

#Aim: Write a program to demonstrate Data Series and Data Frames using Pandas.

Name: Mohd Hanif

UIN: 231P044

Roll No: 01

```
import pandas as pd
```

```
print(pd.__version__)
```

```
data_series = pd.Series([10, 20, 30, 40, 50], index=['A', 'B', 'C', 'D', 'E'])
```

```
print("Pandas Series:")
```

```
print(data_series)
```

```
data = {
```

```
    'Name': ['Alice', 'Bob', 'Charlie', 'David'],
```

```
    'Age': [25, 30, 35, 40],
```

```
    'City': ['New York', 'Los Angeles', 'Chicago', 'Houston']
```

```
}
```

```
data_frame = pd.DataFrame(data)
```

```
print("\nPandas DataFrame:")
```

```
print(data_frame)
```

```
print("\nAccessing the 'Name' column:")
```

```
print(data_frame['Name'])
```

```
print("\nAccessing row with index 2:")
```

```
print(data_frame.loc[2])
```

```
data_frame['Salary'] = [50000, 60000, 70000, 80000]
```

```
print("\nDataFrame after adding a new column:")
```

```
print(data_frame)
```

```
print("Name: Sharma Lucky \nUIN: 231P061\nRoll No: 42")
```

Pandas DataFrame:

| | Name | Age | City |
|---|---------|-----|-------------|
| 0 | Alice | 25 | New York |
| 1 | Bob | 30 | Los Angeles |
| 2 | Charlie | 35 | Chicago |
| 3 | David | 40 | Houston |

Accessing the 'Name' column:

| | |
|---|---------|
| 0 | Alice |
| 1 | Bob |
| 2 | Charlie |
| 3 | David |

Name: Name, dtype: object

1.5.3

Pandas Series:

| | |
|---|----|
| A | 10 |
| B | 20 |
| C | 30 |
| D | 40 |
| E | 50 |

dtype: int64

Accessing row with index 2:

| | |
|------|---------|
| Name | Charlie |
| Age | 35 |
| City | Chicago |

Name: 2, dtype: object

DataFrame after adding a new column:

| | Name | Age | City | Salary |
|---|---------|-----|-------------|--------|
| 0 | Alice | 25 | New York | 50000 |
| 1 | Bob | 30 | Los Angeles | 60000 |
| 2 | Charlie | 35 | Chicago | 70000 |
| 3 | David | 40 | Houston | 80000 |

Name: Sharma Lucky

UIN: 231P061

Roll No: 42

#Aim: WAP to display first & last five elements of data frame & show details of all attributes

Name: Mohd Hanif

UIN: 231P044

Roll No: 01

import pandas as pd

print("Name: Lucky Sharma")

print("UIN: 231P061\n")

data = {

 'ID': range(1, 21),

 'Name': [f'Item {i}' for i in range(1, 21)],

 'Price': [i * 10.5 for i in range(1, 21)],

 'Stock': [i * 5 for i in range(1, 21)]

}

df = pd.DataFrame(data)

print("First 5 rows:\n", df.head())

print("\nLast 5 rows:\n", df.tail())

print("\nDataFrame Info:")

df.info()

print("\nStatistical Summary:")

print(df.describe())

Last 5 rows:

| | ID | Name | Price | Stock |
|----|----|---------|-------|-------|
| 15 | 16 | Item 16 | 168.0 | 80 |
| 16 | 17 | Item 17 | 178.5 | 85 |
| 17 | 18 | Item 18 | 189.0 | 90 |
| 18 | 19 | Item 19 | 199.5 | 95 |
| 19 | 20 | Item 20 | 210.0 | 100 |

DataFrame Info:

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

RangeIndex: 20 entries, 0 to 19

Data columns (total 4 columns):

| # | Column | Non-Null Count | Dtype |
|---|--------|----------------|-------|
|---|--------|----------------|-------|

Name: Lucky Sharma

UIN: 231P061

First 5 rows:

| | ID | Name | Price | Stock |
|---|----|--------|-------|-------|
| 0 | 1 | Item 1 | 10.5 | 5 |
| 1 | 2 | Item 2 | 21.0 | 10 |
| 2 | 3 | Item 3 | 31.5 | 15 |
| 3 | 4 | Item 4 | 42.0 | 20 |
| 4 | 5 | Item 5 | 52.5 | 25 |

```
0    ID      20 non-null    int64
1    Name    20 non-null    object
2    Price   20 non-null    float64
3    Stock   20 non-null    int64
dtypes: float64(1), int64(2), object(1)
memory usage: 768.0+ bytes
```

Statistical Summary:

| | ID | Price | Stock |
|-------|----------|-----------|-----------|
| count | 20.00000 | 20.00000 | 20.00000 |
| mean | 10.50000 | 110.25000 | 52.50000 |
| std | 5.91608 | 61.80624 | 30.18813 |
| min | 1.00000 | 10.50000 | 5.00000 |
| 25% | 5.75000 | 57.75000 | 28.75000 |
| 50% | 10.50000 | 110.25000 | 52.50000 |
| 75% | 15.25000 | 162.75000 | 76.25000 |
| max | 20.00000 | 210.00000 | 100.00000 |