Assignment 02: Evaluate the FDNY Dataset

The comments/sections provided are your cues to perform the assignment. You don't need to limit yourself to the number of rows/cells provided. You can add additional rows in each section to add more lines of code.

If at any point in time you need help on solving this assignment, view our demo video to understand the different steps of the code.

Happy coding!

1: View and import the dataset

```
In [3]:    #Import the required libraries
           import pandas as pd
```

```
In [4]:    #Import the Fire Department of New York City (FDNY) file
           df = pd.read_csv('DataSets/FDNY.csv')
```

2: Analyze the dataset

```
In [36]:   #View the content of the data
           df.describe
```

```
Out[36]:   <bound method NDFrame.describe of                                      FacilityName
           \
           0                              FacilityName
           1                         Engine 4/Ladder 15
           2                         Engine 10/Ladder 10
           3                                    Engine 6
           4      Engine 7/Ladder 1/Battalion 1/Manhattan Boroug...
           ..                                         ...
           214            Engine 162/Ladder 82/Battalion 23
           215                        Engine 167/Ladder 87
           216                        Engine 164/Ladder 84
           217                    Engine 168/EMS Station 23
           218                        Engine 151/Ladder 76

                       FacilityAddress         Borough
           0           FacilityAddress         Borough
           1           42 South Street       Manhattan
```

```
2          124 Liberty Street      Manhattan
3           49 Beekman Street      Manhattan
4        100-104 Duane Street      Manhattan
..                       ...            ...
214         256 Nelson Avenue  Staten Island
215         345 Annadale Road  Staten Island
216  1560 Drumgoole Road West  Staten Island
217     1100 Rossville Avenue  Staten Island
218          7219 Amboy Road   Staten Island

[219 rows x 3 columns]>
```

In [6]:
```python
#View the first five records
df.head()
```

Out[6]:

	FacilityName	FacilityAddress	Borough
0	FacilityName	FacilityAddress	Borough
1	Engine 4/Ladder 15	42 South Street	Manhattan
2	Engine 10/Ladder 10	124 Liberty Street	Manhattan
3	Engine 6	49 Beekman Street	Manhattan
4	Engine 7/Ladder 1/Battalion 1/Manhattan Boroug...	100-104 Duane Street	Manhattan

In [10]:
```python
#Skip the duplicate header row
df_skip_row_data = pd.read_csv('DataSets/FDNY.csv', skiprows=1)
```

In [11]:
```python
#Verify if the dataset is fixed
df_skip_row_data.head()
```

Out[11]:

	FacilityName	FacilityAddress	Borough
0	Engine 4/Ladder 15	42 South Street	Manhattan
1	Engine 10/Ladder 10	124 Liberty Street	Manhattan
2	Engine 6	49 Beekman Street	Manhattan
3	Engine 7/Ladder 1/Battalion 1/Manhattan Boroug...	100-104 Duane Street	Manhattan
4	Ladder 8	14 North Moore Street	Manhattan

In [12]:
```python
#View the data statistics (Hint: use describe() method)
df_skip_row_data.describe()
```

Out[12]:

	FacilityName	FacilityAddress	Borough
count	218	218	218
unique	218	218	5
top	Engine 266/Battalion 47	341 East 143rd Street	Brooklyn
freq	1	1	66

In [13]:
```python
#View the attributes of the dataset (Hint: view the column names)
df_skip_row_data.columns
```

Out[13]: Index(['FacilityName', 'FacilityAddress', 'Borough'], dtype='object')

In [15]:
```python
#View the index of the dataset
df_skip_row_data.index
```

Out[15]: RangeIndex(start=0, stop=218, step=1)

3: Find the total number of fire department facilities in New York city

In [21]:
```python
#Count number of records for each attribute
df_skip_row_data[df_skip_row_data['Borough']=='New York city'].count
```

Out[21]: <bound method DataFrame.count of Empty DataFrame
Columns: [FacilityName, FacilityAddress, Borough]
Index: []>

In [22]:
```python
#view the datatypes of all three attributes
df_skip_row_data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 218 entries, 0 to 217
Data columns (total 3 columns):
 #   Column           Non-Null Count  Dtype
---  ------           --------------  -----
 0   FacilityName     218 non-null    object
 1   FacilityAddress  218 non-null    object
 2   Borough          218 non-null    object
dtypes: object(3)
memory usage: 5.2+ KB
```

4: Find the total number of fire department facilities in each borough

In [31]:
```python
#Select FDNY information boroughwise
df_fdny_boroughwise=df_skip_row_data.groupby('Borough')
```

In [32]:
```python
#View FDNY informationn for each borough
df_fdny_boroughwise.size()
```

Out[32]:
```
Borough
Bronx            34
Brooklyn         66
Manhattan        48
Queens           50
Staten Island    20
dtype: int64
```

5: Find the total number of fire department facilities in Manhattan

In [34]:
```python
#Select FDNY information for Manhattan
df_fdny_Manahattan = df_fdny_boroughwise.get_group('Manhattan')
```

In [35]:
```python
#View FDNY information for Manhattan
#df_skip_row_data[df_skip_row_data['Borough']=='Manhattan']
df_fdny_Manahattan
```

Out[35]:

	FacilityName	FacilityAddress	Borough
0	Engine 4/Ladder 15	42 South Street	Manhattan
1	Engine 10/Ladder 10	124 Liberty Street	Manhattan

	FacilityName	FacilityAddress	Borough
2	Engine 6	49 Beekman Street	Manhattan
3	Engine 7/Ladder 1/Battalion 1/Manhattan Boroug...	100-104 Duane Street	Manhattan
4	Ladder 8	14 North Moore Street	Manhattan
5	Engine 9/Ladder 6	75 Canal Street	Manhattan
6	Engine 15/Ladder 18/Battalion 4	25 Pitt Street	Manhattan
7	Engine 28/Ladder 11	222 East 2nd Street	Manhattan
8	Engine 5	340 East 14th Street	Manhattan
9	Engine 55	363 Broome Street	Manhattan
10	Ladder 20/Division 1	253 Lafayette Street	Manhattan
11	Engine 24/Ladder 5/Battalion 2	227-29 6th Avenue	Manhattan
12	Engine 33/Ladder 9	42 Great Jones Street	Manhattan
13	Ladder 3/Battalion 6	108 East 13th Street	Manhattan
14	Squad 18	132 West 10th Street	Manhattan
15	Engine 34/Ladder 21	440 West 38th Street	Manhattan
16	Engine 26	220 West 37th Street	Manhattan
17	Engine 3/Ladder 12/Battalion 7	150 West 19th Street	Manhattan
18	Engine 1/Ladder 24	142-46 West 31st Street	Manhattan
19	Engine 14	14 East 18th Street	Manhattan
20	Engine 16 / Ladder 7	234 East 29th Street	Manhattan
21	Engine 21	238 East 40th Street	Manhattan
22	Engine 54/Ladder 4/Battalion 9	782 8th Avenue	Manhattan
23	Engine 23	215 West 58th Street	Manhattan
24	Rescue 1	530 West 43rd Street	Manhattan
25	Engine 40/Ladder 35	131 Amsterdam Avenue	Manhattan
26	Ladder 25/District Office 4/Division 3	205-207 West 77th Street	Manhattan
27	Engine 74	120 West 83rd Street	Manhattan
28	Engine 65	33 West 43rd Street	Manhattan
29	Engine 8 / Ladder 2 / Battalion 8	167 East 51st Street	Manhattan
30	Engine 39/Ladder 16	157-59 East 67th Street	Manhattan
31	Engine 44	221 East 75th Street	Manhattan
32	Engine 22/Ladder 13/Battalion 10	159 East 85th Street	Manhattan
33	Engine 58/Ladder 26	1367 5th Avenue	Manhattan
34	Engine 53/Ladder 43	1836-46 3rd Avenue	Manhattan

	FacilityName	FacilityAddress	Borough
35	Engine 91	242 East 111th Street	Manhattan
36	Engine 35/Ladder 14	2282 3rd Avenue	Manhattan
37	Engine 76/Ladder 22/Battalion 11	145-51 West 100th Street	Manhattan
38	Engine 47	502 West 113th Street	Manhattan
39	Engine 59/Ladder 30	111 West 133rd Street	Manhattan
40	Engine 37/Ladder 40	415 West 125th Street	Manhattan
41	Engine 69/Ladder 28/Battalion 16	248 West 143rd Street	Manhattan
42	Engine 80/Ladder 23	503 West 139th Street	Manhattan
43	Engine 84/Ladder 34	513 West 161st Street	Manhattan
44	Engine 67	518 West 170th Street	Manhattan
45	Engine 93/Ladder 45/Battalion 13	515 West 181st Street	Manhattan
46	Engine 95/Ladder 36	29 Vermilyea Avenue	Manhattan
47	Marine 1	Little West 12th Street/Hudson River	Manhattan

In [ ]: