

# Pandas - Assignment 02\_Solution

June 22, 2020

## 1 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!**

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### 1: View and import the dataset

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

```
[2]: #Import the Fire Department of New York City (FDNY) file
df_fdny_csv_data_raw = pd.read_csv('FDNY.csv')
```

### 2: Analyze the dataset

```
[4]: #View the content of the data
df_fdny_csv_data_raw.describe
```

```
[4]: <bound method NDFrame.describe of
FacilityName \
0
1
2
3
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]>

```
[6]: #View the first five records
df_fdney_csv_data_raw.head(5)
```

```
[6]:
```

	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

```
[7]: #Skip the duplicate header row
df_fdney_csv_data = pd.read_csv('FDNY.csv', skiprows=1)
```

```
[8]: #Verify if the dataset is fixed
df_fdney_csv_data.head(5)
```

```
[8]:
```

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

  

	Borough
0	Borough
1	Manhattan
2	Manhattan
3	Manhattan
4	Manhattan

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

```
[9]: #View the data statistics (Hint: use describe() method)
df_fdny_csv_data.describe()
```

```
[9]:
```

	FacilityName	FacilityAddress	Borough
count	218	218	218
unique	218	218	5
top	Engine 53/Ladder 43	22-63 35th Street	Brooklyn
freq	1	1	66

```
[10]: #View the attributes of the dataset (Hint: view the column names)
df_fdny_csv_data.columns
```

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

```
[11]: #View the index of the dataset
df_fdny_csv_data.index
```

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

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

```
[12]: #Count number of records for each attribute
df_fdny_csv_data.count()
```

```
[12]: FacilityName      218
FacilityAddress      218
Borough              218
dtype: int64
```

```
[14]: #view the datatypes of all three attributes
df_fdny_csv_data.dtypes
```

```
[14]: FacilityName      object
FacilityAddress      object
Borough              object
dtype: object
```

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

```
[15]: #Select FDNY information boroughwise
groupby_borough = df_fdny_csv_data.groupby('Borough')
```

```
[16]: #View FDNY informationn for each borough
groupby_borough.size()
```

```
[16]: 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

```
[17]: #Select FDNY information for Manhattan
fdny_info_Manhattan = groupby_borough.get_group('Manhattan')
```

```
[19]: #View FDNY information for Manhattan
fdny_info_Manhattan
```

```
[19]:
          FacilityName \
0          Engine 4/Ladder 15
1      Engine 10/Ladder 10
2          Engine 6
3  Engine 7/Ladder 1/Battalion 1/Manhattan Boroug...
4          Ladder 8
5          Engine 9/Ladder 6
6      Engine 15/Ladder 18/Battalion 4
7          Engine 28/Ladder 11
8          Engine 5
9          Engine 55
10         Ladder 20/Division 1
11      Engine 24/Ladder 5/Battalion 2
12         Engine 33/Ladder 9
13         Ladder 3/Battalion 6
14         Squad 18
15         Engine 34/Ladder 21
16         Engine 26
17      Engine 3/Ladder 12/Battalion 7
18         Engine 1/Ladder 24
19         Engine 14
20         Engine 16 / Ladder 7
21         Engine 21
22      Engine 54/Ladder 4/Battalion 9
23         Engine 23
24         Rescue 1
25         Engine 40/Ladder 35
26  Ladder 25/District Office 4/Division 3
```

27	Engine 74
28	Engine 65
29	Engine 8 / Ladder 2 / Battalion 8
30	Engine 39/Ladder 16
31	Engine 44
32	Engine 22/Ladder 13/Battalion 10
33	Engine 58/Ladder 26
34	Engine 53/Ladder 43
35	Engine 91
36	Engine 35/Ladder 14
37	Engine 76/Ladder 22/Battalion 11
38	Engine 47
39	Engine 59/Ladder 30
40	Engine 37/Ladder 40
41	Engine 69/Ladder 28/Battalion 16
42	Engine 80/Ladder 23
43	Engine 84/Ladder 34
44	Engine 67
45	Engine 93/Ladder 45/Battalion 13
46	Engine 95/Ladder 36
47	Marine 1

	FacilityAddress	Borough
0	42 South Street	Manhattan
1	124 Liberty Street	Manhattan
2	49 Beekman Street	Manhattan
3	100-104 Duane Street	Manhattan
4	14 North Moore Street	Manhattan
5	75 Canal Street	Manhattan
6	25 Pitt Street	Manhattan
7	222 East 2nd Street	Manhattan
8	340 East 14th Street	Manhattan
9	363 Broome Street	Manhattan
10	253 Lafayette Street	Manhattan
11	227-29 6th Avenue	Manhattan
12	42 Great Jones Street	Manhattan
13	108 East 13th Street	Manhattan
14	132 West 10th Street	Manhattan
15	440 West 38th Street	Manhattan
16	220 West 37th Street	Manhattan
17	150 West 19th Street	Manhattan
18	142-46 West 31st Street	Manhattan
19	14 East 18th Street	Manhattan
20	234 East 29th Street	Manhattan
21	238 East 40th Street	Manhattan
22	782 8th Avenue	Manhattan
23	215 West 58th Street	Manhattan

24	530 West 43rd Street	Manhattan
25	131 Amsterdam Avenue	Manhattan
26	205-207 West 77th Street	Manhattan
27	120 West 83rd Street	Manhattan
28	33 West 43rd Street	Manhattan
29	167 East 51st Street	Manhattan
30	157-59 East 67th Street	Manhattan
31	221 East 75th Street	Manhattan
32	159 East 85th Street	Manhattan
33	1367 5th Avenue	Manhattan
34	1836-46 3rd Avenue	Manhattan
35	242 East 111th Street	Manhattan
36	2282 3rd Avenue	Manhattan
37	145-51 West 100th Street	Manhattan
38	502 West 113th Street	Manhattan
39	111 West 133rd Street	Manhattan
40	415 West 125th Street	Manhattan
41	248 West 143rd Street	Manhattan
42	503 West 139th Street	Manhattan
43	513 West 161st Street	Manhattan
44	518 West 170th Street	Manhattan
45	515 West 181st Street	Manhattan
46	29 Vermilyea Avenue	Manhattan
47	Little West 12th Street/Hudson River	Manhattan