CLASS XII - IP (2020-2021)
BBPSPP

Chapter 3 - Python Pandas-Part 2

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LEARNING OBJECTIVES

This presentation will help you to analyse and comprehend about the following topics:

1. **Introduction to Pandas**
2. **Data Structures in Panda**

- We can also access data from a series by various other methods:
  - by slicing i.e. passing the position of the series.
  - With constant value
  - With range() function with for loop
  - With two different lists
  - With dictionary

To create a series using slicing

```
import pandas as pd

d=pd.Series([1,2,3,4,5])

print(d[:2])

print(d[-4:])
```

It will print the output as

```
0  1                    // output of first print statement

1   2

3   4                    // output of second print statement

4   5

dtype:int64
```

To create a series using constant value

```
import pandas as pd

d=pd.Series([60, index=[1,2,3,4,5])

print(d)
```

It will print the output as

```
1   60

2   60

3   60

4    60

5    60

dtype:int64
```

You can see the constant value 60 is repeated along with the index values

To create a series using range() method

```
import pandas as pd

d=pd.Series([range(1,10,3), index=[x for x in 'abcd'])

print(d)
```

It will print the output as

```
a  1

b  4

c  7

dtype:int64
```

You can see the values 1, 1+3=4, 4+3=7 along with the index values a, b, c, d

To create a series using two different lists

```
import pandas as pd

w=['mon','tue','wed','thur']

n=[1,2,3,4,5,6,7]

d=pd.Series(w,index=n)

print(d)
```

It will print the output as

```
1 mon

2 tue

3 wed

4 thur

dtype:object
```

You can see w and n are two different lists of python. The index has to specified in such cases.

To create a series using two dictionaries

```
import pandas as pd

d=pd.Series({'Mon':1, 'Tue':2,'Wed':3,'Thur':4})

print(d)
```

It will print the output as

```
Mon   1

Tue   2

Wed   3

Thur  4

dtype:int64
```

You can see the dictionary defined in the series using {} .

To create a series using head() and tail() functions

```
import pandas as pd

d=pd.Series([10,20,30,40,50])

print(d.head(2))

print(d.tail(2))
```

It will print the output as

```
0 10                    // output of first print statement

1 20

3 40                   // output of second print statement

4 50

dtype:int64
```

You can see that the head() is used display the series from top and tail() from the bottom. .

DATA STRUCTURES	DIMENSION	DESCRIPTION
DATA FRAMES	Two dimensional	General 2D labeled, size-mutable tabular structure with potentially heterogeneously typed columns. Hetrogenous means data of different data type.

For example : A table of data being represented in rows and columns as shown below:

NAME	AGE	GENDER	MARKS	STREAM
Sutapa	16	Female	87.5	HUMANITIES
Suraj	17	Male	89.3	COMMERCE

Watch this video to understand the basic concept of PYTHON PANDA-

https://www.youtube.com/watch?v=B42n3Pc-N2A

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- DATAFRAME has two indices or axes. A row index (axis=0) and a column index has (axis=1)
- In dataframe, row index is called index and column index is called column name.

To create an empty dataframe

```
import pandas as pd

a=[1,2,3,4]

d=pd.DataFrame(a)

d1=pd.Dataframe()                    //empty dataframe

print(d)

print(d1)
```

It will print the output as

```
   0

0  1       //First print statement will print

1  2

2  3

3  4
```

To create a dataframe with column heading

```
import pandas as pd

a=[1,2,3,4]

d=pd.DataFrame(a)

d.columns=['VALUES']

print(d)
```

It will print the output as

```
   VALUES
0       1
1       2
2       3
3       4
```

To create a series using two lists

```
import pandas as pd

d=[[‘aman’,60],[sidharth’,89],[’shivam’,95]]

d1=pd.DataFrame(d,columns=[‘NAME’,’MARKS’])

print(d1)
```

It will print the output as

	NAME	MARKS
0	aman	60
1	sidharth	89
2	shivam	95

Try yourself :

https://www.tutorialspoint.com/python_pandas/python_pandas_series.htm

ASSIGNMENT

1. What is DataFrame? Write any two features of it.
2. Write python program to print the weight of 5 friends using panda series.
3. Write python program to print the the names of 5 countries and its capital using DataFrame.
4. What is the default number of rows displayed when on using head() and tail() functions.
5. Somnath wants to perform some operations on panda dataframes,
    a. To store the dictionary d into dataframe named as df in statement 1
    b. To display the dataframe available n statement 2

ALL THE ABOVE QUESTIONS TO BE PART OF PRACTICAL FILE ALSO.YOU WRITE THE CODE USING W3SCHOOL.COM OR JUPYTER.ORG SITES

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