190031920

A Nikhil Reddy

DS Practical 3

In [1]:
```
import pandas as pd
import numpy as np
```

In [2]:
```
!pip install openpyxl
```

```
Requirement already satisfied: openpyxl in /srv/conda/envs/notebook/lib/python3.7/site-packages (3.
0.6)
Requirement already satisfied: et-xmlfile in /srv/conda/envs/notebook/lib/python3.7/site-packages
(from openpyxl) (1.0.1)
Requirement already satisfied: jdcal in /srv/conda/envs/notebook/lib/python3.7/site-packages (from
openpyxl) (1.4.1)
```

In [3]:
```
df=pd.read_csv('housing.csv')
df
```

Out[3]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_income
0	-122.23	37.88	41	880	129.0	322	126	8.3252
1	-122.22	37.86	21	7099	1106.0	2401	1138	8.3014
2	-122.24	37.85	52	1467	190.0	496	177	7.2574
3	-122.25	37.85	52	1274	235.0	558	219	5.6431
4	-122.25	37.85	52	1627	280.0	565	259	3.8462
...	...	...	...	...	...	...	...	...
20635	-121.09	39.48	25	1665	374.0	845	330	1.5603
20636	-121.21	39.49	18	697	150.0	356	114	2.5568
20637	-121.22	39.43	17	2254	485.0	1007	433	1.7000
20638	-121.32	39.43	18	1860	409.0	741	349	1.8672
20639	-121.24	39.37	16	2785	616.0	1387	530	2.3886

20640 rows × 10 columns

In [4]:
```
exfile=pd.read_excel('houseexcel.xlsx')
exfile
```

Out[4]:

	total_rooms	total_bedrooms	population	households	median_income	median_house_value	ocean_proximity
0	880	129	322	126	8.3252	452600	NEAR BAY
1	7099	1106	2401	1138	8.3014	358500	NEAR BAY
2	1467	190	496	177	7.2574	352100	NEAR BAY
3	1274	235	558	219	5.6431	341300	NEAR BAY
4	1627	280	565	259	3.8462	342200	NEAR BAY
5	919	213	413	193	4.0368	269700	NEAR BAY
6	2535	489	1094	514	3.6591	299200	NEAR BAY
7	3104	687	1157	647	3.1200	241400	NEAR BAY
8	2555	665	1206	595	2.0804	226700	NEAR BAY
9	3549	707	1551	714	3.6912	261100	NEAR BAY
10	2202	434	910	402	3.2031	281500	NEAR BAY
11	3503	752	1504	734	3.2705	241800	NEAR BAY
12	2491	474	1098	468	3.0750	213500	NEAR BAY
13	696	191	345	174	2.6736	191300	NEAR BAY
14	2643	626	1212	620	1.9167	159200	NEAR BAY
15	1120	283	697	264	2.1250	140000	NEAR BAY
16	1966	347	793	331	2.7750	152500	NEAR BAY
17	1228	293	648	303	2.1202	155500	NEAR BAY
18	2239	455	990	419	1.9911	158700	NEAR BAY

In [5]:
```
jsonfile=pd.read_json('housejson.json')
jsonfile
```

Out[5]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_income
0	-122.23	37.88	41	880	129.0	322	126	8.3252
1	-122.22	37.86	21	7099	1106.0	2401	1138	8.3014
2	-122.24	37.85	52	1467	190.0	496	177	7.2574
3	-122.25	37.85	52	1274	235.0	558	219	5.6431
4	-122.25	37.85	52	1627	280.0	565	259	3.8462
...	...	...	...	...	...	...	...	...
20635	-121.09	39.48	25	1665	374.0	845	330	1.5603
20636	-121.21	39.49	18	697	150.0	356	114	2.5568
20637	-121.22	39.43	17	2254	485.0	1007	433	1.7000
20638	-121.32	39.43	18	1860	409.0	741	349	1.8672
20639	-121.24	39.37	16	2785	616.0	1387	530	2.3886

20640 rows × 10 columns

In [6]:
```
df.apply(pd.Series.value_counts)
```

Out[6]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_incom
-124.35	1.0	NaN	NaN	NaN	NaN	NaN	NaN	Na
-124.3	2.0	NaN	NaN	NaN	NaN	NaN	NaN	Na
-124.27	1.0	NaN	NaN	NaN	NaN	NaN	NaN	Na
-124.26	1.0	NaN	NaN	NaN	NaN	NaN	NaN	Na
-124.25	1.0	NaN	NaN	NaN	NaN	NaN	NaN	Na
...	...	...	...	...	...	...	...	.
<1H OCEAN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Na
INLAND	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Na
ISLAND	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Na
NEAR BAY	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Na
NEAR OCEAN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Na

24864 rows × 10 columns

In [7]:
```
df.values.tolist()
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Out[7]:
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 [-121.8, 37.7, 22, 5533, 943.0, 2474, 910, 4.7361, 216800, 'INLAND'],
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 ...]
```

