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#Aim: Write a program to demonstrate Data Series and Data Frames using Pandas.
# Name: Mohd Qayam
# UIN: 231P038
# Roll No: 02
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")
```

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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
```

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1.5.3
Pandas Series:
A    10
B    20
C    30
D    40
E    50
dtype: int64
```

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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 Qayam
# UIN: 231P038
# Roll No: 02
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())
```

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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
```