Introduction to Pandas Library Function:

Step-1 Import the pandas Libraries

```python
import pandas as pd
```

Step-2 Import the dataset from this:....

```python
data = pd.read_csv("titanic.csv")
```

Step-3 Read csv or excel File

Step-4 Print Data from csv or excel File

```
data
```

```
     PassengerId  Survived  Pclass  \
0              1         0       3
1              2         1       1
2              3         1       3
3              4         1       1
4              5         0       3
..           ...       ...     ...
886          887         0       2
887          888         1       1
888          889         0       3
889          890         1       1
890          891         0       3


                                               Name     Sex   Age
SibSp  \
0                            Braund, Mr. Owen Harris    male  22.0
1
1    Cumings, Mrs. John Bradley (Florence Briggs Th...  female  38.0
1
2                             Heikkinen, Miss. Laina  female  26.0
```

```
0
3          Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0
1
4                                Allen, Mr. William Henry    male  35.0
0
..                                                    ...     ...   ...
...
886                                  Montvila, Rev. Juozas    male  27.0
0
887                            Graham, Miss. Margaret Edith  female  19.0
0
888        Johnston, Miss. Catherine Helen "Carrie"  female   NaN
1
889                                Behr, Mr. Karl Howell    male  26.0
0
890                                  Dooley, Mr. Patrick    male  32.0
0

     Parch            Ticket     Fare Cabin Embarked
0        0         A/5 21171   7.2500   NaN        S
1        0          PC 17599  71.2833   C85        C
2        0  STON/O2. 3101282   7.9250   NaN        S
3        0            113803  53.1000  C123        S
4        0            373450   8.0500   NaN        S
..     ...               ...      ...   ...      ...
886      0            211536  13.0000   NaN        S
887      0            112053  30.0000   B42        S
888      2         W./C. 6607  23.4500   NaN        S
889      0            111369  30.0000  C148        C
890      0            370376   7.7500   NaN        Q

[891 rows x 12 columns]
```

Step-5 See the First 10 Rows

```
data.head(10)

   PassengerId  Survived  Pclass  \
0            1         0       3
1            2         1       1
2            3         1       3
3            4         1       1
4            5         0       3
5            6         0       3
6            7         0       1
7            8         0       3
8            9         1       3
9           10         1       2
```

```
                                                Name     Sex    Age
SibSp  \
0                           Braund, Mr. Owen Harris    male   22.0
1
1  Cumings, Mrs. John Bradley (Florence Briggs Th...  female   38.0
1
2                            Heikkinen, Miss. Laina  female   26.0
0
3      Futrelle, Mrs. Jacques Heath (Lily May Peel)  female   35.0
1
4                          Allen, Mr. William Henry    male   35.0
0
5                                  Moran, Mr. James    male    NaN
0
6                           McCarthy, Mr. Timothy J    male   54.0
0
7                    Palsson, Master. Gosta Leonard    male    2.0
3
8  Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)  female   27.0
0
9                Nasser, Mrs. Nicholas (Adele Achem)  female   14.0
1

   Parch            Ticket     Fare Cabin Embarked
0      0         A/5 21171   7.2500   NaN        S
1      0          PC 17599  71.2833   C85        C
2      0  STON/O2. 3101282   7.9250   NaN        S
3      0            113803  53.1000  C123        S
4      0            373450   8.0500   NaN        S
5      0            330877   8.4583   NaN        Q
6      0             17463  51.8625   E46        S
7      1            349909  21.0750   NaN        S
8      2            347742  11.1333   NaN        S
9      0            237736  30.0708   NaN        C
```

Step-6 See the Last 10 Rows

```
data.tail(10)
```

```
     PassengerId  Survived  Pclass
Name  \
881          882         0       3                       Markun, Mr.
Johann
882          883         0       3            Dahlberg, Miss. Gerda
Ulrika
883          884         0       2          Banfield, Mr. Frederick
James
```

```
884          885          0     3                      Sutehall, Mr.
Henry Jr
885          886          0     3        Rice, Mrs. William (Margaret
Norton)
886          887          0     2                      Montvila, Rev.
Juozas
887          888          1     1              Graham, Miss. Margaret
Edith
888          889          0     3  Johnston, Miss. Catherine Helen
"Carrie"
889          890          1     1                  Behr, Mr. Karl
Howell
890          891          0     3                      Dooley, Mr.
Patrick

         Sex   Age  SibSp  Parch            Ticket      Fare Cabin
Embarked
881     male  33.0      0      0            349257    7.8958   NaN
S
882   female  22.0      0      0              7552   10.5167   NaN
S
883     male  28.0      0      0  C.A./SOTON 34068   10.5000   NaN
S
884     male  25.0      0      0   SOTON/OQ 392076    7.0500   NaN
S
885   female  39.0      0      5            382652   29.1250   NaN
Q
886     male  27.0      0      0            211536   13.0000   NaN
S
887   female  19.0      0      0            112053   30.0000   B42
S
888   female   NaN      1      2        W./C. 6607   23.4500   NaN
S
889     male  26.0      0      0            111369   30.0000  C148
C
890     male  32.0      0      0            370376    7.7500   NaN
Q
```

Step-7 Data type of each columns

```
data.dtypes

PassengerId      int64
Survived         int64
Pclass           int64
Name            object
Sex             object
Age            float64
```

```
SibSp              int64
Parch              int64
Ticket            object
Fare             float64
Cabin             object
Embarked          object
dtype: object
```

Step-8 Display Summary Information

```
data.describe()
```

	PassengerId	Survived	Pclass	Age	SibSp \
count	891.000000	891.000000	891.000000	714.000000	891.000000
mean	446.000000	0.383838	2.308642	29.699118	0.523008
std	257.353842	0.486592	0.836071	14.526497	1.102743
min	1.000000	0.000000	1.000000	0.420000	0.000000
25%	223.500000	0.000000	2.000000	20.125000	0.000000
50%	446.000000	0.000000	3.000000	28.000000	0.000000
75%	668.500000	1.000000	3.000000	38.000000	1.000000
max	891.000000	1.000000	3.000000	80.000000	8.000000

	Parch	Fare
count	891.000000	891.000000
mean	0.381594	32.204208
std	0.806057	49.693429
min	0.000000	0.000000
25%	0.000000	7.910400
50%	0.000000	14.454200
75%	0.000000	31.000000
max	6.000000	512.329200

```
data.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 12 columns):
 #   Column       Non-Null Count   Dtype
---  ------       --------------   -----
 0   PassengerId  891 non-null     int64
 1   Survived     891 non-null     int64
 2   Pclass       891 non-null     int64
 3   Name         891 non-null     object
 4   Sex          891 non-null     object
 5   Age          714 non-null     float64
 6   SibSp        891 non-null     int64
 7   Parch        891 non-null     int64
 8   Ticket       891 non-null     object
```

```
 9   Fare         891 non-null    float64
 10  Cabin        204 non-null     object
 11  Embarked     889 non-null     object
dtypes: float64(2), int64(5), object(5)
memory usage: 83.7+ KB
```

Step-9 Access a specific column

```python
# for column
data.shape[0]
```

```
891
```

```python
#for row
data.shape[1]
```

```
12
```

Step-10 Access rows by their integer location

```python
data.iloc[6]
```

```
PassengerId                            7
Survived                               0
Pclass                                 1
Name           McCarthy, Mr. Timothy J
Sex                                 male
Age                                 54.0
SibSp                                  0
Parch                                  0
Ticket                             17463
Fare                             51.8625
Cabin                                E46
Embarked                               S
Name: 6, dtype: object
```

```python
# for specific location
data.iloc[50:151]
```

```
     PassengerId  Survived  Pclass  \
50            51         0       3
51            52         0       3
52            53         1       1
53            54         1       2
54            55         0       1
..           ...       ...     ...
146          147         1       3
```

```
147          148        0      3
148          149        0      2
149          150        0      2
150          151        0      2

                                                  Name     Sex   Age
SibSp  \
50                          Panula, Master. Juha Niilo    male   7.0
4
51                         Nosworthy, Mr. Richard Cater    male  21.0
0
52              Harper, Mrs. Henry Sleeper (Myna Haxtun)  female  49.0
1
53    Faunthorpe, Mrs. Lizzie (Elizabeth Anne Wilkin...  female  29.0
1
54                        Ostby, Mr. Engelhart Cornelius    male  65.0
0
..                                                 ...     ...   ...
...
146        Andersson, Mr. August Edvard ("Wennerstrom")    male  27.0
0
147                         Ford, Miss. Robina Maggie "Ruby"  female   9.0
2
148            Navratil, Mr. Michel ("Louis M Hoffman")    male  36.5
0
149                    Byles, Rev. Thomas Roussel Davids    male  42.0
0
150                           Bateman, Rev. Robert James    male  51.0
0

     Parch       Ticket      Fare Cabin Embarked
50       1      3101295   39.6875   NaN        S
51       0   A/4. 39886    7.8000   NaN        S
52       0    PC 17572   76.7292   D33        C
53       0         2926   26.0000   NaN        S
54       1       113509   61.9792   B30        C
..     ...          ...       ...   ...      ...
146      0       350043    7.7958   NaN        S
147      2    W./C. 6608   34.3750   NaN        S
148      2       230080   26.0000    F2        S
149      0       244310   13.0000   NaN        S
150      0  S.O.P. 1166   12.5250   NaN        S

[101 rows x 12 columns]
```

Step-11 Delete a specific Column

```
data.drop('Age',axis=1,inplace = True)
```

```
data

     PassengerId  Survived  Pclass  \
0              1         0       3
1              2         1       1
2              3         1       3
3              4         1       1
4              5         0       3
..           ...       ...     ...
886          887         0       2
887          888         1       1
888          889         0       3
889          890         1       1
890          891         0       3

                                                  Name     Sex  SibSp
Parch  \
0                              Braund, Mr. Owen Harris    male      1
0
1    Cumings, Mrs. John Bradley (Florence Briggs Th...  female      1
0
2                               Heikkinen, Miss. Laina  female      0
0
3         Futrelle, Mrs. Jacques Heath (Lily May Peel)  female      1
0
4                             Allen, Mr. William Henry    male      0
0
..                                                 ...     ...    ...
...
886                              Montvila, Rev. Juozas    male      0
0
887                       Graham, Miss. Margaret Edith  female      0
0
888           Johnston, Miss. Catherine Helen "Carrie"  female      1
2
889                              Behr, Mr. Karl Howell    male      0
0
890                                  Dooley, Mr. Patrick    male      0
0

               Ticket     Fare Cabin Embarked
0           A/5 21171   7.2500   NaN        S
1            PC 17599  71.2833   C85        C
2    STON/O2. 3101282   7.9250   NaN        S
3              113803  53.1000  C123        S
4              373450   8.0500   NaN        S
..                ...      ...   ...      ...
886            211536  13.0000   NaN        S
887            112053  30.0000   B42        S
888          W./C. 6607  23.4500   NaN        S
```

```
889                111369  30.0000  C148        C
890                370376   7.7500  NaN         Q

[891 rows x 11 columns]
```

Step-12 Create a new Column

```
data['Amount'] = data['Fare']

data

     PassengerId  Survived  Pclass  \
0              1         0       3
1              2         1       1
2              3         1       3
3              4         1       1
4              5         0       3
..           ...       ...     ...
886          887         0       2
887          888         1       1
888          889         0       3
889          890         1       1
890          891         0       3


                                              Name     Sex  SibSp
Parch  \
0                          Braund, Mr. Owen Harris    male      1
0
1      Cumings, Mrs. John Bradley (Florence Briggs Th...  female      1
0
2                           Heikkinen, Miss. Laina  female      0
0
3         Futrelle, Mrs. Jacques Heath (Lily May Peel)  female      1
0
4                         Allen, Mr. William Henry    male      0
0
..                                             ...     ...    ...
...
886                          Montvila, Rev. Juozas    male      0
0
887                   Graham, Miss. Margaret Edith  female      0
0
888      Johnston, Miss. Catherine Helen "Carrie"  female      1
2
889                         Behr, Mr. Karl Howell    male      0
0
890                            Dooley, Mr. Patrick    male      0
0
```

```
              Ticket      Fare Cabin Embarked    Amount
0          A/5 21171    7.2500   NaN        S    7.2500
1           PC 17599   71.2833   C85        C   71.2833
2     STON/O2. 3101282   7.9250   NaN        S    7.9250
3             113803   53.1000  C123        S   53.1000
4             373450    8.0500   NaN        S    8.0500
..               ...      ...   ...      ...      ...
886           211536   13.0000   NaN        S   13.0000
887           112053   30.0000   B42        S   30.0000
888        W./C. 6607   23.4500   NaN        S   23.4500
889           111369   30.0000  C148        C   30.0000
890           370376    7.7500   NaN        Q    7.7500

[891 rows x 12 columns]
```

```python
data['Amount'] = data['Fare'].apply(lambda x :"High" if x>10 else
"Low")

data
```

```
     PassengerId  Survived  Pclass  \
0              1         0       3
1              2         1       1
2              3         1       3
3              4         1       1
4              5         0       3
..           ...       ...     ...
886          887         0       2
887          888         1       1
888          889         0       3
889          890         1       1
890          891         0       3

                                                  Name     Sex  SibSp
Parch  \
0                              Braund, Mr. Owen Harris    male      1
0
1    Cumings, Mrs. John Bradley (Florence Briggs Th...  female      1
0
2                               Heikkinen, Miss. Laina  female      0
0
3         Futrelle, Mrs. Jacques Heath (Lily May Peel)  female      1
0
4                             Allen, Mr. William Henry    male      0
0
..                                                 ...     ...    ...
...
886                              Montvila, Rev. Juozas    male      0
0
```

```
887                           Graham, Miss. Margaret Edith    female      0
0
888           Johnston, Miss. Catherine Helen "Carrie"    female      1
2
889                               Behr, Mr. Karl Howell      male      0
0
890                                  Dooley, Mr. Patrick      male      0
0

             Ticket      Fare Cabin Embarked Amount
0         A/5 21171    7.2500   NaN        S    Low
1          PC 17599   71.2833   C85        C   High
2   STON/O2. 3101282    7.9250   NaN        S    Low
3            113803   53.1000  C123        S   High
4            373450    8.0500   NaN        S    Low
..              ...       ...   ...      ...    ...
886          211536   13.0000   NaN        S   High
887          112053   30.0000   B42        S   High
888       W./C. 6607   23.4500   NaN        S   High
889          111369   30.0000  C148        C   High
890          370376    7.7500   NaN        Q    Low

[891 rows x 12 columns]
```

Step-13 Perform Condition Selection on DataFrame

```
data[(data['Fare']>10)]

     PassengerId  Survived  Pclass  \
1              2         1       1
3              4         1       1
6              7         0       1
7              8         0       3
8              9         1       3
..           ...       ...     ...
885          886         0       3
886          887         0       2
887          888         1       1
888          889         0       3
889          890         1       1

                                                  Name     Sex  SibSp
Parch  \
1    Cumings, Mrs. John Bradley (Florence Briggs Th...  female      1
0
3           Futrelle, Mrs. Jacques Heath (Lily May Peel)  female      1
```

```
0
6                              McCarthy, Mr. Timothy J    male       0
0
7                        Palsson, Master. Gosta Leonard    male       3
1
8    Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)  female       0
2
..                                                  ...     ...     ...
...
885                 Rice, Mrs. William (Margaret Norton)  female       0
5
886                             Montvila, Rev. Juozas    male       0
0
887                        Graham, Miss. Margaret Edith  female       0
0
888           Johnston, Miss. Catherine Helen "Carrie"  female       1
2
889                              Behr, Mr. Karl Howell    male       0
0

          Ticket      Fare Cabin Embarked Amount
1      PC 17599  71.2833   C85        C   High
3        113803  53.1000  C123        S   High
6         17463  51.8625   E46        S   High
7        349909  21.0750   NaN        S   High
8        347742  11.1333   NaN        S   High
..          ...      ...   ...      ...    ...
885      382652  29.1250   NaN        Q   High
886      211536  13.0000   NaN        S   High
887      112053  30.0000   B42        S   High
888  W./C. 6607  23.4500   NaN        S   High
889      111369  30.0000  C148        C   High

[555 rows x 12 columns]
```

Step-14 Compute the sum of value

```
data["Fare"].sum()
```

```
28693.9493
```

Step-15 Compute the mean of value

```
data["Fare"].mean()
```

```
32.204207968574636
```

Step-16 Count non-null value (column)

```
data.count()

PassengerId     891
Survived        891
Pclass          891
Name            891
Sex             891
SibSp           891
Parch           891
Ticket          891
Fare            891
Cabin           204
Embarked        889
Amount          891
dtype: int64

# second method
# give not null value

data.isnull().sum()

PassengerId       0
Survived          0
Pclass            0
Name              0
Sex               0
SibSp             0
Parch             0
Ticket            0
Fare              0
Cabin           687
Embarked          2
Amount            0
dtype: int64

# give null vlaue count
(~data.isnull()).sum()

PassengerId     891
Survived        891
Pclass          891
Name            891
Sex             891
SibSp           891
Parch           891
Ticket          891
Fare            891
Cabin           204
```

```
Embarked        889
Amount          891
dtype: int64
```

Step-17 Find Minimun or Maximum values

```
data["Fare"].min()

0.0

data["Fare"].max()

512.3292
```