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
```
#Import the required libraries
import pandas as pd

#Import the Fire Department of New York City (FDNY) file
fire_dept_df = pd.read_csv("FDNY.csv")
```

2: Analyze the dataset
```
#View the content of the data
fire_dept_df
```

```
                                          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]
```

#View the first five records
fire_dept_df.head()

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

      Borough
0     Borough
1  Manhattan
2  Manhattan
3  Manhattan
4  Manhattan
```

#Skip the duplicate header row
fire_dept_df = fire_dept_df.iloc[1:,:]
fire_dept_df

```
                                        FacilityName  \
2                             Engine 10/Ladder 10
3                                     Engine 6
4    Engine 7/Ladder 1/Battalion 1/Manhattan Boroug...
5                                     Ladder 8
6                             Engine 9/Ladder 6
..                                          ...
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
2       124 Liberty Street     Manhattan
3        49 Beekman Street     Manhattan
4     100-104 Duane Street     Manhattan
5     14 North Moore Street    Manhattan
6          75 Canal 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

[217 rows x 3 columns]
```

```python
#Verify if the dataset is fixed
fire_dept_df
```

```
                                         FacilityName  \
1                                  Engine 4/Ladder 15
2                                 Engine 10/Ladder 10
3                                            Engine 6
4     Engine 7/Ladder 1/Battalion 1/Manhattan Boroug...
5                                            Ladder 8
 ..                                               ...
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
1               42 South Street     Manhattan
2             124 Liberty Street    Manhattan
3              49 Beekman Street    Manhattan
4             100-104 Duane Street   Manhattan
5             14 North Moore 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

[218 rows x 3 columns]
```

```python
#View the data statistics (Hint: use describe() method)
fire_dept_df.describe()
# works only on numeric columns
```

```
         FacilityName        FacilityAddress    Borough
count           217                    217        217
unique          217                    217          5
top      Engine 236  2929 West 8th Street   Brooklyn
freq              1                      1         66
```

#View the attributes of the dataset (Hint: view the column names)

```
fire_dept_df.columns

Index(['FacilityName', 'FacilityAddress', 'Borough'], dtype='object')
```

#View the index of the dataset
```
fire_dept_df.index

RangeIndex(start=2, stop=219, step=1)
```

3: Find the total number of fire department facilities in New York city
#Count number of records for each attribute
```
fire_dept_df.count()

FacilityName        217
FacilityAddress     217
Borough             217
dtype: int64
```

#view the datatypes of all three attributes
```
fire_dept_df.dtypes

FacilityName        object
FacilityAddress     object
Borough             object
dtype: object
```

4: Find the total number of fire department facilities in each borough
#Select FDNY information boroughwise
```
fdd = fire_dept_df.groupby("Borough")
fdd

<pandas.core.groupby.generic.DataFrameGroupBy object at
0x7f8de29518d0>
```

#View FDNY informationn for each borough
```
fdd.size()

Borough
Bronx            34
Brooklyn         66
Manhattan        47
Queens           50
Staten Island    20
dtype: int64
```

5: Find the total number of fire department facilities in Manhattan
#Select FDNY information for Manhattan
```
fdny_manhattan = fdd.get_group("Manhattan")
```

```python
#View FDNY information for Manhattan
fdny_manhattan
```

```
                                      FacilityName  \
2                              Engine 10/Ladder 10
3                                         Engine 6
4    Engine 7/Ladder 1/Battalion 1/Manhattan Boroug...
5                                         Ladder 8
6                               Engine 9/Ladder 6
7                       Engine 15/Ladder 18/Battalion 4
8                              Engine 28/Ladder 11
9                                         Engine 5
10                                       Engine 55
11                             Ladder 20/Division 1
12                      Engine 24/Ladder 5/Battalion 2
13                             Engine 33/Ladder 9
14                             Ladder 3/Battalion 6
15                                        Squad 18
16                             Engine 34/Ladder 21
17                                       Engine 26
18                      Engine 3/Ladder 12/Battalion 7
19                             Engine 1/Ladder 24
20                                       Engine 14
21                           Engine 16 / Ladder 7
22                                       Engine 21
23                      Engine 54/Ladder 4/Battalion 9
24                                       Engine 23
25                                        Rescue 1
26                             Engine 40/Ladder 35
27             Ladder 25/District Office 4/Division 3
28                                       Engine 74
29                                       Engine 65
30                  Engine 8 / Ladder 2 / Battalion 8
31                             Engine 39/Ladder 16
32                                       Engine 44
33                     Engine 22/Ladder 13/Battalion 10
34                             Engine 58/Ladder 26
35                             Engine 53/Ladder 43
36                                       Engine 91
37                             Engine 35/Ladder 14
38                     Engine 76/Ladder 22/Battalion 11
39                                       Engine 47
40                             Engine 59/Ladder 30
41                             Engine 37/Ladder 40
42                     Engine 69/Ladder 28/Battalion 16
43                             Engine 80/Ladder 23
44                             Engine 84/Ladder 34
45                                       Engine 67
46                     Engine 93/Ladder 45/Battalion 13
47                             Engine 95/Ladder 36
```

	FacilityAddress	Borough
2	124 Liberty Street	Manhattan
3	49 Beekman Street	Manhattan
4	100-104 Duane Street	Manhattan
5	14 North Moore Street	Manhattan
6	75 Canal Street	Manhattan
7	25 Pitt Street	Manhattan
8	222 East 2nd Street	Manhattan
9	340 East 14th Street	Manhattan
10	363 Broome Street	Manhattan
11	253 Lafayette Street	Manhattan
12	227-29 6th Avenue	Manhattan
13	42 Great Jones Street	Manhattan
14	108 East 13th Street	Manhattan
15	132 West 10th Street	Manhattan
16	440 West 38th Street	Manhattan
17	220 West 37th Street	Manhattan
18	150 West 19th Street	Manhattan
19	142-46 West 31st Street	Manhattan
20	14 East 18th Street	Manhattan
21	234 East 29th Street	Manhattan
22	238 East 40th Street	Manhattan
23	782 8th Avenue	Manhattan
24	215 West 58th Street	Manhattan
25	530 West 43rd Street	Manhattan
26	131 Amsterdam Avenue	Manhattan
27	205-207 West 77th Street	Manhattan
28	120 West 83rd Street	Manhattan
29	33 West 43rd Street	Manhattan
30	167 East 51st Street	Manhattan
31	157-59 East 67th Street	Manhattan
32	221 East 75th Street	Manhattan
33	159 East 85th Street	Manhattan
34	1367 5th Avenue	Manhattan
35	1836-46 3rd Avenue	Manhattan
36	242 East 111th Street	Manhattan
37	2282 3rd Avenue	Manhattan
38	145-51 West 100th Street	Manhattan
39	502 West 113th Street	Manhattan
40	111 West 133rd Street	Manhattan
41	415 West 125th Street	Manhattan
42	248 West 143rd Street	Manhattan
43	503 West 139th Street	Manhattan
44	513 West 161st Street	Manhattan
45	518 West 170th Street	Manhattan
46	515 West 181st Street	Manhattan
47	29 Vermilyea Avenue	Manhattan
48	Little West 12th Street/Hudson River	Manhattan