salary Mean: 65000.0

Salary Standard Deviation: 11180.339887498949

Step 4: Filter employees older than 30 in IT department

```
filtered = df[(df['Age'] > 30) & (df['Department'] == 'IT')]
print("Employees older than 30 in IT Department:")
print(filtered)
```

Employees older than 30 in IT Department:

|   | Name  | Age | Salary | Department |
|---|-------|-----|--------|------------|
| 4 | David | 40  | 80000  | IT         |

Step 5: Add a Bonus column (10% of Salary)

```
df['Bonus'] = df['Salary'] * 0.10
print("DataFrame with Bonus column:")
print(df)
```

DataFrame with Bonus column:

|   | Name  | Age | Salary | Department | Bonus  |
|---|-------|-----|--------|------------|--------|
| 0 | John  | 25  | 50000  | HR         | 5000.0 |
| 1 | Alice | 30  | 70000  | IT         | 7000.0 |
| 2 | Bob   | 35  | 60000  | Finance    | 6000.0 |
| 3 | Carol | 28  | 65000  | Marketing  | 6500.0 |
| 4 | David | 40  | 80000  | IT         | 8000.0 |