

Name of student: Abhay Omprakash Prajapati		
Roll no: 41	Tutorial No: 10	
Title of LAB Assignment: Implementing Pandas in Python		
DOP: 30-10-2023	DOS: 04-11-2023	
CO Mapped:	PO Mapped:	Signature:

1. Aim:

To understand and implement basic operations with the Pandas library in Python, including creating Series and DataFrames, converting dictionaries, aggregating data frames along rows, and merging dataframes.

2. Theory:

In this practical, we will cover the following topics:

Creating a one-dimensional array-like object containing data using Pandas Series.
 Converting a dictionary to a Pandas Series.

Creating a DataFrame from a dictionary and displaying it.
Aggregating two data frames along rows.
Merging two dataframes with different columns.

3. Code:

Here's the Python code for each part of your practical:

1. Creating a one-dimensional -like object with Pandas Series: array

```
import pandas as pd

data = [78, 85, 96, 80, 86]
series = pd.Series(data)

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

2. Converting a dictionary to a Pandas Series:

```
import pandas as pd

data = {'X': [78, 85, 96, 80, 86]}

series = pd.Series(data['X'])

print("Pandas Series from Dictionary:")
print(series)
```

3. Creating a DataFrame from a dictionary and displaying it:

```
import pandas as pd

data = {'X': [78, 85, 96, 80, 86], 'Y': [84, 94, 89, 83, 86], 'Z': [86, 97, 96, 72, 83]}

df = pd.DataFrame(data)

print("Pandas DataFrame:")
print(df)
```

4. Aggregating two given data frames along rows:

```
import pandas as pd
```

```
df1 = pd.DataFrame({'A': [1, 2], 'B': [3, 4]})
df2 = pd.DataFrame({'A': [5, 6], 'B': [7, 8]})

result = pd.concat([df1, df2])

print("Aggregated Dataframe:")
print(result)
```

5. Merging two given dataframes with different columns:

```
import pandas as pd

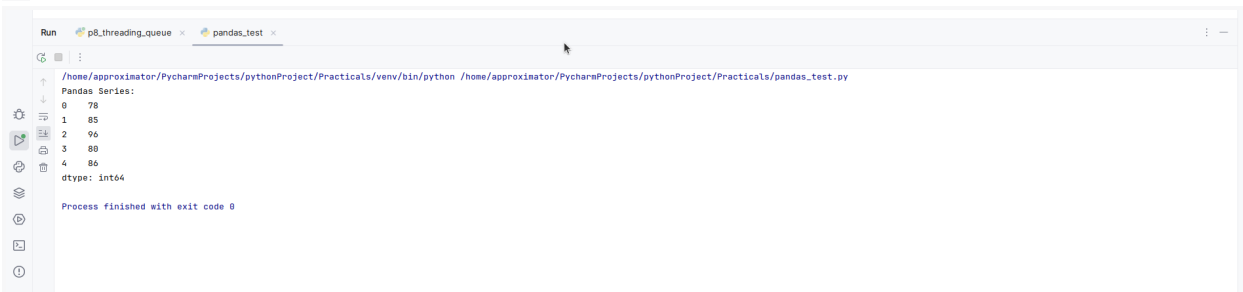
df1 = pd.DataFrame({'ID': [1, 2, 3], 'Name': ['Alice', 'Bob', 'Charlie']})
df2 = pd.DataFrame({'ID': [2, 3, 4], 'Age': [25, 30, 22]})

merged_df = pd.merge(df1, df2, on='ID', how='outer')

print("Merged Dataframe:")
print(merged_df)
```

Output:

1.



The screenshot shows a Jupyter Notebook interface with a 'Run' button and a 'pandas_test' tab. The output of the code execution is displayed in a text area. It shows a Pandas Series with 5 elements, indexed from 0 to 4. The values are 78, 85, 96, 88, and 86. The dtype is int64. The output is formatted as a table with a header 'Pandas Series:' and a body with 5 rows. The last row shows the dtype: int64. Below the output, it says 'Process finished with exit code 0'.

```
Run pandas_test
/home/approximator/PycharmProjects/pythonProject/Practicals/venv/bin/python /home/approximator/PycharmProjects/pythonProject/Practicals/pandas_test.py
Pandas Series:
0    78
1    85
2    96
3    88
4    86
dtype: int64
Process finished with exit code 0
```

2.



The screenshot shows a Jupyter Notebook interface with a 'Run' button and a 'pandas_test' tab. The output of the code execution is displayed in a text area. It shows a Pandas Series from a Dictionary with 5 elements, indexed from 0 to 4. The values are 78, 85, 96, 88, and 86. The dtype is int64. The output is formatted as a table with a header 'Pandas Series from Dictionary:' and a body with 5 rows. The last row shows the dtype: int64. Below the output, it says 'Process finished with exit code 0'.

```
Run pandas_test
/home/approximator/PycharmProjects/pythonProject/Practicals/venv/bin/python /home/approximator/PycharmProjects/pythonProject/Practicals/pandas_test.py
Pandas Series from Dictionary:
0    78
1    85
2    96
3    88
4    86
dtype: int64
Process finished with exit code 0
```

3.



```
Run p8_threading_queue x pandas_test x
/home/approximator/PycharmProjects/pythonProject/Practicals/venv/bin/python /home/approximator/PycharmProjects/pythonProject/Practicals/pandas_test.py
Pandas DataFrame:
   X  Y  Z
0  78  84  86
1  85  94  97
2  96  89  96
3  80  83  72
4  86  86  83

Process finished with exit code 0
```

Suggested plugin Kubernetes available.
[Configure plugins...](#) [Don't suggest again](#)

4.



```
Run p8_threading_queue x pandas_test x
/home/approximator/PycharmProjects/pythonProject/Practicals/venv/bin/python /home/approximator/PycharmProjects/pythonProject/Practicals/pandas_test.py
Aggregated DataFrame:
   A  B
0  1  3
1  2  4
0  5  7
1  6  8

Process finished with exit code 0
```

Suggested plugin Kubernetes available.
[Configure plugins...](#) [Don't suggest again](#)

5.



```
Run p8_threading_queue x pandas_test x
/home/approximator/PycharmProjects/pythonProject/Practicals/venv/bin/python /home/approximator/PycharmProjects/pythonProject/Practicals/pandas_test.py
Merged DataFrame:
   ID  Name  Age
0  1  Alice  NaN
1  2   Bob  25.0
2  3  Charlie 30.0
3  4   NaN  22.0

Process finished with exit code 0
```

Suggested plugin Kubernetes available.
[Configure plugins...](#) [Don't suggest again](#)

Conclusion:

In this practice, we learned how to use the Pandas library to create Series and DataFrames, convert dictionaries into Series, aggregate data frames along rows, and merge dataframes with different columns. Pandas is a powerful library for data manipulation and analysis.