```
!pip install pandas
!pip install numpy

import pandas as pd
dir(pd.DataFrame)
O/P
[
'to_csv',
 'to_dict',
 'to_excel',
 'to_feather',
 'to_gbq',
 'to_hdf',
 'to_html',
 'to_json',
]
print(pd.Series.__doc__)
```

a) Write a python program to implement Pandas Series with labels.

Program

```
import pandas as pd
# Creating a Series with custom labels
s = pd.Series([10, 20, 30, 40], index=["a", "b", "c", "d"])

print("Pandas Series with Labels:")
print(s)
```

Output:

```
Pandas Series with Labels:
a    10
b    20
c    30
d    40
dtype: int64
```

Other Cases Like List and Dict pass data to Series

Program 01 using Set or list

```
import pandas as pd
s=(1,2,3,4)
a=pd.Series(s)
print(a)
```

Output:

```
0    1
1    2
2    3
```

3 4
dtype: int64

Program 02 using Dict

```
import pandas as pd
s={10:'1',20:'1',30:'1',40:'1'}
a=pd.Series(s)
print(a)
```

Output:

```
10  1
20  1
30  1
40  1
dtype: object
```

Program 03 using numpy array

```
import pandas as pd
import numpy as np
c=np.array([10,20,30,40])
a=pd.Series(c)
print(a)
```

Output:

```
0  10
1  20
2  30
3  40
dtype: int64
```

1(b). Create a Pandas Series from a Dictionary

Program using Dict

```
import pandas as pd
# Dictionary
data = {"India": 1380, "China": 1400, "USA": 331, "Brazil": 213}
# Create Series from dictionary
s_dict = pd.Series(data)
print("Series from Dictionary:")
print(s_dict)
```

Output:

```
Series from Dictionary:
India    1380
China    1400
USA       331
Brazil    213
dtype: int64
```

1(c). Creating a Pandas DataFrame
Program using Dict

```
import pandas as pd
data = {
   "Name": ["Ravi", "John", "Anita", "Sara"],
   "Age": [25, 30, 22, 28],
   "City": ["Delhi", "New York", "Mumbai", "London"]
}

# Create DataFrame
df = pd.DataFrame(data)

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

Output:

```
Pandas DataFrame:
   Name  Age      City
0   Ravi   25     Delhi
1   John   30  New York
2  Anita   22    Mumbai
3   Sara   28    London
```

Program using np array

```
import pandas as pd
import numpy as np
c=np.array([[10,20,30,40],[10,20,30,40],[10,20,30,40],[10,20,30,40]])
a=pd.DataFrame(c)
print(a)
```

Output:

```
   0   1   2   3
0  10  20  30  40
1  10  20  30  40
2  10  20  30  40
3  10  20  30  40
```

Program

```
import pandas as pd
import numpy as np
c={
   'name':['raju','Anther','c'],
   'age':[10,20,30],
   'gender':['m','f','m']
   }


a=pd.DataFrame(c)
```

```
# print(a)
a
```

Output

	name	age	gender
0	raju	10	m
1	Anther	20	f
2	c	30	m

1(d). Program using describe(), head(), tail(), info()

Program

```
import pandas as pd
data = {
   "Name": ["Ravi", "John", "Anita", "Sara", "Mike", "Leo"],
   "Age": [25, 30, 22, 28, 35, 40],
   "Salary": [45000, 55000, 40000, 62000, 70000, 80000]
}
df = pd.DataFrame(data)

# i) describe()
print("\nDescribe:")
print(df.describe())

# ii) head()
print("\nHead:")
print(df.head(3))

# iii) tail()
print("\nTail:")
print(df.tail(3))

# iv) info()
print("\nInfo:")
print(df.info())
```

Output

```
Describe:
             Age        Salary
count   6.00000      6.000000
mean   30.00000  58666.666667
std     6.60303  15121.728296
min    22.00000  40000.000000
25%    25.75000  47500.000000
```

```
50%    29.00000  58500.000000
75%    33.75000  68000.000000
max    40.00000  80000.000000

Head:
    Name  Age  Salary
0   Ravi   25   45000
1   John   30   55000
2  Anita   22   40000

Tail:
   Name  Age  Salary
3  Sara   28   62000
4  Mike   35   70000
5   Leo   40   80000

Info:
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 6 entries, 0 to 5
Data columns (total 3 columns):
 #   Column  Non-Null Count  Dtype
---  ------  --------------  -----
 0   Name    6 non-null      object
 1   Age     6 non-null      int64
 2   Salary  6 non-null      int64
dtypes: int64(2), object(1)
memory usage: 276.0+ bytes
None

Other Ways Read Data
import pandas as pd
iris = pd.read_csv('book.csv')
iris.head(100)
Output:
```