PANDAS PART - 4 BY VIRAT TIWARI

October 13, 2023

```python
[3]: import pandas as pd
```

```python
[4]: df=pd.read_csv("https://raw.githubusercontent.com/datasciencedojo/datasets/
     ↪master/titanic.csv")
```

```python
[5]: df
```

```
[5]:      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]
```

[6]: `df.columns`

[6]:
```
Index(['PassengerId', 'Survived', 'Pclass', 'Name', 'Sex', 'Age', 'SibSp',
       'Parch', 'Ticket', 'Fare', 'Cabin', 'Embarked'],
      dtype='object')
```

1 ADD NEW COLUMN IN DATA FRAME

[7]: `df.columns`

[7]:
```
Index(['PassengerId', 'Survived', 'Pclass', 'Name', 'Sex', 'Age', 'SibSp',
       'Parch', 'Ticket', 'Fare', 'Cabin', 'Embarked'],
      dtype='object')
```

[8]:
```python
# Case - 1

df["Friends"]="Virat Tiwari"
```

[9]: `df.columns`

[9]:
```
Index(['PassengerId', 'Survived', 'Pclass', 'Name', 'Sex', 'Age', 'SibSp',
       'Parch', 'Ticket', 'Fare', 'Cabin', 'Embarked', 'Friends'],
      dtype='object')
```

DELETE ROW AND COLUMN FROM DATA FRAME

[10]: `df.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

                                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

   Parch            Ticket     Fare Cabin Embarked       Friends
0      0         A/5 21171   7.2500   NaN        S  Virat Tiwari
1      0          PC 17599  71.2833   C85        C  Virat Tiwari
2      0  STON/O2. 3101282   7.9250   NaN        S  Virat Tiwari
3      0            113803  53.1000  C123        S  Virat Tiwari
4      0            373450   8.0500   NaN        S  Virat Tiwari
```

[11]:
```python
# Note - We have to use drop ( ) function for deleting the row or column
```

[12]:
```python
df.drop("PassengerId",axis=1)
```

[12]:
```
     Survived  Pclass                                               Name  \
0           0       3                            Braund, Mr. Owen Harris
1           1       1  Cumings, Mrs. John Bradley (Florence Briggs Th…
2           1       3                             Heikkinen, Miss. Laina
3           1       1       Futrelle, Mrs. Jacques Heath (Lily May Peel)
4           0       3                           Allen, Mr. William Henry
..        ...     ...                                                ...
886         0       2                              Montvila, Rev. Juozas
887         1       1                       Graham, Miss. Margaret Edith
888         0       3           Johnston, Miss. Catherine Helen "Carrie"
889         1       1                              Behr, Mr. Karl Howell
890         0       3                                Dooley, Mr. Patrick

        Sex   Age  SibSp  Parch            Ticket     Fare Cabin Embarked  \
0      male  22.0      1      0         A/5 21171   7.2500   NaN        S
1    female  38.0      1      0          PC 17599  71.2833   C85        C
2    female  26.0      0      0  STON/O2. 3101282   7.9250   NaN        S
3    female  35.0      1      0            113803  53.1000  C123        S
4      male  35.0      0      0            373450   8.0500   NaN        S
..      ...   ...    ...    ...               ...      ...   ...      ...
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

          Friends
0    Virat Tiwari
1    Virat Tiwari
2    Virat Tiwari
```

```
3      Virat Tiwari
4      Virat Tiwari
..              …
886    Virat Tiwari
887    Virat Tiwari
888    Virat Tiwari
889    Virat Tiwari
890    Virat Tiwari

[891 rows x 12 columns]
```

[13]: `# When we perform the dataframe  so we have to seen that column is not delete␣`
`↪permanently`

`df`

[13]:
```
     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        Friends
0        0         A/5 21171   7.2500   NaN        S  Virat Tiwari
1        0          PC 17599  71.2833   C85        C  Virat Tiwari
2        0  STON/O2. 3101282   7.9250   NaN        S  Virat Tiwari
3        0            113803  53.1000  C123        S  Virat Tiwari
```

4

```
4            0             373450   8.0500    NaN          S  Virat Tiwari
..           …                  …        …      …          …
886          0             211536  13.0000    NaN          S  Virat Tiwari
887          0             112053  30.0000    B42          S  Virat Tiwari
888          2         W./C. 6607  23.4500    NaN          S  Virat Tiwari
889          0             111369  30.0000   C148          C  Virat Tiwari
890          0             370376   7.7500    NaN          Q  Virat Tiwari

[891 rows x 13 columns]
```

[14]:
```python
# For delete the row or column permanentlty we have to re-assign the df
# This is how we delete the column permanently
df=df.drop("PassengerId",axis=1)
```

[15]:
```python
df
```

[15]:
```
     Survived  Pclass                                               Name  \
0           0       3                            Braund, Mr. Owen Harris
1           1       1  Cumings, Mrs. John Bradley (Florence Briggs Th…
2           1       3                             Heikkinen, Miss. Laina
3           1       1       Futrelle, Mrs. Jacques Heath (Lily May Peel)
4           0       3                           Allen, Mr. William Henry
..        …       …                                                  …
886         0       2                              Montvila, Rev. Juozas
887         1       1                       Graham, Miss. Margaret Edith
888         0       3          Johnston, Miss. Catherine Helen "Carrie"
889         1       1                              Behr, Mr. Karl Howell
890         0       3                                Dooley, Mr. Patrick

        Sex   Age  SibSp  Parch            Ticket     Fare Cabin Embarked  \
0      male  22.0      1      0         A/5 21171   7.2500   NaN        S
1    female  38.0      1      0          PC 17599  71.2833   C85        C
2    female  26.0      0      0  STON/O2. 3101282   7.9250   NaN        S
3    female  35.0      1      0            113803  53.1000  C123        S
4      male  35.0      0      0            373450   8.0500   NaN        S
..      …    …      …      …                …         …    …        …
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

           Friends
0    Virat Tiwari
1    Virat Tiwari
2    Virat Tiwari
3    Virat Tiwari
```

```
4     Virat Tiwari
..              …
886   Virat Tiwari
887   Virat Tiwari
888   Virat Tiwari
889   Virat Tiwari
890   Virat Tiwari

[891 rows x 12 columns]
```

[16]: `df`

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

        Sex   Age  SibSp  Parch            Ticket     Fare Cabin Embarked  \
0      male  22.0      1      0         A/5 21171   7.2500   NaN        S
1    female  38.0      1      0          PC 17599  71.2833   C85        C
2    female  26.0      0      0  STON/O2. 3101282   7.9250   NaN        S
3    female  35.0      1      0            113803  53.1000  C123        S
4      male  35.0      0      0            373450   8.0500   NaN        S
..      …    …      …      …              …         …    …          …
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

          Friends
0     Virat Tiwari
1     Virat Tiwari
2     Virat Tiwari
3     Virat Tiwari
4     Virat Tiwari
..             …
886   Virat Tiwari
887   Virat Tiwari
```

```
888  Virat Tiwari
889  Virat Tiwari
890  Virat Tiwari

[891 rows x 12 columns]
```

[17]: ```
Their is another way to delte the column permanently by passing the " inplace
↪" inside the drop ( ) function

df.drop("Pclass",axis=1,inplace=True)
```

[18]: ```
df
```

[18]:
```
     Survived                                               Name     Sex  \
0           0                            Braund, Mr. Owen Harris    male
1           1  Cumings, Mrs. John Bradley (Florence Briggs Th…  female
2           1                             Heikkinen, Miss. Laina  female
3           1       Futrelle, Mrs. Jacques Heath (Lily May Peel)  female
4           0                           Allen, Mr. William Henry    male
..        …                                                  …     …
886         0                            Montvila, Rev. Juozas    male
887         1                     Graham, Miss. Margaret Edith  female
888         0        Johnston, Miss. Catherine Helen "Carrie"  female
889         1                            Behr, Mr. Karl Howell    male
890         0                            Dooley, Mr. Patrick    male

      Age  SibSp  Parch            Ticket     Fare Cabin Embarked  \
0    22.0      1      0         A/5 21171   7.2500   NaN        S
1    38.0      1      0          PC 17599  71.2833   C85        C
2    26.0      0      0  STON/O2. 3101282   7.9250   NaN        S
3    35.0      1      0            113803  53.1000  C123        S
4    35.0      0      0            373450   8.0500   NaN        S
..    …      …      …                …        …     …      …
886  27.0      0      0            211536  13.0000   NaN        S
887  19.0      0      0            112053  30.0000   B42        S
888   NaN      1      2        W./C. 6607  23.4500   NaN        S
889  26.0      0      0            111369  30.0000  C148        C
890  32.0      0      0            370376   7.7500   NaN        Q

          Friends
0    Virat Tiwari
1    Virat Tiwari
2    Virat Tiwari
3    Virat Tiwari
4    Virat Tiwari
..            …
886  Virat Tiwari
```

```
887  Virat Tiwari
888  Virat Tiwari
889  Virat Tiwari
890  Virat Tiwari

[891 rows x 11 columns]
```

[19]:
```python
# This is how we drop the rows from the dataframe temporary

df.drop(4)
```

[19]:
```
     Survived                                               Name     Sex  \
0           0                            Braund, Mr. Owen Harris    male
1           1  Cumings, Mrs. John Bradley (Florence Briggs Th…  female
2           1                             Heikkinen, Miss. Laina  female
3           1       Futrelle, Mrs. Jacques Heath (Lily May Peel)  female
5           0                                   Moran, Mr. James    male
..        ...                                                ...     ...
886         0                              Montvila, Rev. Juozas    male
887         1                       Graham, Miss. Margaret Edith  female
888         0           Johnston, Miss. Catherine Helen "Carrie"  female
889         1                              Behr, Mr. Karl Howell    male
890         0                                Dooley, Mr. Patrick    male

      Age  SibSp  Parch            Ticket     Fare Cabin Embarked  \
0    22.0      1      0         A/5 21171   7.2500   NaN        S
1    38.0      1      0          PC 17599  71.2833   C85        C
2    26.0      0      0  STON/O2. 3101282   7.9250   NaN        S
3    35.0      1      0            113803  53.1000  C123        S
5     NaN      0      0            330877   8.4583   NaN        Q
..    ...    ...    ...               ...      ...   ...      ...
886  27.0      0      0            211536  13.0000   NaN        S
887  19.0      0      0            112053  30.0000   B42        S
888   NaN      1      2         W./C. 6607  23.4500   NaN        S
889  26.0      0      0            111369  30.0000  C148        C
890  32.0      0      0            370376   7.7500   NaN        Q

           Friends
0      Virat Tiwari
1      Virat Tiwari
2      Virat Tiwari
3      Virat Tiwari
5      Virat Tiwari
..              ...
886    Virat Tiwari
887    Virat Tiwari
888    Virat Tiwari
```

```
889  Virat Tiwari
890  Virat Tiwari

[890 rows x 11 columns]
```

[20]:
```python
# For deleting rows permanently we have to use " inplace = True " inside the
 ↪drop ( )   function

df.drop(4,inplace=True)
```

[21]:
```python
df
```

[21]:
```
     Survived                                                 Name     Sex  \
0           0                              Braund, Mr. Owen Harris    male
1           1  Cumings, Mrs. John Bradley (Florence Briggs Th…  female
2           1                               Heikkinen, Miss. Laina  female
3           1         Futrelle, Mrs. Jacques Heath (Lily May Peel)  female
5           0                                     Moran, Mr. James    male
..        …                                                    …      …
886         0                               Montvila, Rev. Juozas    male
887         1                         Graham, Miss. Margaret Edith  female
888         0             Johnston, Miss. Catherine Helen "Carrie"  female
889         1                               Behr, Mr. Karl Howell    male
890         0                                 Dooley, Mr. Patrick    male

      Age  SibSp  Parch            Ticket     Fare Cabin Embarked  \
0    22.0      1      0         A/5 21171   7.2500   NaN        S
1    38.0      1      0          PC 17599  71.2833   C85        C
2    26.0      0      0  STON/O2. 3101282   7.9250   NaN        S
3    35.0      1      0            113803  53.1000  C123        S
5     NaN      0      0            330877   8.4583   NaN        Q
..     …     …     …                …       …    …       …
886  27.0      0      0            211536  13.0000   NaN        S
887  19.0      0      0            112053  30.0000   B42        S
888   NaN      1      2         W./C. 6607  23.4500   NaN        S
889  26.0      0      0            111369  30.0000  C148        C
890  32.0      0      0            370376   7.7500   NaN        Q

           Friends
0     Virat Tiwari
1     Virat Tiwari
2     Virat Tiwari
3     Virat Tiwari
5     Virat Tiwari
..             …
886   Virat Tiwari
887   Virat Tiwari
```

```
888   Virat Tiwari
889   Virat Tiwari
890   Virat Tiwari

[890 rows x 11 columns]
```

[22]: # Set index by using the set_index ("name of any column") function temporary

This is how we set indexes by taking any colimn name

df.set_index("Name")

[22]:

```
                                                    Survived     Sex   Age  \
Name
Braund, Mr. Owen Harris                                    0    male  22.0
Cumings, Mrs. John Bradley (Florence Briggs Tha…           1  female  38.0
Heikkinen, Miss. Laina                                     1  female  26.0
Futrelle, Mrs. Jacques Heath (Lily May Peel)               1  female  35.0
Moran, Mr. James                                           0    male   NaN
…                                                         …       …     …
Montvila, Rev. Juozas                                      0    male  27.0
Graham, Miss. Margaret Edith                               1  female  19.0
Johnston, Miss. Catherine Helen "Carrie"                   0  female   NaN
Behr, Mr. Karl Howell                                      1    male  26.0
Dooley, Mr. Patrick                                        0    male  32.0

                                                    SibSp  Parch  \
Name
Braund, Mr. Owen Harris                                 1      0
Cumings, Mrs. John Bradley (Florence Briggs Tha…        1      0
Heikkinen, Miss. Laina                                  0      0
Futrelle, Mrs. Jacques Heath (Lily May Peel)            1      0
Moran, Mr. James                                        0      0
…                                                       …      …
Montvila, Rev. Juozas                                   0      0
Graham, Miss. Margaret Edith                            0      0
Johnston, Miss. Catherine Helen "Carrie"                1      2
Behr, Mr. Karl Howell                                   0      0
Dooley, Mr. Patrick                                     0      0

                                                           Ticket     Fare  \
Name
Braund, Mr. Owen Harris                                 A/5 21171   7.2500
Cumings, Mrs. John Bradley (Florence Briggs Tha…         PC 17599  71.2833
Heikkinen, Miss. Laina                            STON/O2. 3101282   7.9250
Futrelle, Mrs. Jacques Heath (Lily May Peel)               113803  53.1000
Moran, Mr. James                                           330877   8.4583
```

```
...                                                     ...       ...
Montvila, Rev. Juozas                                211536   13.0000
Graham, Miss. Margaret Edith                         112053   30.0000
Johnston, Miss. Catherine Helen "Carrie"           W./C. 6607  23.4500
Behr, Mr. Karl Howell                                111369   30.0000
Dooley, Mr. Patrick                                  370376    7.7500

                                                   Cabin Embarked  \
Name
Braund, Mr. Owen Harris                              NaN        S
Cumings, Mrs. John Bradley (Florence Briggs Tha…     C85        C
Heikkinen, Miss. Laina                               NaN        S
Futrelle, Mrs. Jacques Heath (Lily May Peel)         C123       S
Moran, Mr. James                                     NaN        Q
...                                                  ...        ...
Montvila, Rev. Juozas                                NaN        S
Graham, Miss. Margaret Edith                         B42        S
Johnston, Miss. Catherine Helen "Carrie"             NaN        S
Behr, Mr. Karl Howell                                C148       C
Dooley, Mr. Patrick                                  NaN        Q

                                                     Friends
Name
Braund, Mr. Owen Harris                           Virat Tiwari
Cumings, Mrs. John Bradley (Florence Briggs Tha…  Virat Tiwari
Heikkinen, Miss. Laina                            Virat Tiwari
Futrelle, Mrs. Jacques Heath (Lily May Peel)      Virat Tiwari
Moran, Mr. James                                  Virat Tiwari
...                                                   ...
Montvila, Rev. Juozas                             Virat Tiwari
Graham, Miss. Margaret Edith                      Virat Tiwari
Johnston, Miss. Catherine Helen "Carrie"          Virat Tiwari
Behr, Mr. Karl Howell                             Virat Tiwari
Dooley, Mr. Patrick                               Virat Tiwari

[890 rows x 10 columns]
```

```
[23]: df
```

```
[23]:      Survived                                       Name     Sex  \
      0           0                        Braund, Mr. Owen Harris    male
      1           1  Cumings, Mrs. John Bradley (Florence Briggs Th…  female
      2           1                         Heikkinen, Miss. Laina  female
      3           1      Futrelle, Mrs. Jacques Heath (Lily May Peel)  female
      5           0                              Moran, Mr. James    male
      ..         …                                          …       …
      886         0                        Montvila, Rev. Juozas    male
```

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

      Age  SibSp  Parch            Ticket     Fare Cabin Embarked  \
0    22.0      1      0         A/5 21171   7.2500   NaN        S
1    38.0      1      0          PC 17599  71.2833   C85        C
2    26.0      0      0  STON/O2. 3101282   7.9250   NaN        S
3    35.0      1      0            113803  53.1000  C123        S
5     NaN      0      0            330877   8.4583   NaN        Q
..    ...    ...    ...               ...      ...   ...      ...
886  27.0      0      0            211536  13.0000   NaN        S
887  19.0      0      0            112053  30.0000   B42        S
888   NaN      1      2        W./C. 6607  23.4500   NaN        S
889  26.0      0      0            111369  30.0000  C148        C
890  32.0      0      0            370376   7.7500   NaN        Q

            Friends
0      Virat Tiwari
1      Virat Tiwari
2      Virat Tiwari
3      Virat Tiwari
5      Virat Tiwari
..              ...
886    Virat Tiwari
887    Virat Tiwari
888    Virat Tiwari
889    Virat Tiwari
890    Virat Tiwari

[890 rows x 11 columns]
```

```python
[24]: # Set index by using the set_index ( "name of any column" ) function␣
      ↪Permanently

      # This is how we set indexes by taking any colimn name


      df.set_index("Name",inplace = True)
```

```python
[25]: df
```

```
[25]:                                                     Survived     Sex   Age  \
      Name
      Braund, Mr. Owen Harris                                 0    male  22.0
      Cumings, Mrs. John Bradley (Florence Briggs Tha…        1  female  38.0
```

```
Heikkinen, Miss. Laina                               1   female  26.0
Futrelle, Mrs. Jacques Heath (Lily May Peel)         1   female  35.0
Moran, Mr. James                                     0     male   NaN
…                                                    …      …      …
Montvila, Rev. Juozas                                0     male  27.0
Graham, Miss. Margaret Edith                         1   female  19.0
Johnston, Miss. Catherine Helen "Carrie"             0   female   NaN
Behr, Mr. Karl Howell                                1     male  26.0
Dooley, Mr. Patrick                                  0     male  32.0

