```
In [ ]:  DataFrame :

         1- Dictionary

         2- list

         3- Series

         4- NdArray
```

```
In [1]:  import pandas as pd
```

```
In [2]:  # list

         lst = [2,4,6,8,10]

         df = pd.DataFrame(lst)
         df
```

Out[2]:

	0
0	2
1	4
2	6
3	8
4	10

```
In [12]: lst = [2,4,6,8,10]

         df = pd.DataFrame(lst,columns=["Even_Numbers"],index=[1001,1002,1003,1004,1005])
         df
```

Out[12]:

	Even_Numbers
1001	2
1002	4
1003	6
1004	8
1005	10

```
In [14]: # Series

         lst = [2,4,6,8,10]

         s = pd.Series(lst)
         df = pd.DataFrame(s)
         df
```

Out[14]:

	0
0	2
1	4
2	6
3	8
4	10

In [15]:
```python
# Ndarray

import numpy as np
```

In [22]:
```python
data = np.array([[2,4,6],[2,4,6],[2,4,6]])
df = pd.DataFrame(data,columns=["first","second","third"])
df
```

Out[22]:

	first	second	third
0	2	4	6
1	2	4	6
2	2	4	6

In [34]:
```python
# reading csv file

read_csv_file = pd.read_csv(r"C:\Users\jitud\21-July\pandas\data.csv")
read_csv_file
```

Out[34]:

	Name	Age	Location
0	John	22	Delhi
1	Bob	25	Mumbai
2	Vikram	28	Pune
3	John	31	Delhi
4	Bob	34	Mumbai
5	Vikram	37	Pune
6	John	40	Delhi
7	Bob	43	Mumbai
8	Vikram	46	Pune

In [37]:
```python
len(read_csv_file)
```

Out[37]: 9

In [38]:
```python
# type
type(read_csv_file)
```

Out[38]:   pandas.core.frame.DataFrame

In [40]:   `# read top five dataframe records`
           `read_csv_file.head()`

Out[40]:

	Name	Age	Location
0	John	22	Delhi
1	Bob	25	Mumbai
2	Vikram	28	Pune
3	John	31	Delhi
4	Bob	34	Mumbai

In [41]:   `# read bottom five dataframe records`
           `read_csv_file.tail()`

Out[41]:

	Name	Age	Location
4	Bob	34	Mumbai
5	Vikram	37	Pune
6	John	40	Delhi
7	Bob	43	Mumbai
8	Vikram	46	Pune

In [42]:   `# to get the infomation about the dataframe`
           `read_csv_file.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9 entries, 0 to 8
Data columns (total 3 columns):
 #   Column    Non-Null Count  Dtype
---  ------    --------------  -----
 0   Name      9 non-null      object
 1   Age       9 non-null      int64
 2   Location  9 non-null      object
dtypes: int64(1), object(2)
memory usage: 348.0+ bytes
```

In [43]:   `# to get the statstical information ablout dataframe`

           `read_csv_file.describe()`

Out[43]:

	Age
count	9.000000
mean	34.000000
std	8.215838
min	22.000000
25%	28.000000
50%	34.000000
75%	40.000000
max	46.000000

In [48]:
```python
# check the dataframe empty or not
if read_csv_file.empty:
    print("no records found")
else:
    print("records found")
```

records found

In [50]:
```python
# df is null or not?

read_csv_file.isnull().sum()
```

Out[50]:
```
Name        0
Age         0
Location    0
dtype: int64
```

In [51]:
```python
read_csv_file.rename(columns={"Name":"Names"},inplace=True)
```

In [52]:
```python
read_csv_file
```

Out[52]:

	Names	Age	Location
0	John	22	Delhi
1	Bob	25	Mumbai
2	Vikram	28	Pune
3	John	31	Delhi
4	Bob	34	Mumbai
5	Vikram	37	Pune
6	John	40	Delhi
7	Bob	43	Mumbai
8	Vikram	46	Pune

In [54]:
```python
# dataframe to dict
```

```python
print(read_csv_file.to_dict())
```

{'Names': {0: 'John', 1: 'Bob', 2: 'Vikram', 3: 'John', 4: 'Bob', 5: 'Vikram', 6: 'John', 7: 'Bob', 8: 'Vikram'}, 'Age': {0: 22, 1: 25, 2: 28, 3: 31, 4: 34, 5: 37, 6: 40, 7: 43, 8: 46}, 'Location': {0: 'Delhi', 1: 'Mumbai', 2: 'Pune', 3: 'Delhi', 4: 'Mumbai', 5: 'Pune', 6: 'Delhi', 7: 'Mumbai', 8: 'Pune'}}

In [55]:
```python
# drop the null value
read_csv_file.dropna()
```

Out[55]:

	Names	Age	Location
0	John	22	Delhi
1	Bob	25	Mumbai
2	Vikram	28	Pune
3	John	31	Delhi
4	Bob	34	Mumbai
5	Vikram	37	Pune
6	John	40	Delhi
7	Bob	43	Mumbai
8	Vikram	46	Pune

In [56]:
```python
# drop the column from dataframe
read_csv_file.drop(columns="Location")
```

Out[56]:

	Names	Age
0	John	22
1	Bob	25
2	Vikram	28
3	John	31
4	Bob	34
5	Vikram	37
6	John	40
7	Bob	43
8	Vikram	46

In [62]:
```python
# add new row in dataframe

read_csv_file.loc[len(read_csv_file)] = ["Pritam",20,"Nashik"]
```

In [63]:
```python
read_csv_file
```

Out[63]:

	Names	Age	Location
0	John	22.0	Delhi
1	Bob	25.0	Mumbai
2	Vikram	28.0	Pune
3	John	31.0	Delhi
4	Bob	34.0	Mumbai
5	Vikram	37.0	Pune
6	John	40.0	Delhi
7	Bob	43.0	Mumbai
8	Vikram	46.0	Pune
9	NaN	NaN	NaN
10	Pritam	20.0	Nashik

In [65]:
```python
read_csv_file.isna().sum()
```

Out[65]:
```
Names       1
Age         1
Location    1
dtype: int64
```

In [72]:
```python
read_csv_file.iloc[0]
```

Out[72]:
```
Names       John
Age         22.0
Location    Delhi
Name: 0, dtype: object
```

In [70]:
```python
read_csv_file.loc[0,"Names"]
```

Out[70]:
```
'John'
```

In [73]:
```python
# to get the column name
read_csv_file["Names"]
```

Out[73]:
```
0        John
1         Bob
2      Vikram
3        John
4         Bob
5      Vikram
6        John
7         Bob
8      Vikram
9         NaN
10     Pritam
Name: Names, dtype: object
```

In [75]:
```python
# to get the column name
read_csv_file.get("Names")
```

Out[75]: 0   John
          1   Bob
          2   Vikram
          3   John
          4   Bob
          5   Vikram
          6   John
          7   Bob
          8   Vikram
          9   NaN
          10   Pritam
          Name: Names, dtype: object

In [77]: ```
          !pip install openpyxl # this package for excel read
          ```

Collecting openpyxl
  Downloading openpyxl-3.1.5-py2.py3-none-any.whl.metadata (2.5 kB)
Collecting et-xmlfile (from openpyxl)
  Downloading et_xmlfile-2.0.0-py3-none-any.whl.metadata (2.7 kB)
Downloading openpyxl-3.1.5-py2.py3-none-any.whl (250 kB)
Downloading et_xmlfile-2.0.0-py3-none-any.whl (18 kB)
Installing collected packages: et-xmlfile, openpyxl

   -------------------- ------------------ 1/2 [openpyxl]
   -------------------------------------- 2/2 [openpyxl]

Successfully installed et-xmlfile-2.0.0 openpyxl-3.1.5

[notice] A new release of pip is available: 25.1.1 -> 25.2
[notice] To update, run: python.exe -m pip install --upgrade pip

In [79]:  ```
          # read excel data

          df = pd.read_excel("location_details.xlsx")
          df
          ```

Out[79]:

	John	22	Delhi
0	Name	Age	Loc
1	Bob	25	Mumbai
2	Vikram	28	Pune
3	John	31	Delhi
4	Bob	34	Mumbai
5	Vikram	37	Pune
6	John	40	Delhi
7	Bob	43	Mumbai
8	Vikram	46	Pune
9	NaN	NaN	NaN
10	Pritam	20	Nashik

In [ ]: