In [48]:
```
import pandas as pd
```

I/O Pandas Series and Dataframe

In [88]:
```
series = pd.Series(data = ['dog','bat','cat'],
                   index = ['A','B','C'])
series
```

Out[88]:
```
A    dog
B    bat
C    cat
dtype: object
```

In [90]:
```
data = {'Fruits': ['Mango', 'Apple', 'Banana', 'Orange'],
        'Quantity': [40, 20, 25, 10],
        'Price': [80, 100, 50, 70]
        }
df = pd.DataFrame(data)
print(df)
```

```
   Fruits  Quantity  Price
0   Mango        40     80
1   Apple        20    100
2  Banana        25     50
3  Orange        10     70
```

In [58]:
```
df.dtypes
```

Out[58]:
```
Fruits      object
Quantity     int64
Price        int64
dtype: object
```

In [60]:
```
df.shape
```

Out[60]:
```
(4, 3)
```

In [62]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4 entries, 0 to 3
Data columns (total 3 columns):
 #   Column    Non-Null Count  Dtype
---  ------    --------------  -----
 0   Fruits    4 non-null      object
 1   Quantity  4 non-null      int64
 2   Price     4 non-null      int64
dtypes: int64(2), object(1)
memory usage: 228.0+ bytes
```

In [ ]:
```
```

Create Pandas Dataframe

In [93]:
```
data = {'Fruits': ['Mango', 'Apple', 'Banana', 'Orange'],
        'Quantity': [40, 20, 25, 10],
        'Price': [80, 100, 50, 70]
        }
df = pd.DataFrame(data)
print(df)
```

```
   Fruits  Quantity  Price
0   Mango        40     80
1   Apple        20    100
2  Banana        25     50
3  Orange        10     70
```

In [95]:
```
df.dtypes
```

Out[95]:
```
Fruits      object
Quantity     int64
Price        int64
dtype: object
```

In [97]:
```
df.shape
```

Out[97]:
```
(4, 3)
```

In [99]:
```
df.info
```

Out[99]:
```
<bound method DataFrame.info of    Fruits  Quantity  Price
0   Mango        40     80
1   Apple        20    100
2  Banana        25     50
3  Orange        10     70>
```

In [ ]:
```
df.values
```

In [101…]
```
df.values
```

Out[101]:
```
array([['Mango', 40, 80],
       ['Apple', 20, 100],
       ['Banana', 25, 50],
       ['Orange', 10, 70]], dtype=object)
```

In [ ]:
```
```

Sorting, Reindexing, Renaming, Reshaping, Dropping

In [105…]
```
print(df.sort_values('Price', ascending=True))
```

```
   Fruits  Quantity  Price
2  Banana        25     50
3  Orange        10     70
0   Mango        40     80
1   Apple        20    100
```

In [107…]
```
print(df.sort_values('Price', ascending=False))
```

```
   Fruits  Quantity  Price
1   Apple        20    100
0   Mango        40     80
3  Orange        10     70
2  Banana        25     50
```

In [109…]
```
print(df.sort_index(ascending=False))
```

```
   Fruits  Quantity  Price
3  Orange        10     70
2  Banana        25     50
1   Apple        20    100
0   Mango        40     80
```

In [113…]
```
df.reset_index(drop=True, inplace=True)
print(df)
```

```
   Fruits  Quantity  Price
0   Mango        40     80
1   Apple        20    100
2  Banana        25     50
3  Orange        10     70
```

In [115…]
```
df.rename(columns={'Fruits': 'FRUITS',
                   'Quantity': 'QUANTITY',
                   'Price': 'PRICE'},
          inplace=True)
print(df)
```

```
   FRUITS  QUANTITY  PRICE
0   Mango        40     80
1   Apple        20    100
2  Banana        25     50
3  Orange        10     70
```

In [117…]
```
print(pd.melt(df))
```

```
    variable   value
0     FRUITS   Mango
1     FRUITS   Apple
2     FRUITS  Banana
3     FRUITS  Orange
4   QUANTITY      40
5   QUANTITY      20
6   QUANTITY      25
7   QUANTITY      10
8      PRICE      80
9      PRICE     100
10     PRICE      50
11     PRICE      70
```

In [119…]
```
pivot = df.pivot(columns='FRUITS',
                 values=['PRICE', 'QUANTITY'])
print(pivot)
```

```
        PRICE                    QUANTITY
FRUITS  Apple Banana Mango Orange    Apple Banana Mango Orange
0         NaN    NaN  80.0    NaN      NaN    NaN  40.0    NaN
1       100.0    NaN   NaN    NaN     20.0    NaN   NaN    NaN
2         NaN   50.0   NaN    NaN      NaN   25.0   NaN    NaN
3         NaN    NaN   NaN   70.0      NaN    NaN   NaN   10.0
```

In [121…]
```
df1 = df.drop(columns=['QUANTITY'], axis=1)
print(df1)
```

```
   FRUITS  PRICE
0   Mango     80
1   Apple    100
2  Banana     50
3  Orange     70
```

In [123…
```
df2 = df.drop([1, 3], axis=0)
print(df2)
```

```
   FRUITS  QUANTITY  PRICE
0   Mango        40     80
2  Banana        25     50
```

In [ ]:

Dataframe Slicing and Observation

In [126…
```
print(df.head())
```

```
   FRUITS  QUANTITY  PRICE
0   Mango        40     80
1   Apple        20    100
2  Banana        25     50
3  Orange        10     70
```

In [128…
```
print(df.tail())
```

```
   FRUITS  QUANTITY  PRICE
0   Mango        40     80
1   Apple        20    100
2  Banana        25     50
3  Orange        10     70
```

In [130…
```
print(df.sample(3))
```

```
   FRUITS  QUANTITY  PRICE
1   Apple        20    100
0   Mango        40     80
2  Banana        25     50
```

In [132…
```
print(df.nlargest(2, 'QUANTITY'))
```

```
   FRUITS  QUANTITY  PRICE
0   Mango        40     80
2  Banana        25     50
```

In [134…
```
print(df['FRUITS'])
```

```
0     Mango
1     Apple
2    Banana
3    Orange
Name: FRUITS, dtype: object
```

In [136…
```
print(df.loc[:, 'FRUITS':'PRICE'])
```

```
   FRUITS  QUANTITY  PRICE
0   Mango        40     80
1   Apple        20    100
2  Banana        25     50
3  Orange        10     70
```

In [138…
```
print(df.iloc[2:5])
```

```
   FRUITS  QUANTITY  PRICE
2  Banana        25     50
3  Orange        10     70
```

In [140…
```
print(df.filter(items=['FRUITS', 'PRICE']))
```

```
   FRUITS  PRICE
0   Mango     80
1   Apple    100
2  Banana     50
3  Orange     70
```

In [ ]: