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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
```

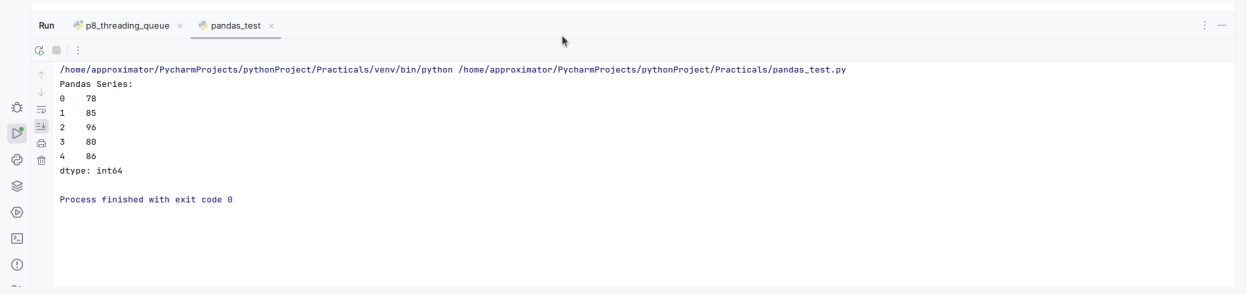
```
df1 = pd.DataFrame({'A': [1, 2], 'B': [3, 4]})
df2 = pd.DataFrame({'A': [5, 6], 'B': [7, 8]})

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.



2.

3.

4.

5.

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.