                                                  SibSp  Parch  \
Name
Braund, Mr. Owen Harris                               1      0
Cumings, Mrs. John Bradley (Florence Briggs Tha…      1      0
Heikkinen, Miss. Laina                                0      0
Futrelle, Mrs. Jacques Heath (Lily May Peel)          1      0
Moran, Mr. James                                      0      0
…                                                     …      …
Montvila, Rev. Juozas                                 0      0
Graham, Miss. Margaret Edith                          0      0
Johnston, Miss. Catherine Helen "Carrie"              1      2
Behr, Mr. Karl Howell                                 0      0
Dooley, Mr. Patrick                                   0      0

                                                        Ticket     Fare  \
Name
Braund, Mr. Owen Harris                              A/5 21171   7.2500
Cumings, Mrs. John Bradley (Florence Briggs Tha…      PC 17599  71.2833
Heikkinen, Miss. Laina                          STON/O2. 3101282   7.9250
Futrelle, Mrs. Jacques Heath (Lily May Peel)           113803  53.1000
Moran, Mr. James                                       330877   8.4583
…                                                         …        …
Montvila, Rev. Juozas                                  211536  13.0000
Graham, Miss. Margaret Edith                           112053  30.0000
Johnston, Miss. Catherine Helen "Carrie"             W./C. 6607  23.4500
Behr, Mr. Karl Howell                                  111369  30.0000
Dooley, Mr. Patrick                                    370376   7.7500

                                                 Cabin Embarked  \
Name
Braund, Mr. Owen Harris                            NaN        S
Cumings, Mrs. John Bradley (Florence Briggs Tha…   C85        C
Heikkinen, Miss. Laina                             NaN        S
Futrelle, Mrs. Jacques Heath (Lily May Peel)       C123       S
Moran, Mr. James                                   NaN        Q
…                                                   …        …
Montvila, Rev. Juozas                              NaN        S
```

```
Graham, Miss. Margaret Edith                          B42        S
Johnston, Miss. Catherine Helen "Carrie"              NaN        S
Behr, Mr. Karl Howell                                C148        C
Dooley, Mr. Patrick                                   NaN        Q


                                                   Friends
Name
Braund, Mr. Owen Harris                         Virat Tiwari
Cumings, Mrs. John Bradley (Florence Briggs Tha…  Virat Tiwari
Heikkinen, Miss. Laina                          Virat Tiwari
Futrelle, Mrs. Jacques Heath (Lily May Peel)    Virat Tiwari
Moran, Mr. James                                Virat Tiwari
…                                                     …
Montvila, Rev. Juozas                           Virat Tiwari
Graham, Miss. Margaret Edith                    Virat Tiwari
Johnston, Miss. Catherine Helen "Carrie"        Virat Tiwari
Behr, Mr. Karl Howell                           Virat Tiwari
Dooley, Mr. Patrick                             Virat Tiwari

[890 rows x 10 columns]
```

[26]: `df.reset_index()`

[26]:
```
                                                 Name  Survived     Sex  \
0                         Braund, Mr. Owen Harris         0    male
1     Cumings, Mrs. John Bradley (Florence Briggs Th…    1  female
2                         Heikkinen, Miss. Laina          1  female
3         Futrelle, Mrs. Jacques Heath (Lily May Peel)    1  female
4                             Moran, Mr. James            0    male
..                                                …        …     …
885                       Montvila, Rev. Juozas           0    male
886                 Graham, Miss. Margaret Edith          1  female
887       Johnston, Miss. Catherine Helen "Carrie"       0  female
888                       Behr, Mr. Karl Howell           1    male
889                         Dooley, Mr. Patrick           0    male

      Age  SibSp  Parch           Ticket     Fare Cabin Embarked  \
0    22.0      1      0        A/5 21171   7.2500   NaN        S
1    38.0      1      0         PC 17599  71.2833   C85        C
2    26.0      0      0  STON/O2. 3101282   7.9250   NaN        S
3    35.0      1      0           113803  53.1000  C123        S
4     NaN      0      0           330877   8.4583   NaN        Q
..    …      …      …              …        …     …       …
885  27.0      0      0           211536  13.0000   NaN        S
886  19.0      0      0           112053  30.0000   B42        S
887   NaN      1      2        W./C. 6607  23.4500   NaN        S
888  26.0      0      0           111369  30.0000  C148        C
```

```
889  32.0      0      0            370376   7.7500   NaN       Q
```

```
         Friends
0     Virat Tiwari
1     Virat Tiwari
2     Virat Tiwari
3     Virat Tiwari
4     Virat Tiwari
..          …
885   Virat Tiwari
886   Virat Tiwari
887   Virat Tiwari
888   Virat Tiwari
889   Virat Tiwari

[890 rows x 11 columns]
```

[27]:
```python
# Note - We convert Dictionary into Dataframe

# Dictionary keys become the Columns

# Dictionary values become the values of row

d={"key":[6,5,4,2,3],
   "key2":[9,8,5,6,8],
   "key3":[4,6,3,1,9]
}
```

[28]:
```python
pd.DataFrame(d)
```

[28]:
```
   key  key2  key3
0    6     9     4
1    5     8     6
2    4     5     3
3    2     6     1
4    3     8     9
```

[29]:
```python
# Note - We convert Dictionary into Dataframe

# Dictionary keys become the Columns

# Dictionary values become the values of row

BioData={"Name":["Virat","Yash","Rohit"],
   "Jobs":["Data Scientist","ML Engineer","Robotic instructor"],
   "Companies":["E&Y","TCS","ABB"],
   "Salery":["50K","65K","48K"]
```

```
}

# This is how we made dataframe from the dictionary
```

[30]: `pd.DataFrame(BioData)`

[30]:
```
    Name               Jobs Companies Salery
0  Virat      Data Scientist       E&Y    50K
1   Yash         ML Engineer       TCS    65K
2  Rohit  Robotic instructor       ABB    48K
```

[31]: `df1=pd.read_csv("taxonomy.csv")`

[32]: `df1`

[32]:
```
    taxonomy_id                      name parent_id              parent_name
0           101                  Emergency       NaN                      NaN
1        101-01          Disaster Response       101                Emergency
2        101-02              Emergency Cash       101                Emergency
3     101-02-01           Help Pay for Food    101-02           Emergency Cash
4     101-02-02     Help Pay for Healthcare    101-02           Emergency Cash
..          ...                        ...       ...                      ...
285      111-01-07           Workplace Rights    111-01  Advocacy & Legal Aid
286        111-02                  Mediation       111                    Legal
287        111-03                     Notary       111                    Legal
288        111-04             Representation       111                    Legal
289        111-05  Translation & Interpretation   111                    Legal

[290 rows x 4 columns]
```

[33]:
```
# For deleting the NA (Not available data or missing data ) we have to use
 ↪dropna ( )  function

# dropna ( ) function - For deleting missing data or values

df1.dropna()
```

[33]:
```
    taxonomy_id                      name parent_id              parent_name
1        101-01          Disaster Response       101                Emergency
2        101-02              Emergency Cash       101                Emergency
3     101-02-01           Help Pay for Food    101-02           Emergency Cash
4     101-02-02     Help Pay for Healthcare    101-02           Emergency Cash
5     101-02-03        Help Pay for Housing    101-02           Emergency Cash
..          ...                        ...       ...                      ...
285      111-01-07           Workplace Rights    111-01  Advocacy & Legal Aid
286        111-02                  Mediation       111                    Legal
```

```
287      111-03                         Notary   111                    Legal
288      111-04                 Representation   111                    Legal
289      111-05  Translation & Interpretation   111                    Legal

[279 rows x 4 columns]
```

[34]: `df.dropna()`

[34]:
```
                                                   Survived      Sex   Age  \
Name
Cumings, Mrs. John Bradley (Florence Briggs Tha…          1   female  38.0
Futrelle, Mrs. Jacques Heath (Lily May Peel)             1   female  35.0
McCarthy, Mr. Timothy J                                  0     male  54.0
Sandstrom, Miss. Marguerite Rut                          1   female   4.0
Bonnell, Miss. Elizabeth                                 1   female  58.0
…                                                        …        …     …
Beckwith, Mrs. Richard Leonard (Sallie Monypeny)         1   female  47.0
Carlsson, Mr. Frans Olof                                 0     male  33.0
Potter, Mrs. Thomas Jr (Lily Alexenia Wilson)            1   female  56.0
Graham, Miss. Margaret Edith                             1   female  19.0
Behr, Mr. Karl Howell                                    1     male  26.0

                                                   SibSp  Parch    Ticket  \
Name
Cumings, Mrs. John Bradley (Florence Briggs Tha…       1      0  PC 17599
Futrelle, Mrs. Jacques Heath (Lily May Peel)           1      0    113803
McCarthy, Mr. Timothy J                                0      0     17463
Sandstrom, Miss. Marguerite Rut                        1      1   PP 9549
Bonnell, Miss. Elizabeth                               0      0    113783
…                                                      …      …         …
Beckwith, Mrs. Richard Leonard (Sallie Monypeny)       1      1     11751
Carlsson, Mr. Frans Olof                               0      0       695
Potter, Mrs. Thomas Jr (Lily Alexenia Wilson)          0      1     11767
Graham, Miss. Margaret Edith                           0      0    112053
Behr, Mr. Karl Howell                                  0      0    111369