In [8]:
```python
df.longitude.unique()
```

Out[8]:
```
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       -116.83, -116.82, -116.84, -116.78, -116.58, -116.66, -116.67,
       -116.34, -116.28, -122.43, -120.52, -122.76, -123.26, -123.41,
       -123.08, -122.67, -122.82, -123.04, -123.02, -122.98, -123.01,
       -123.  , -122.97, -123.03, -123.49, -123.25, -123.48, -123.28,
       -123.13, -123.12, -123.43, -119.37, -118.73, -120.28, -119.17,
       -118.89, -118.81, -118.77, -118.71])
```

In [9]:
```python
df.iloc[3,:]
```

Out[9]:
```
longitude               -122.25
latitude                  37.85
housing_median_age           52
total_rooms                1274
total_bedrooms            235.0
population                  558
households                  219
median_income            5.6431
median_house_value       341300
ocean_proximity        NEAR BAY
Name: 3, dtype: object
```

In [10]:
```python
df.iloc[0]
```

Out[10]:
```
longitude               -122.23
latitude                  37.88
housing_median_age           41
total_rooms                 880
total_bedrooms            129.0
population                  322
households                  126
median_income            8.3252
median_house_value       452600
ocean_proximity        NEAR BAY
Name: 0, dtype: object
```

In [11]:
```python
df.rename(columns={'housing_nedian_age':'House_Median_Age'},inplace=True)
df
```

Out[11]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_income
0	-122.23	37.88	41	880	129.0	322	126	8.3252
1	-122.22	37.86	21	7099	1106.0	2401	1138	8.3014
2	-122.24	37.85	52	1467	190.0	496	177	7.2574
3	-122.25	37.85	52	1274	235.0	558	219	5.6431
4	-122.25	37.85	52	1627	280.0	565	259	3.8462
...	...	...	...	...	...	...	...	...
20635	-121.09	39.48	25	1665	374.0	845	330	1.5603
20636	-121.21	39.49	18	697	150.0	356	114	2.5568
20637	-121.22	39.43	17	2254	485.0	1007	433	1.7000
20638	-121.32	39.43	18	1860	409.0	741	349	1.8672
20639	-121.24	39.37	16	2785	616.0	1387	530	2.3886

20640 rows × 10 columns

In [12]:
```python
df.rename(index={0:"x",1:"y",3:"z"})
```

Out[12]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_income
x	-122.23	37.88	41	880	129.0	322	126	8.3252
y	-122.22	37.86	21	7099	1106.0	2401	1138	8.3014
2	-122.24	37.85	52	1467	190.0	496	177	7.2574
z	-122.25	37.85	52	1274	235.0	558	219	5.6431
4	-122.25	37.85	52	1627	280.0	565	259	3.8462
...	...	...	...	...	...	...	...	...
20635	-121.09	39.48	25	1665	374.0	845	330	1.5603
20636	-121.21	39.49	18	697	150.0	356	114	2.5568
20637	-121.22	39.43	17	2254	485.0	1007	433	1.7000
20638	-121.32	39.43	18	1860	409.0	741	349	1.8672
20639	-121.24	39.37	16	2785	616.0	1387	530	2.3886

20640 rows × 10 columns

In [13]:
```python
df.rename(index=lambda X:X+1)
```

Out[13]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_income
1	-122.23	37.88	41	880	129.0	322	126	8.3252
2	-122.22	37.86	21	7099	1106.0	2401	1138	8.3014
3	-122.24	37.85	52	1467	190.0	496	177	7.2574
4	-122.25	37.85	52	1274	235.0	558	219	5.6431
5	-122.25	37.85	52	1627	280.0	565	259	3.8462
...	...	...	...	...	...	...	...	...
20636	-121.09	39.48	25	1665	374.0	845	330	1.5603
20637	-121.21	39.49	18	697	150.0	356	114	2.5568
20638	-121.22	39.43	17	2254	485.0	1007	433	1.7000
20639	-121.32	39.43	18	1860	409.0	741	349	1.8672
20640	-121.24	39.37	16	2785	616.0	1387	530	2.3886

20640 rows × 10 columns

In [14]:
```python
df.groupby("housing_median_age",axis="columns")
df
```

Out[14]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_income
0	-122.23	37.88	41	880	129.0	322	126	8.3252
1	-122.22	37.86	21	7099	1106.0	2401	1138	8.3014
2	-122.24	37.85	52	1467	190.0	496	177	7.2574
3	-122.25	37.85	52	1274	235.0	558	219	5.6431
4	-122.25	37.85	52	1627	280.0	565	259	3.8462
...	...	...	...	...	...	...	...	...
20635	-121.09	39.48	25	1665	374.0	845	330	1.5603
20636	-121.21	39.49	18	697	150.0	356	114	2.5568
20637	-121.22	39.43	17	2254	485.0	1007	433	1.7000
20638	-121.32	39.43	18	1860	409.0	741	349	1.8672
20639	-121.24	39.37	16	2785	616.0	1387	530	2.3886

20640 rows × 10 columns

In [15]:
```python
df.pivot_table(index="total_rooms",values=["total_bedrooms","population"],aggfunc=np.sum)
```

Out[15]:

total_rooms	population	total_bedrooms
2	6	2.0
6	8	2.0
8	13	1.0
11	24	11.0
12	18	4.0
...	...	...
30450	9419	5033.0
32054	15507	5290.0
32627	28566	6445.0
37937	16122	5471.0
39320	16305	6210.0

5926 rows × 2 columns