



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!

Analyse NewYork city fire department Dataset

DESCRIPTION

What to:

A dataset in CSV format is given for the Fire Department of New York City. Analyze the dataset to determine:

- 1. The total number of fire department facilities in New York city
- 2. The number of fire department facilities in each borough
- 3. The facility names in Manhattan

1: View and import the dataset

```
In [1]: #Import the required libraries
import pandas as pd
```

```
In [2]: #Import the Fire Department of New York City (FDNY) file
df_FDNY_Dataset = pd.read_csv('D:\\NIPUN_SC_REC\\3_Practice_Project\\Course_5_Data Science with Python\\Practice\\FDNY\\FDNY.csv')
```

2: Analyze the dataset

```
In [3]: #View the content of the data
#describe without braces() lists entire raw data
df_FDNY_Dataset.describe
```

```
Out[3]: <bound method NDFrame.describe of
0
1
2
3
4
..
214
215
216
217
218

FacilityName
Engine 4/Ladder 15
Engine 10/Ladder 10
Engine 6
Engine 7/Ladder 1/Battalion 1/Manhattan Boroug...
...
Engine 162/Ladder 82/Battalion 23
Engine 167/Ladder 87
Engine 164/Ladder 84
Engine 168/EMS Station 23
Engine 151/Ladder 76

FacilityAddress
42 South Street
124 Liberty Street
49 Beekman Street
100-104 Duane Street
...
256 Nelson Avenue
345 Annadale Road
1560 Drumgoole Road West
1100 Rossville Avenue
7219 Amboy Road

Borough
Manhattan
Manhattan
Manhattan
Manhattan
...
Staten Island
Staten Island
Staten Island
Staten Island
Staten Island

[219 rows x 3 columns]>
```

```
In [4]: #View the first five records
df_FDNY_Dataset.head()
```

Out[4]:

| | 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 [5]: #Skip the duplicate header row
df_FDNY_Dataset = pd.read_csv('D:\\NIPUN_SC_REC\\3_Practice_Project\\Course_5_Data Science with Python\\Practice\\FDNY\\FDNY.csv', skiprows=1)
```

```
In [6]: #Verify if the dataset is fixed
df_FDNY_Dataset.head()
```

Out[6]:

| | 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 [7]: #View the data statistics (Hint: use describe() method)
df_FDNY_Dataset.describe()
```

Out[7]:

| | FacilityName | FacilityAddress | Borough |
|--------|--------------|-----------------|----------|
| count | 218 | 218 | 218 |
| unique | 218 | 218 | 5 |
| top | Engine 247 | 395 4th Avenue | Brooklyn |
| freq | 1 | 1 | 66 |

```
In [8]: #View the attributes of the dataset (Hint: view the column names)
df_FDNY_Dataset.columns
```

```
Out[8]: Index(['FacilityName', 'FacilityAddress', 'Borough'], dtype='object')
```

```
In [9]: #View the index of the dataset
df_FDNY_Dataset.index
```

```
Out[9]: RangeIndex(start=0, stop=218, step=1)
```

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

```
In [10]: #Count number of records for each attribute
df_FDNY_Dataset.count()
```

```
Out[10]: FacilityName      218
FacilityAddress    218
Borough            218
dtype: int64
```

```
In [11]: #view the datatypes of all three attributes
df_FDNY_Dataset.dtypes
```

```
Out[11]: FacilityName      object
FacilityAddress    object
Borough            object
dtype: object
```

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

```
In [12]: #Select FDNY information boroughwise
FDNY_info_Boroughwise=df_FDNY_Dataset.groupby('Borough')
```

```
In [13]: #View FDNY informationn for each borough
FDNY_info_Boroughwise.size()
```

```
Out[13]: Borough      34
Bronx                66
Brooklyn             48
Manhattan            50
Queens               20
Staten Island        dtype: int64
```

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

```
In [14]: #Select FDNY information for Manhattan
FDNY_info_Manhattan = FDNY_info_Boroughwise.get_group('Manhattan')
```

```
In [15]: #View FDNY information for Manhattan
FDNY_info_Manhattan
```

Out[15]:

| | 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 |
| 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 |
| 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 [ ]:
```