                                                       Fare        Cabin  \
Name
Cumings, Mrs. John Bradley (Florence Briggs Tha…    71.2833          C85
Futrelle, Mrs. Jacques Heath (Lily May Peel)        53.1000         C123
McCarthy, Mr. Timothy J                             51.8625          E46
Sandstrom, Miss. Marguerite Rut                     16.7000           G6
Bonnell, Miss. Elizabeth                            26.5500         C103
…                                                        …            …
Beckwith, Mrs. Richard Leonard (Sallie Monypeny)    52.5542          D35
Carlsson, Mr. Frans Olof                             5.0000  B51 B53 B55
Potter, Mrs. Thomas Jr (Lily Alexenia Wilson)       83.1583          C50
```

```
Graham, Miss. Margaret Edith                          30.0000           B42
Behr, Mr. Karl Howell                                 30.0000          C148


                                                  Embarked       Friends
Name
Cumings, Mrs. John Bradley (Florence Briggs Tha…       C  Virat Tiwari
Futrelle, Mrs. Jacques Heath (Lily May Peel)           S  Virat Tiwari
McCarthy, Mr. Timothy J                                S  Virat Tiwari
Sandstrom, Miss. Marguerite Rut                        S  Virat Tiwari
Bonnell, Miss. Elizabeth                               S  Virat Tiwari
…                                                      …             …
Beckwith, Mrs. Richard Leonard (Sallie Monypeny)       S  Virat Tiwari
Carlsson, Mr. Frans Olof                               S  Virat Tiwari
Potter, Mrs. Thomas Jr (Lily Alexenia Wilson)          C  Virat Tiwari
Graham, Miss. Margaret Edith                           S  Virat Tiwari
Behr, Mr. Karl Howell                                  C  Virat Tiwari

[183 rows x 10 columns]
```

[35]: `df1`

```
[35]:     taxonomy_id                      name parent_id          parent_name
      0           101                 Emergency       NaN                  NaN
      1        101-01         Disaster Response       101            Emergency
      2        101-02             Emergency Cash       101            Emergency
      3     101-02-01          Help Pay for Food    101-02        Emergency Cash
      4     101-02-02    Help Pay for Healthcare    101-02        Emergency Cash
      ..          …                         …         …                    …
      285   111-01-07          Workplace Rights    111-01  Advocacy & Legal Aid
      286      111-02                 Mediation       111                Legal
      287      111-03                    Notary       111                Legal
      288      111-04            Representation       111                Legal
      289      111-05  Translation & Interpretation    111                Legal

[290 rows x 4 columns]
```

[36]:
```python
# FOR DELETE MISSING DATA OR VALUES PERMANENTLY

# WE HAVE TO USE - dropna (inplace=True)

df1.dropna(inplace=True)
```

[37]: `df1`

```
[37]:    taxonomy_id                name parent_id    parent_name
      1       101-01   Disaster Response       101      Emergency
      2       101-02      Emergency Cash       101      Emergency
```

```
3       101-02-01               Help Pay for Food   101-02              Emergency Cash
4       101-02-02         Help Pay for Healthcare   101-02              Emergency Cash
5       101-02-03            Help Pay for Housing   101-02              Emergency Cash
..          ...                             ...      ...                         ...
285     111-01-07               Workplace Rights   111-01   Advocacy & Legal Aid
286        111-02                      Mediation      111                     Legal
287        111-03                         Notary      111                     Legal
288        111-04                 Representation      111                     Legal
289        111-05    Translation & Interpretation      111                     Legal

[279 rows x 4 columns]
```

[38]:
```python
# MOST IMPORTANT

# SAVE THE DATA IN LOCAL SYSTEM

# .to_csv(" name.csv") - BY USING THIS SYSNTAX WE HAVE TO SAVE ANY FILE OR
#  UPDATED FILE INTO OUR LOCAL SYSTEM

# WE CAN SAVE OR STORE DATA SETS THAT WE HAVE MADE OR MANIPULATED IN PANDAS

df1.to_csv("New_Data.csv")
```

[39]:
```python
df.dropna(axis=1)
```

[39]:
```
                                                    Survived     Sex  SibSp  \
Name
Braund, Mr. Owen Harris                                    0    male      1
Cumings, Mrs. John Bradley (Florence Briggs Tha…           1  female      1
Heikkinen, Miss. Laina                                     1  female      0
Futrelle, Mrs. Jacques Heath (Lily May Peel)               1  female      1
Moran, Mr. James                                           0    male      0
…                                                        ...     ...    ...
Montvila, Rev. Juozas                                      0    male      0
Graham, Miss. Margaret Edith                               1  female      0
Johnston, Miss. Catherine Helen "Carrie"                   0  female      1
Behr, Mr. Karl Howell                                      1    male      0
Dooley, Mr. Patrick                                        0    male      0

                                                    Parch          Ticket  \
Name
Braund, Mr. Owen Harris                                 0       A/5 21171
Cumings, Mrs. John Bradley (Florence Briggs Tha…        0        PC 17599
Heikkinen, Miss. Laina                                  0  STON/O2. 3101282
Futrelle, Mrs. Jacques Heath (Lily May Peel)            0          113803
Moran, Mr. James                                        0          330877
…                                                     ...             ...
```

Montvila, Rev. Juozas	0	211536
Graham, Miss. Margaret Edith	0	112053
Johnston, Miss. Catherine Helen "Carrie"	2	W./C. 6607
Behr, Mr. Karl Howell	0	111369
Dooley, Mr. Patrick	0	370376

Name	Fare	Friends
Braund, Mr. Owen Harris	7.2500	Virat Tiwari
Cumings, Mrs. John Bradley (Florence Briggs Tha…	71.2833	Virat Tiwari
Heikkinen, Miss. Laina	7.9250	Virat Tiwari
Futrelle, Mrs. Jacques Heath (Lily May Peel)	53.1000	Virat Tiwari
Moran, Mr. James	8.4583	Virat Tiwari
…	…	…
Montvila, Rev. Juozas	13.0000	Virat Tiwari
Graham, Miss. Margaret Edith	30.0000	Virat Tiwari
Johnston, Miss. Catherine Helen "Carrie"	23.4500	Virat Tiwari
Behr, Mr. Karl Howell	30.0000	Virat Tiwari
Dooley, Mr. Patrick	7.7500	Virat Tiwari

[890 rows x 7 columns]

```
[40]: df2=pd.read_csv("taxonomy.csv")
```

```
[41]: df2
```

[41]:
	taxonomy_id	name	parent_id	parent_name
0	101	Emergency	NaN	NaN
1	101-01	Disaster Response	101	Emergency
2	101-02	Emergency Cash	101	Emergency
3	101-02-01	Help Pay for Food	101-02	Emergency Cash
4	101-02-02	Help Pay for Healthcare	101-02	Emergency Cash
..	…	…	…	…
285	111-01-07	Workplace Rights	111-01	Advocacy & Legal Aid
286	111-02	Mediation	111	Legal
287	111-03	Notary	111	Legal
288	111-04	Representation	111	Legal
289	111-05	Translation & Interpretation	111	Legal

[290 rows x 4 columns]

```
[42]: # This is how we remove the columns with null values

df2.dropna(axis=1)
```

[42]:
	taxonomy_id	name
0	101	Emergency

```
1       101-01              Disaster Response
2       101-02                  Emergency Cash
3     101-02-01             Help Pay for Food
4     101-02-02       Help Pay for Healthcare
..          …                             …
285   111-01-07              Workplace Rights
286     111-02                      Mediation
287     111-03                         Notary
288     111-04                 Representation
289     111-05  Translation & Interpretation

[290 rows x 2 columns]
```

[43]:
```python
# FILL THE NA VALUES OR MISSING VALUES IN DATAFRAME

# .fillna ( ) function - BY USING THIS SYNTAX WE HAVE TO FILL THE NA OR MISSING
 ↪VALUES OF DATA FRAMES

# We simply pass the value inside the " .fillna ( " " ) "

df2.fillna("Virat")
```

[43]:
```
      taxonomy_id                           name parent_id              parent_name
0             101                      Emergency     Virat                    Virat
1          101-01              Disaster Response       101                Emergency
2          101-02                  Emergency Cash      101                Emergency
3        101-02-01             Help Pay for Food   101-02            Emergency Cash
4        101-02-02       Help Pay for Healthcare   101-02            Emergency Cash
..             …                             …         …                        …
285      111-01-07              Workplace Rights   111-01  Advocacy & Legal Aid
286        111-02                      Mediation      111                    Legal
287        111-03                         Notary      111                    Legal
288        111-04                 Representation      111                    Legal
289        111-05  Translation & Interpretation      111                    Legal

[290 rows x 4 columns]
```

[44]:
```python
df
```

[44]:
```
                                                    Survived     Sex    Age  \
Name
Braund, Mr. Owen Harris                                    0    male   22.0
Cumings, Mrs. John Bradley (Florence Briggs Tha…           1  female   38.0
Heikkinen, Miss. Laina                                     1  female   26.0
Futrelle, Mrs. Jacques Heath (Lily May Peel)               1  female   35.0
Moran, Mr. James                                           0    male    NaN
…                                                          …       …      …
```

```
Montvila, Rev. Juozas                                    0    male  27.0
Graham, Miss. Margaret Edith                             1  female  19.0
Johnston, Miss. Catherine Helen "Carrie"                 0  female   NaN
Behr, Mr. Karl Howell                                    1    male  26.0
Dooley, Mr. Patrick                                      0    male  32.0


                                                    SibSp  Parch  \
Name
Braund, Mr. Owen Harris                                 1      0
Cumings, Mrs. John Bradley (Florence Briggs Tha…        1      0
Heikkinen, Miss. Laina                                  0      0
Futrelle, Mrs. Jacques Heath (Lily May Peel)            1      0
Moran, Mr. James                                        0      0
…                                                     …      …
Montvila, Rev. Juozas                                   0      0
Graham, Miss. Margaret Edith                            0      0
Johnston, Miss. Catherine Helen "Carrie"                1      2
Behr, Mr. Karl Howell                                   0      0
Dooley, Mr. Patrick                                     0      0


                                                       Ticket     Fare  \
Name
Braund, Mr. Owen Harris                             A/5 21171   7.2500
Cumings, Mrs. John Bradley (Florence Briggs Tha…     PC 17599  71.2833
Heikkinen, Miss. Laina                        STON/O2. 3101282   7.9250
Futrelle, Mrs. Jacques Heath (Lily May Peel)           113803  53.1000
Moran, Mr. James                                       330877   8.4583
…                                                        …       …
Montvila, Rev. Juozas                                  211536  13.0000
Graham, Miss. Margaret Edith                           112053  30.0000
Johnston, Miss. Catherine Helen "Carrie"            W./C. 6607  23.4500
Behr, Mr. Karl Howell                                  111369  30.0000
Dooley, Mr. Patrick                                    370376   7.7500


                                                   Cabin Embarked  \
Name
Braund, Mr. Owen Harris                              NaN        S
Cumings, Mrs. John Bradley (Florence Briggs Tha…    C85        C
Heikkinen, Miss. Laina                              NaN        S
Futrelle, Mrs. Jacques Heath (Lily May Peel)        C123       S
Moran, Mr. James                                    NaN        Q
…                                                    …        …
Montvila, Rev. Juozas                               NaN        S
Graham, Miss. Margaret Edith                         B42       S
Johnston, Miss. Catherine Helen "Carrie"            NaN        S
Behr, Mr. Karl Howell                               C148       C
Dooley, Mr. Patrick                                 NaN        Q
```

```
                                                        Friends
Name
Braund, Mr. Owen Harris                          Virat Tiwari
Cumings, Mrs. John Bradley (Florence Briggs Tha…  Virat Tiwari
Heikkinen, Miss. Laina                           Virat Tiwari
Futrelle, Mrs. Jacques Heath (Lily May Peel)     Virat Tiwari
Moran, Mr. James                                 Virat Tiwari
…                                                         …
Montvila, Rev. Juozas                            Virat Tiwari
Graham, Miss. Margaret Edith                     Virat Tiwari
Johnston, Miss. Catherine Helen "Carrie"         Virat Tiwari
Behr, Mr. Karl Howell                            Virat Tiwari
Dooley, Mr. Patrick                              Virat Tiwari

[890 rows x 10 columns]
```

[45]: `df.reset_index(inplace=True)`

[46]: `df`

```
[46]:                                               Name  Survived     Sex  \
      0                        Braund, Mr. Owen Harris         0    male
      1    Cumings, Mrs. John Bradley (Florence Briggs Th…         1  female
      2                         Heikkinen, Miss. Laina         1  female
      3        Futrelle, Mrs. Jacques Heath (Lily May Peel)         1  female
      4                               Moran, Mr. James         0    male
      ..                                            …        …      …
      885                        Montvila, Rev. Juozas         0    male
      886                 Graham, Miss. Margaret Edith         1  female
      887       Johnston, Miss. Catherine Helen "Carrie"         0  female
      888                         Behr, Mr. Karl Howell         1    male
      889                            Dooley, Mr. Patrick         0    male

            Age  SibSp  Parch            Ticket     Fare Cabin Embarked  \
      0    22.0      1      0         A/5 21171   7.2500   NaN        S
      1    38.0      1      0          PC 17599  71.2833   C85        C
      2    26.0      0      0  STON/O2. 3101282   7.9250   NaN        S
      3    35.0      1      0            113803  53.1000  C123        S
      4     NaN      0      0            330877   8.4583   NaN        Q
      ..    …      …      …               …        …      …        …
      885  27.0      0      0            211536  13.0000   NaN        S
      886  19.0      0      0            112053  30.0000   B42        S
      887   NaN      1      2         W./C. 6607  23.4500   NaN        S
      888  26.0      0      0            111369  30.0000  C148        C
      889  32.0      0      0            370376   7.7500   NaN        Q
```

```
          Friends
0      Virat Tiwari
1      Virat Tiwari
2      Virat Tiwari
3      Virat Tiwari
4      Virat Tiwari
..              …
885    Virat Tiwari
886    Virat Tiwari
887    Virat Tiwari
888    Virat Tiwari
889    Virat Tiwari

[890 rows x 11 columns]
```

[47]:
```python
# .groupby ( )  function - By using this function we have to group by the data

# Like we have to take the "Survived" column in which we have to group the
 ↪value of fair that how much fair is given by survived or how much fair is
 ↪not given by survived

g=df.groupby("Survived")
```

[48]:
```python
g
```

[48]: `<pandas.core.groupby.generic.DataFrameGroupBy object at 0x7f1d298699c0>`

[49]:
```python
# .sum ( )  function - By using this function we have to summarize or sum the
 ↪group by function of any column

g.sum()
```

```
/tmp/ipykernel_249/3279743109.py:3: FutureWarning: The default value of
numeric_only in DataFrameGroupBy.sum is deprecated. In a future version,
numeric_only will default to False. Either specify numeric_only or select only
columns which should be valid for the function.
  g.sum()
```

[49]:
```
              Age  SibSp  Parch        Fare
Survived
0        12950.50    304    181  12134.6699
1         8219.67    162    159  16551.2294
```

[50]:
```python
# .mean ( )  function is used for getting the mean or average of values

# Here we find the average of fair given by or not given by users
```

```
g.mean()
```

/tmp/ipykernel_249/1509484552.py:5: FutureWarning: The default value of
numeric_only in DataFrameGroupBy.mean is deprecated. In a future version,
numeric_only will default to False. Either specify numeric_only or select only
columns which should be valid for the function.
  g.mean()

[50]:   Age   SibSp   Parch   Fare
      Survived
      0   30.615839 0.554745 0.330292 22.143558
      1   28.343690 0.473684 0.464912 48.395408

[51]: df

[51]:   Name Survived   Sex \
      0   Braund, Mr. Owen Harris   0   male
      1   Cumings, Mrs. John Bradley (Florence Briggs Th…   1 female
      2   Heikkinen, Miss. Laina   1 female
      3   Futrelle, Mrs. Jacques Heath (Lily May Peel)   1 female
      4   Moran, Mr. James   0   male
      ..   …   …   …
      885   Montvila, Rev. Juozas   0   male
      886   Graham, Miss. Margaret Edith   1 female
      887   Johnston, Miss. Catherine Helen "Carrie"   0 female
      888   Behr, Mr. Karl Howell   1   male
      889   Dooley, Mr. Patrick   0   male

            Age SibSp Parch   Ticket   Fare Cabin Embarked \
      0   22.0   1   0   A/5 21171   7.2500   NaN   S
      1   38.0   1   0   PC 17599   71.2833   C85   C
      2   26.0   0   0 STON/O2. 3101282   7.9250   NaN   S
      3   35.0   1   0   113803   53.1000 C123   S
      4   NaN   0   0   330877   8.4583   NaN   Q
      ..   …   …   …   …   …   …   …
      885 27.0   0   0   211536   13.0000   NaN   S
      886 19.0   0   0   112053   30.0000   B42   S
      887   NaN   1   2   W./C. 6607   23.4500   NaN   S
      888 26.0   0   0   111369   30.0000 C148   C
      889 32.0   0   0   370376   7.7500   NaN   Q

                  Friends
      0   Virat Tiwari
      1   Virat Tiwari
      2   Virat Tiwari
      3   Virat Tiwari
      4   Virat Tiwari
```

```
        ..          …
885  Virat Tiwari
886  Virat Tiwari
887  Virat Tiwari
888  Virat Tiwari
889  Virat Tiwari

[890 rows x 11 columns]
```

[52]: `g1=df.groupby("Sex")`

[53]: `g1`

[53]: `<pandas.core.groupby.generic.DataFrameGroupBy object at 0x7f1d29869b70>`

[54]: `g1.median()`

```
/tmp/ipykernel_249/517914711.py:1: FutureWarning: The default value of
numeric_only in DataFrameGroupBy.median is deprecated. In a future version,
numeric_only will default to False. Either specify numeric_only or select only
columns which should be valid for the function.
  g1.median()
```

[54]:
```
        Survived   Age  SibSp  Parch      Fare
Sex
female       1.0  27.0    0.0    0.0  23.00000
male         0.0  29.0    0.0    0.0  10.81665
```

[55]: `g1.mean()`

```
/tmp/ipykernel_249/3287460031.py:1: FutureWarning: The default value of
numeric_only in DataFrameGroupBy.mean is deprecated. In a future version,
numeric_only will default to False. Either specify numeric_only or select only
columns which should be valid for the function.
  g1.mean()
```

[55]:
```
        Survived        Age     SibSp     Parch       Fare
Sex
female  0.742038  27.915709  0.694268  0.649682  44.479818
male    0.189236  30.717190  0.430556  0.236111  25.554230
```

[56]: `g1.max()`

```
/tmp/ipykernel_249/130714741.py:1: FutureWarning: Dropping invalid columns in
DataFrameGroupBy.max is deprecated. In a future version, a TypeError will be
raised. Before calling .max, select only columns which should be valid for the
function.
  g1.max()
```

```
[56]:                                          Name  Survived   Age  SibSp  \
       Sex
       female  de Messemaeker, Mrs. Guillaume Joseph (Emma)         1  63.0      8
       male                      van Melkebeke, Mr. Philemon         1  80.0      8

              Parch    Ticket      Fare        Friends
       Sex
       female      6  WE/P 5735  512.3292  Virat Tiwari
       male        5  WE/P 5735  512.3292  Virat Tiwari
```

```
[57]: g1.min()
```

```
/tmp/ipykernel_249/1946832900.py:1: FutureWarning: Dropping invalid columns in
DataFrameGroupBy.min is deprecated. In a future version, a TypeError will be
raised. Before calling .min, select only columns which should be valid for the
function.
  g1.min()
```

```
[57]:                                    Name  Survived   Age  SibSp  Parch  \
       Sex
       female  Abbott, Mrs. Stanton (Rosa Hunt)         0  0.75      0      0
       male                Abbing, Mr. Anthony         0  0.42      0      0

              Ticket  Fare        Friends
       Sex
       female  110152  6.75  Virat Tiwari
       male    110413  0.00  Virat Tiwari
```

```
[58]: g1.max()["Fare"]
```

```
/tmp/ipykernel_249/32325780.py:1: FutureWarning: Dropping invalid columns in
DataFrameGroupBy.max is deprecated. In a future version, a TypeError will be
raised. Before calling .max, select only columns which should be valid for the
function.
  g1.max()["Fare"]
```

```
[58]: Sex
       female    512.3292
       male      512.3292
       Name: Fare, dtype: float64
```

```
[59]: g1.min()["Fare"]
```

```
/tmp/ipykernel_249/445149905.py:1: FutureWarning: Dropping invalid columns in
DataFrameGroupBy.min is deprecated. In a future version, a TypeError will be
raised. Before calling .min, select only columns which should be valid for the
function.
  g1.min()["Fare"]
```

```
[59]: Sex
      female    6.75
      male      0.00
      Name: Fare, dtype: float64
```

```
[60]: # . T ( ) - By using this function we have to transpose the data into 180 degree

      # We simply rotate the data into 180 degree

      g1.max().T
```

/tmp/ipykernel_249/615206830.py:5: FutureWarning: Dropping invalid columns in DataFrameGroupBy.max is deprecated. In a future version, a TypeError will be raised. Before calling .max, select only columns which should be valid for the function.
  g1.max().T

```
[60]: Sex                                             female  \
      Name      de Messemaeker, Mrs. Guillaume Joseph (Emma)
      Survived                                             1
      Age                                               63.0
      SibSp                                                8
      Parch                                                6
      Ticket                                       WE/P 5735
      Fare                                           512.3292
      Friends                                     Virat Tiwari

      Sex                                  male
      Name      van Melkebeke, Mr. Philemon
      Survived                            1
      Age                              80.0
      SibSp                               8
      Parch                               5
      Ticket                      WE/P 5735
      Fare                          512.3292
      Friends                   Virat Tiwari
```

```
[61]: # It will transpose the data into row to column and column to raw

      g1.max().transpose()
```

/tmp/ipykernel_249/997338944.py:3: FutureWarning: Dropping invalid columns in DataFrameGroupBy.max is deprecated. In a future version, a TypeError will be raised. Before calling .max, select only columns which should be valid for the function.
  g1.max().transpose()

```
[61]: Sex                                                  female  \
      Name      de Messemaeker, Mrs. Guillaume Joseph (Emma)
      Survived                                                   1
      Age                                                     63.0
      SibSp                                                      8
      Parch                                                      6
      Ticket                                           WE/P 5735
      Fare                                               512.3292
      Friends                                        Virat Tiwari

      Sex                                    male
      Name      van Melkebeke, Mr. Philemon
      Survived                                  1
      Age                                    80.0
      SibSp                                     8
      Parch                                     5
      Ticket                            WE/P 5735
      Fare                              512.3292
      Friends                        Virat Tiwari
```

```
[62]: df
```

```
[62]:                                                    Name  Survived     Sex  \
      0                              Braund, Mr. Owen Harris         0    male
      1    Cumings, Mrs. John Bradley (Florence Briggs Th…         1  female
      2                               Heikkinen, Miss. Laina         1  female
      3         Futrelle, Mrs. Jacques Heath (Lily May Peel)         1  female
      4                                     Moran, Mr. James         0    male
      ..                                                 …         …       …
      885                              Montvila, Rev. Juozas         0    male
      886                       Graham, Miss. Margaret Edith         1  female
      887          Johnston, Miss. Catherine Helen "Carrie"         0  female
      888                              Behr, Mr. Karl Howell         1    male
      889                                Dooley, Mr. Patrick         0    male

            Age  SibSp  Parch            Ticket      Fare Cabin Embarked  \
      0    22.0      1      0         A/5 21171    7.2500   NaN        S
      1    38.0      1      0          PC 17599   71.2833   C85        C
      2    26.0      0      0  STON/O2. 3101282    7.9250   NaN        S
      3    35.0      1      0            113803   53.1000  C123        S
      4     NaN      0      0            330877    8.4583   NaN        Q
      ..    …      …      …               …         …     …        …
      885  27.0      0      0            211536   13.0000   NaN        S
      886  19.0      0      0            112053   30.0000   B42        S
      887   NaN      1      2        W./C. 6607   23.4500   NaN        S
      888  26.0      0      0            111369   30.0000  C148        C
      889  32.0      0      0            370376    7.7500   NaN        Q
```

```
         Friends
0    Virat Tiwari
1    Virat Tiwari
2    Virat Tiwari
3    Virat Tiwari
4    Virat Tiwari
..             …
885  Virat Tiwari
886  Virat Tiwari
887  Virat Tiwari
888  Virat Tiwari
889  Virat Tiwari

[890 rows x 11 columns]
```

[63]: `df5=df[["Name","Survived","Sex"]][0:5]`

[64]: `df6=df[["Name","Survived","Sex"]][5:10]`

[65]: `df5`

[65]:
```
                                         Name  Survived     Sex
0                        Braund, Mr. Owen Harris         0    male
1  Cumings, Mrs. John Bradley (Florence Briggs Th…         1  female
2                         Heikkinen, Miss. Laina         1  female
3      Futrelle, Mrs. Jacques Heath (Lily May Peel)         1  female
4                               Moran, Mr. James         0    male
```

[66]: `df6`

[66]:
```
                                              Name  Survived     Sex
5                          McCarthy, Mr. Timothy J         0    male
6                    Palsson, Master. Gosta Leonard         0    male
7  Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)         1  female
8                Nasser, Mrs. Nicholas (Adele Achem)         1  female
9                  Sandstrom, Miss. Marguerite Rut         1  female
```

[68]: `pd.concat([df5,df6])`

[68]:
```
                                         Name  Survived     Sex
0                        Braund, Mr. Owen Harris         0    male
1  Cumings, Mrs. John Bradley (Florence Briggs Th…         1  female
2                         Heikkinen, Miss. Laina         1  female
3      Futrelle, Mrs. Jacques Heath (Lily May Peel)         1  female
4                               Moran, Mr. James         0    male
5                        McCarthy, Mr. Timothy J         0    male
```

```
6                        Palsson, Master. Gosta Leonard          0      male
7   Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)          1    female
8                     Nasser, Mrs. Nicholas (Adele Achem)          1    female
9                       Sandstrom, Miss. Marguerite Rut          1    female
```

[70]: `d7=pd.concat([df5,df6],axis=1)`

[73]: `df.fillna("Virat",inplace=True)`

[74]: `df`

[74]:
```
                                                   Name  Survived      Sex  \
0                             Braund, Mr. Owen Harris         0      male
1     Cumings, Mrs. John Bradley (Florence Briggs Th…         1    female
2                              Heikkinen, Miss. Laina         1    female
3           Futrelle, Mrs. Jacques Heath (Lily May Peel)         1    female
4                                     Moran, Mr. James         0      male
..                                                 …         …        …
885                             Montvila, Rev. Juozas         0      male
886                      Graham, Miss. Margaret Edith         1    female
887           Johnston, Miss. Catherine Helen "Carrie"         0    female
888                              Behr, Mr. Karl Howell         1      male
889                                Dooley, Mr. Patrick         0      male

        Age  SibSp  Parch            Ticket     Fare  Cabin Embarked  \
0      22.0      1      0         A/5 21171   7.2500  Virat        S
1      38.0      1      0          PC 17599  71.2833    C85        C
2      26.0      0      0  STON/O2. 3101282   7.9250  Virat        S
3      35.0      1      0            113803  53.1000   C123        S
4     Virat      0      0            330877   8.4583  Virat        Q
..       …      …      …               …        …      …        …
885    27.0      0      0            211536  13.0000  Virat        S
886    19.0      0      0            112053  30.0000    B42        S
887   Virat      1      2        W./C. 6607  23.4500  Virat        S
888    26.0      0      0            111369  30.0000   C148        C
889    32.0      0      0            370376   7.7500  Virat        Q

            Friends
0      Virat Tiwari
1      Virat Tiwari
2      Virat Tiwari
3      Virat Tiwari
4      Virat Tiwari
..                …
885    Virat Tiwari
886    Virat Tiwari
887    Virat Tiwari
```

```
888   Virat Tiwari
889   Virat Tiwari

[890 rows x 11 columns]
```

```
[86]: data1=pd.DataFrame({"Key1":[1,2,3,6,5,4],
                          "Key2":[9,8,7,6,4,5],
                          "Key3":[5,4,6,7,9,1]
      })
```

```
[87]: data1
```

```
[87]:    Key1  Key2  Key3
      0     1     9     5
      1     2     8     4
      2     3     7     6
      3     6     6     7
      4     5     4     9
      5     4     5     1
```

```
[93]: data2=pd.DataFrame({"Key1":[9,2,3,6,5,5],
                          "Key5":[6,8,7,6,4,4],
                          "Key6":[2,4,6,7,9,3]
      })
```

```
[94]: data2
```

```
[94]:    Key1  Key5  Key6
      0     9     6     2
      1     2     8     4
      2     3     7     6
      3     6     6     7
      4     5     4     9
      5     5     4     3
```

```
[95]: # Concatination operation

      df8=pd.concat([data1,data2],axis=1)
```

```
[96]: df8
```

```
[96]:    Key1  Key2  Key3  Key1  Key5  Key6
      0     1     9     5     9     6     2
      1     2     8     4     2     8     4
      2     3     7     6     3     7     6
      3     6     6     7     6     6     7
      4     5     4     9     5     4     9
```

```
5      4      5      1      5      4      3
```

[97]:
```
# Merge operation

pd.merge(data1,data2)
```

[97]:
```
   Key1  Key2  Key3  Key5  Key6
0     2     8     4     8     4
1     3     7     6     7     6
2     6     6     7     6     7
3     5     4     9     4     9
4     5     4     9     4     3
```

[ ]:

[99]:
```
pd.merge(data1,data2,how="left")
```

[99]:
```
   Key1  Key2  Key3  Key5  Key6
0     1     9     5   NaN   NaN
1     2     8     4   8.0   4.0
2     3     7     6   7.0   6.0
3     6     6     7   6.0   7.0
4     5     4     9   4.0   9.0
5     5     4     9   4.0   3.0
6     4     5     1   NaN   NaN
```

[101]:
```
pd.merge(data1,data2,how="right")
```

[101]:
```
   Key1  Key2  Key3  Key5  Key6
0     9   NaN   NaN     6     2
1     2   8.0   4.0     8     4
2     3   7.0   6.0     7     6
3     6   6.0   7.0     6     7
4     5   4.0   9.0     4     9
5     5   4.0   9.0     4     3
```

[102]:
```
data1
```

[102]:
```
   Key1  Key2  Key3
0     1     9     5
1     2     8     4
2     3     7     6
3     6     6     7
4     5     4     9
5     4     5     1
```

[103]:
```
pd.merge(data1,data2,how="outer")
```

```
[103]:     Key1  Key2  Key3  Key5  Key6
       0     1   9.0   5.0   NaN   NaN
       1     2   8.0   4.0   8.0   4.0
       2     3   7.0   6.0   7.0   6.0
       3     6   6.0   7.0   6.0   7.0
       4     5   4.0   9.0   4.0   9.0
       5     5   4.0   9.0   4.0   3.0
       6     4   5.0   1.0   NaN   NaN
       7     9   NaN   NaN   6.0   2.0
```

```
[104]: pd.merge(data1,data2,how="cross")
```

```
[104]:     Key1_x  Key2  Key3  Key1_y  Key5  Key6
       0      1     9     5      9      6     2
       1      1     9     5      2      8     4
       2      1     9     5      3      7     6
       3      1     9     5      6      6     7
       4      1     9     5      5      4     9
       5      1     9     5      5      4     3
       6      2     8     4      9      6     2
       7      2     8     4      2      8     4
       8      2     8     4      3      7     6
       9      2     8     4      6      6     7
      10      2     8     4      5      4     9
      11      2     8     4      5      4     3
      12      3     7     6      9      6     2
      13      3     7     6      2      8     4
      14      3     7     6      3      7     6
      15      3     7     6      6      6     7
      16      3     7     6      5      4     9
      17      3     7     6      5      4     3
      18      6     6     7      9      6     2
      19      6     6     7      2      8     4
      20      6     6     7      3      7     6
      21      6     6     7      6      6     7
      22      6     6     7      5      4     9
      23      6     6     7      5      4     3
      24      5     4     9      9      6     2
      25      5     4     9      2      8     4
      26      5     4     9      3      7     6
      27      5     4     9      6      6     7
      28      5     4     9      5      4     9
      29      5     4     9      5      4     3
      30      4     5     1      9      6     2
      31      4     5     1      2      8     4
      32      4     5     1      3      7     6
      33      4     5     1      6      6     7
```

```
34        4      5      1      5      4      9
35        4      5      1      5      4      3
```

[105]: `data1`

[105]:
```
   Key1  Key2  Key3
0     1     9     5
1     2     8     4
2     3     7     6
3     6     6     7
4     5     4     9
5     4     5     1
```

[106]: `data2`

[106]:
```
   Key1  Key5  Key6
0     9     6     2
1     2     8     4
2     3     7     6
3     6     6     7
4     5     4     9
5     5     4     3
```

[108]: `pd.merge(data1,data2,how="outer",on="Key1")`

[108]:
```
   Key1  Key2  Key3  Key5  Key6
0     1   9.0   5.0   NaN   NaN
1     2   8.0   4.0   8.0   4.0
2     3   7.0   6.0   7.0   6.0
3     6   6.0   7.0   6.0   7.0
4     5   4.0   9.0   4.0   9.0
5     5   4.0   9.0   4.0   3.0
6     4   5.0   1.0   NaN   NaN
7     9   NaN   NaN   6.0   2.0
```

[118]:
```python
data1=pd.DataFrame({"Key11":[1,2,3,6,5,4],
                    "Key22":[9,8,7,6,4,5],
                    "Key3"3:[5,4,6,7,9,1]},
                    index=["a","b","c","d","e","f"]
)
```

[128]:
```python
data2=pd.DataFrame({"Key11":[9,2,3,6,5,5],
                    "Key55":[6,8,7,6,4,4],
                    "Key66":[2,4,6,7,9,3]},
                    index=["g","h","i","j","k","l"]
)
```

```
[129]: data1
```

```
[129]:      Key1   Key2   Key3
        a      1      9      5
        b      2      8      4
        c      3      7      6
        d      6      6      7
        e      5      4      9
        f      4      5      1
```

```
[130]: data2
```

```
[130]:      Key11   Key55   Key66
        g       9       6       2
        h       2       8       4
        i       3       7       6
        j       6       6       7
        k       5       4       9
        l       5       4       3
```

```
[ ]: # NOTE - JOIN ( ) FUNCTION WORKS ON INDEX

     # NOTE - MERGE  ( ) FUNCTION WORKS ON COLUMNS VALUES
```

```
[131]: data1.join(data2)
```

```
[131]:      Key1   Key2   Key3   Key11   Key55   Key66
        a      1      9      5     NaN     NaN     NaN
        b      2      8      4     NaN     NaN     NaN
        c      3      7      6     NaN     NaN     NaN
        d      6      6      7     NaN     NaN     NaN
        e      5      4      9     NaN     NaN     NaN
        f      4      5      1     NaN     NaN     NaN
```

```
[135]: df9=data1.join(data2,how="right")
```

```
[136]: df9.fillna("Virat")
```

```
[136]:       Key1    Key2    Key3   Key11   Key55   Key66
        g   Virat   Virat   Virat       9       6       2
        h   Virat   Virat   Virat       2       8       4
        i   Virat   Virat   Virat       3       7       6
        j   Virat   Virat   Virat       6       6       7
        k   Virat   Virat   Virat       5       4       9
        l   Virat   Virat   Virat       5       4       3
```

```
[137]: df9=data1.join(data2,how="inner")
```

```
[138]: df9
```

```
[138]: Empty DataFrame
       Columns: [Key1, Key2, Key3, Key11, Key55, Key66]
       Index: []
```

```
[139]: df9=data1.join(data2,how="outer")
```

```
[140]: df9
```

```
[140]:    Key1  Key2  Key3  Key11  Key55  Key66
       a   1.0   9.0   5.0    NaN    NaN    NaN
       b   2.0   8.0   4.0    NaN    NaN    NaN
       c   3.0   7.0   6.0    NaN    NaN    NaN
       d   6.0   6.0   7.0    NaN    NaN    NaN
       e   5.0   4.0   9.0    NaN    NaN    NaN
       f   4.0   5.0   1.0    NaN    NaN    NaN
       g   NaN   NaN   NaN    9.0    6.0    2.0
       h   NaN   NaN   NaN    2.0    8.0    4.0
       i   NaN   NaN   NaN    3.0    7.0    6.0
       j   NaN   NaN   NaN    6.0    6.0    7.0
       k   NaN   NaN   NaN    5.0    4.0    9.0
       l   NaN   NaN   NaN    5.0    4.0    3.0
```

```
[141]: # NOTE - JOIN ( ) FUNCTION WORKS ON INDEX

       # NOTE - MERGE  ( ) FUNCTION WORKS ON COLUMNS VALUES
```

```
[146]: df
```

```
[146]:                                          Name  Survived     Sex  \
       0                       Braund, Mr. Owen Harris         0    male
       1     Cumings, Mrs. John Bradley (Florence Briggs Th…         1  female
       2                        Heikkinen, Miss. Laina         1  female
       3          Futrelle, Mrs. Jacques Heath (Lily May Peel)         1  female
       4                              Moran, Mr. James         0    male
       ..                                         …       …     …
       885                      Montvila, Rev. Juozas         0    male
       886               Graham, Miss. Margaret Edith         1  female
       887       Johnston, Miss. Catherine Helen "Carrie"         0  female
       888                      Behr, Mr. Karl Howell         1    male
       889                         Dooley, Mr. Patrick         0    male

             Age  SibSp  Parch           Ticket     Fare  Cabin Embarked  \
       0    22.0      1      0        A/5 21171   7.2500  Virat        S
       1    38.0      1      0         PC 17599  71.2833    C85        C
       2    26.0      0      0  STON/O2. 3101282   7.9250  Virat        S
```

```
3     35.0     1     0              113803  53.1000   C123      S
4     Virat    0     0              330877   8.4583  Virat      Q
..     …       …     …               …        …       …        …
885   27.0     0     0              211536  13.0000  Virat      S
886   19.0     0     0              112053  30.0000   B42       S
887   Virat    1     2          W./C. 6607  23.4500  Virat      S
888   26.0     0     0              111369  30.0000   C148      C
889   32.0     0     0              370376   7.7500  Virat      Q


          Friends
0     Virat Tiwari
1     Virat Tiwari
2     Virat Tiwari
3     Virat Tiwari
4     Virat Tiwari
..        …
885   Virat Tiwari
886   Virat Tiwari
887   Virat Tiwari
888   Virat Tiwari
889   Virat Tiwari

[890 rows x 11 columns]
```

