

Pandas - Assignment 02

October 14, 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!

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
FDNY_dataset = pd.read_csv("FDNY.csv")
```

```
[ ]:
```

2: Analyze the dataset

```
[6]: #View the content of the data
FDNY_dataset.describe
```

```
[6]: <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]>
```

```
[35]: #View the first five records
      FDNY_dataset.head()
```

```
[35]:
          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  Manhattan
1  Manhattan
2  Manhattan
3  Manhattan
4  Manhattan

```

```
[9]: #Skip the duplicate header row
      FDNY_dataset = pd.read_csv("FDNY.csv", skiprows=1)
```

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

```
[10]:
          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  Manhattan
1  Manhattan
2  Manhattan
3  Manhattan
4  Manhattan

```

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

```
[11]:
```

	FacilityName	FacilityAddress	Borough
count	218	218	218
unique	218	218	5
top	Engine 33/Ladder 9	42 South Street	Brooklyn
freq	1	1	66

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

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

```
[16]: FDNY_dataset.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

```

```
[17]: FDNY_dataset.count()
```

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

```
[14]: #View the index of the dataset
      FDNY_dataset.index
```

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

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

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

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

```
[27]: #view the datatypes of all three attributes
      FDNY_dataset.dtypes
```

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

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

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

```
[29]: #View FDNY informationn for each borough
      groupby_borough.count()
```

```
[29]:
```

	FacilityName	FacilityAddress
Borough		
Bronx	34	34
Brooklyn	66	66
Manhattan	48	48
Queens	50	50
Staten Island	20	20

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

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

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

```
[34]:
```

	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