In [ ]:
```
# pip install pandas
# pip install numpy
```

- import libraries

In [ ]:
```
import pandas as pd
import numpy as np
```

In [ ]:
```
#object creation
s= pd.Series([1,3,5,np.nan,7,8,9])
s
```

Out[ ]:
```
0    1.0
1    3.0
2    5.0
3    NaN
4    7.0
5    8.0
6    9.0
dtype: float64
```

Series as size

In [ ]:
```
s = pd.Series({'a': 1, 'b': 2, 'c': 3})
s.size
```

Out[ ]:
```
3
```

data frame

In [ ]:
```
df = pd.DataFrame({'angles': [2, 3, 4],
                   'degrees': [60, 90, 120]},
                  index=['circle', 'triangle', 'rectangle'])
df
```

Out[ ]:

	angles	degrees
circle	2	60
triangle	3	90
rectangle	4	120

In [ ]:
```
df = pd.DataFrame({'float': [1.0],
                   'int': [1],
                   'datetime': [pd.Timestamp('20180310')],
                   'string': ['foo']})
df.dtypes
```

Out[ ]:
```
float              float64
int                  int64
datetime    datetime64[ns]
string              object
dtype: object
```

In [ ]:
```
df.index
```

Out[ ]:
```
RangeIndex(start=0, stop=1, step=1)
```

In [ ]:
```
df.to_numpy()
```

Out[ ]:
```
array([[1.0, 1, Timestamp('2018-03-10 00:00:00'), 'foo']], dtype=object)
```

describe series in numbers

In [ ]:
```
s = pd.Series([np.datetime64("2019-01-01"),np.datetime64("2020-01-01"),np.datetime64("2
])
s.describe(datetime_is_numeric=True)
```

Out[ ]:
```
count                      3
mean     2020-01-01 08:00:00
min      2019-01-01 00:00:00
25%      2019-07-02 12:00:00
50%      2020-01-01 00:00:00
75%      2020-07-02 00:00:00
max      2021-01-01 00:00:00
dtype: object
```

To tanspose data

In [ ]:
```
df.T
```

Out[ ]:

	0
float	1.0
int	1
datetime	2018-03-10 00:00:00
string	foo

indexing

In [ ]:
```
df[0:1]
```

Out[ ]:

	float	int	datetime	string
0	1.0	1	2018-03-10	foo

In [ ]:
```
df = pd.DataFrame([[1, 2], [4, 5], [7, 8]],
     index=['cobra', 'viper', 'sidewinder'],
     columns=['max_speed', 'shield'])
df
```

Out[ ]:

	max_speed	shield
cobra	1	2
viper	4	5
sidewinder	7	8

In [ ]:
```
df.loc['cobra', 'shield']
2
```

Out[ ]:
```
2
```

In [ ]:
```
dates= pd.date_range("20220101", periods=16)
dates
```

Out[ ]:
```
DatetimeIndex(['2022-01-01', '2022-01-02', '2022-01-03', '2022-01-04',
               '2022-01-05', '2022-01-06', '2022-01-07', '2022-01-08',
               '2022-01-09', '2022-01-10', '2022-01-11', '2022-01-12',
               '2022-01-13', '2022-01-14', '2022-01-15', '2022-01-16'],
              dtype='datetime64[ns]', freq='D')
```

Assignment

In [ ]:
```
df= pd.DataFrame({'childern': [2, 5],'males': [20, 50],
                  'females': [25, 45]})
df
```

Out[ ]:

	childem	males	females
0	2	20	25
1	5	50	45

In [ ]:
```
df2 = pd.DataFrame({'childern':    [ 3,  7],
                  'males': [24, 70],
                  'females': [21, 35]})
df2
```

Out[ ]:

	childem	males	females
0	3	24	21
1	7	70	35

In [ ]:
```
df3=df2.add(df)
df3
```

Out[ ]:

	childern	males	females
0	5	44	46
1	12	120	80

In [ ]:
```
df3.mean
```

Out[ ]:
```
<bound method NDFrame._add_numeric_operations.<locals>.mean of    childern  males  femal
es
0          5     44       46
1         12    120       80>
```

In [ ]:
```

```