[147]:
```python
# MOST IMPORTANT - NOW WE UNDERSTAND HOW WE CONVERT CURRENCY FROM ANOTHER␣
 ↪CURRENCY

# APPLY ( )  FUNCTION  FOR DATA FRAME  - BY USING THIS WE CAN PERFORM THE␣
 ↪CONVERTING OPERATION
```

[151]:
```python
# THIS IS HOW WE CONVERT THE CURRENCY

# CASE 1 OR SIMPLE WAY TO CONVERSION

df["Fare_INR"]=df["Fare"].apply(lambda x:x*80)
```

[152]:
```python
df.head()
```

[152]:
```
                                            Name  Survived     Sex    Age  \
0                        Braund, Mr. Owen Harris         0    male   22.0
1   Cumings, Mrs. John Bradley (Florence Briggs Th…         1  female   38.0
2                         Heikkinen, Miss. Laina         1  female   26.0
3     Futrelle, Mrs. Jacques Heath (Lily May Peel)         1  female   35.0
4                               Moran, Mr. James         0    male  Virat


    SibSp  Parch           Ticket     Fare  Cabin Embarked       Friends  \
0       1      0        A/5 21171   7.2500  Virat        S  Virat Tiwari
```

```
1        1        0          PC 17599   71.2833      C85         C   Virat Tiwari
2        0        0   STON/O2. 3101282    7.9250    Virat         S   Virat Tiwari
3        1        0            113803   53.1000     C123         S   Virat Tiwari
4        0        0            330877    8.4583    Virat         Q   Virat Tiwari

    Fare_INR
0    580.000
1   5702.664
2    634.000
3   4248.000
4    676.664
```

[153]:
```python
# THIS IS HOW WE CONVERT THE CURRENCY

# CASE 2 OR ANOTHER WAY TO CONVERSION


def euro_to_INR(x):
    return x*80

df["Fare_INR"]=df["Fare"].apply(lambda x:x*80)
```

[154]:
```python
df["Fare_INR"]
```

[154]:
```
0         580.000
1        5702.664
2         634.000
3        4248.000
4         676.664
           …
885      1040.000
886      2400.000
887      1876.000
888      2400.000
889       620.000
Name: Fare_INR, Length: 890, dtype: float64
```

[156]:
```python
a=df.head()
```

[157]:
```python
a
```

[157]:
```
                                                Name  Survived     Sex    Age  \
0                          Braund, Mr. Owen Harris         0    male   22.0
1  Cumings, Mrs. John Bradley (Florence Briggs Th…         1  female   38.0
2                           Heikkinen, Miss. Laina         1  female   26.0
3     Futrelle, Mrs. Jacques Heath (Lily May Peel)         1  female   35.0
4                                 Moran, Mr. James         0    male  Virat
```

```
        SibSp  Parch            Ticket     Fare  Cabin Embarked       Friends  \
0           1      0         A/5 21171   7.2500  Virat        S  Virat Tiwari
1           1      0          PC 17599  71.2833    C85        C  Virat Tiwari
2           0      0  STON/O2. 3101282   7.9250  Virat        S  Virat Tiwari
3           1      0            113803  53.1000   C123        S  Virat Tiwari
4           0      0            330877   8.4583  Virat        Q  Virat Tiwari

     Fare_INR
0     580.000
1    5702.664
2     634.000
3    4248.000
4     676.664
```

[162]: `# .to_json() - By using this function we can save the data file into our local`
`↪system`

`a.to_json("Data_by_Virat.json")`

[163]: `df`

[163]:
```
                                                 Name  Survived     Sex  \
0                              Braund, Mr. Owen Harris         0    male
1    Cumings, Mrs. John Bradley (Florence Briggs Th…         1  female
2                               Heikkinen, Miss. Laina         1  female
3         Futrelle, Mrs. Jacques Heath (Lily May Peel)         1  female
4                                     Moran, Mr. James         0    male
..                                                 ...       ...     ...
885                              Montvila, Rev. Juozas         0    male
886                       Graham, Miss. Margaret Edith         1  female
887          Johnston, Miss. Catherine Helen "Carrie"         0  female
888                              Behr, Mr. Karl Howell         1    male
889                                Dooley, Mr. Patrick         0    male

       Age  SibSp  Parch            Ticket     Fare  Cabin Embarked  \
0     22.0      1      0         A/5 21171   7.2500  Virat        S
1     38.0      1      0          PC 17599  71.2833    C85        C
2     26.0      0      0  STON/O2. 3101282   7.9250  Virat        S
3     35.0      1      0            113803  53.1000   C123        S
4    Virat      0      0            330877   8.4583  Virat        Q
..     ...    ...    ...               ...      ...    ...      ...
885   27.0      0      0            211536  13.0000  Virat        S
886   19.0      0      0            112053  30.0000    B42        S
887  Virat      1      2         W./C. 6607  23.4500  Virat        S
888   26.0      0      0            111369  30.0000   C148        C
889   32.0      0      0            370376   7.7500  Virat        Q
```

```
           Friends    Fare_INR
0     Virat Tiwari     580.000
1     Virat Tiwari    5702.664
2     Virat Tiwari     634.000
3     Virat Tiwari    4248.000
4     Virat Tiwari     676.664
..             …           …
885   Virat Tiwari    1040.000
886   Virat Tiwari    2400.000
887   Virat Tiwari    1876.000
888   Virat Tiwari    2400.000
889   Virat Tiwari     620.000

[890 rows x 12 columns]
```

[164]: `df["name_len"]=df["Name"].apply(len)`

[165]: `df.head()`

[165]:
```
                                                Name  Survived     Sex    Age  \
0                          Braund, Mr. Owen Harris         0    male   22.0
1   Cumings, Mrs. John Bradley (Florence Briggs Th…         1  female   38.0
2                           Heikkinen, Miss. Laina         1  female   26.0
3       Futrelle, Mrs. Jacques Heath (Lily May Peel)         1  female   35.0
4                                 Moran, Mr. James         0    male  Virat

    SibSp  Parch            Ticket     Fare  Cabin Embarked        Friends  \
0       1      0         A/5 21171   7.2500  Virat        S  Virat Tiwari
1       1      0          PC 17599  71.2833   C85        C  Virat Tiwari
2       0      0  STON/O2. 3101282   7.9250  Virat        S  Virat Tiwari
3       1      0            113803  53.1000  C123        S  Virat Tiwari
4       0      0            330877   8.4583  Virat        Q  Virat Tiwari

    Fare_INR  name_len
0    580.000        23
1   5702.664        51
2    634.000        22
3   4248.000        44
4    676.664        16
```

[166]:
```python
def cat_fare(x):
    if x<10:
        return "cheap"
    elif x>=10 and x<20:
        return "mid"
    else:
```

```
        return "High"
```

[172]:
```
df["car_fare"]=df["Fare"].apply(cat_fare)
```

[173]:
```
df
```

[173]:

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

	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked	\
0	22.0	1	0	A/5 21171	7.2500	Virat	S	
1	38.0	1	0	PC 17599	71.2833	C85	C	
2	26.0	0	0	STON/O2. 3101282	7.9250	Virat	S	
3	35.0	1	0	113803	53.1000	C123	S	
4	Virat	0	0	330877	8.4583	Virat	Q	
..	…	…	…	…	…	…	…	
885	27.0	0	0	211536	13.0000	Virat	S	
886	19.0	0	0	112053	30.0000	B42	S	
887	Virat	1	2	W./C. 6607	23.4500	Virat	S	
888	26.0	0	0	111369	30.0000	C148	C	
889	32.0	0	0	370376	7.7500	Virat	Q	

	Friends	Fare_INR	name_len	car_fare
0	Virat Tiwari	580.000	23	cheap
1	Virat Tiwari	5702.664	51	High
2	Virat Tiwari	634.000	22	cheap
3	Virat Tiwari	4248.000	44	High
4	Virat Tiwari	676.664	16	cheap
..	…	…	…	…
885	Virat Tiwari	1040.000	21	mid
886	Virat Tiwari	2400.000	28	High
887	Virat Tiwari	1876.000	40	High
888	Virat Tiwari	2400.000	21	High
889	Virat Tiwari	620.000	19	cheap

[890 rows x 14 columns]

THANK YOU SO MUCH !!

YOURS VIRAT TIWARI :)