



## 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

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

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

### 2: Analyze the dataset

```
In [7]: #View the content of the data  
df.describe
```

```

Out[7]: <bound method NDFrame.describe of
FacilityName \
0
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 [9]: #View the first five records
df.head()

```

```

Out[9]:

```

	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 [18]: #Skip the duplicate header row
print(df.shape)
df.drop_duplicates(subset = ['FacilityName'])
df.shape

```

```

(219, 3)

```

```

Out[18]: (219, 3)

```

```

In [6]: #Verify if the dataset is fixed

```

```

In [19]: #View the data statistics (Hint: use describe() method)
df.describe()

```

Out[19]:	FacilityName	FacilityAddress	Borough
	count	219	219
	unique	219	6
	top	Engine 93/Ladder 45/Battalion 13	56-29 68th Street Brooklyn
	freq	1	1 66

```
In [22]: #View the attributes of the dataset (Hint: view the column names)
df.columns
```

```
Out[22]: Index(['FacilityName', 'FacilityAddress', 'Borough'], dtype='object')
```

```
In [27]: #View the index of the dataset
df.index
```

```
Out[27]: RangeIndex(start=0, stop=219, step=1)
```

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

```
In [25]: #Count number of records for each attribute
df.count()
```

```
Out[25]: FacilityName      219
FacilityAddress      219
Borough              219
dtype: int64
```

```
In [28]: #view the datatypes of all three attributes
df.dtypes
```

```
Out[28]: FacilityName      object
FacilityAddress      object
Borough              object
dtype: object
```

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

```
In [29]: #Select FDNY information boroughwise
boroughwise = df.groupby(['Borough'])
```

```
In [32]: #View FDNY informationn for each borough
boroughwise.count()
```

Out[32]:

	FacilityName	FacilityAddress
--	--------------	-----------------

Borough		
Borough	1	1
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

In [35]:

```
#Select FDNY information for Manhattan
boroughwise_cnt = boroughwise.get_group('Manhattan')
```

In [41]:

```
#View FDNY information for Manhattan
boroughwise_cnt
```

Out[41]:

	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
5	Ladder 8	14 North Moore Street	Manhattan
6	Engine 9/Ladder 6	75 Canal Street	Manhattan
7	Engine 15/Ladder 18/Battalion 4	25 Pitt Street	Manhattan
8	Engine 28/Ladder 11	222 East 2nd Street	Manhattan
9	Engine 5	340 East 14th Street	Manhattan
10	Engine 55	363 Broome Street	Manhattan
11	Ladder 20/Division 1	253 Lafayette Street	Manhattan
12	Engine 24/Ladder 5/Battalion 2	227-29 6th Avenue	Manhattan
13	Engine 33/Ladder 9	42 Great Jones Street	Manhattan
14	Ladder 3/Battalion 6	108 East 13th Street	Manhattan
15	Squad 18	132 West 10th Street	Manhattan
16	Engine 34/Ladder 21	440 West 38th Street	Manhattan
17	Engine 26	220 West 37th Street	Manhattan
18	Engine 3/Ladder 12/Battalion 7	150 West 19th Street	Manhattan
19	Engine 1/Ladder 24	142-46 West 31st Street	Manhattan
20	Engine 14	14 East 18th Street	Manhattan

<b>21</b>	Engine 16 / Ladder 7	234 East 29th Street	Manhattan
<b>22</b>	Engine 21	238 East 40th Street	Manhattan
<b>23</b>	Engine 54/Ladder 4/Battalion 9	782 8th Avenue	Manhattan
<b>24</b>	Engine 23	215 West 58th Street	Manhattan
<b>25</b>	Rescue 1	530 West 43rd Street	Manhattan
<b>26</b>	Engine 40/Ladder 35	131 Amsterdam Avenue	Manhattan
<b>27</b>	Ladder 25/District Office 4/Division 3	205-207 West 77th Street	Manhattan
<b>28</b>	Engine 74	120 West 83rd Street	Manhattan
<b>29</b>	Engine 65	33 West 43rd Street	Manhattan
<b>30</b>	Engine 8 / Ladder 2 / Battalion 8	167 East 51st Street	Manhattan
<b>31</b>	Engine 39/Ladder 16	157-59 East 67th Street	Manhattan
<b>32</b>	Engine 44	221 East 75th Street	Manhattan
<b>33</b>	Engine 22/Ladder 13/Battalion 10	159 East 85th Street	Manhattan
<b>34</b>	Engine 58/Ladder 26	1367 5th Avenue	Manhattan
<b>35</b>	Engine 53/Ladder 43	1836-46 3rd Avenue	Manhattan
<b>36</b>	Engine 91	242 East 111th Street	Manhattan
<b>37</b>	Engine 35/Ladder 14	2282 3rd Avenue	Manhattan
<b>38</b>	Engine 76/Ladder 22/Battalion 11	145-51 West 100th Street	Manhattan
<b>39</b>	Engine 47	502 West 113th Street	Manhattan
<b>40</b>	Engine 59/Ladder 30	111 West 133rd Street	Manhattan
<b>41</b>	Engine 37/Ladder 40	415 West 125th Street	Manhattan
<b>42</b>	Engine 69/Ladder 28/Battalion 16	248 West 143rd Street	Manhattan
<b>43</b>	Engine 80/Ladder 23	503 West 139th Street	Manhattan
<b>44</b>	Engine 84/Ladder 34	513 West 161st Street	Manhattan
<b>45</b>	Engine 67	518 West 170th Street	Manhattan
<b>46</b>	Engine 93/Ladder 45/Battalion 13	515 West 181st Street	Manhattan
<b>47</b>	Engine 95/Ladder 36	29 Vermilyea Avenue	Manhattan
<b>48</b>	Marine 1	Little West 12th Street/Hudson River	Manhattan

In [ ]: