

190031920

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DS Skill 3

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In [1]: import pandas as pd

In [2]: hospitaldata = pd.read_csv('Hospital_General_Information.csv', encoding="ISO-8859-1")
hospitaldata

Out[2]:
```

	Provider ID	Hospital Name	Address	City	State	ZIP Code	County Name	Phone Number	Hospital Type	Hospital Ownership	...
0	10001	SOUTHEAST ALABAMA MEDICAL CENTER	1108 ROSS CLARK CIRCLE	DOTHAN	AL	36301	HOUSTON	3347938701	Acute Care Hospitals	Government - Hospital District or Authority	...
1	10005	MARSHALL MEDICAL CENTER SOUTH	2505 U S HIGHWAY 431 NORTH	BOAZ	AL	35957	MARSHALL	2565938310	Acute Care Hospitals	Government - Hospital District or Authority	...
2	10006	ELIZA COFFEE MEMORIAL HOSPITAL	205 MARENGO STREET	FLORENCE	AL	35631	LAUDERDALE	2567688400	Acute Care Hospitals	Government - Hospital District or Authority	...
3	10007	MIZELL MEMORIAL HOSPITAL	702 N MAIN ST	OPP	AL	36467	COVINGTON	3344933541	Acute Care Hospitals	Voluntary non-profit - Private	...
4	10008	CRENSHAW COMMUNITY HOSPITAL	101 HOSPITAL CIRCLE	LUVERNE	AL	36049	CRENSHAW	3343353374	Acute Care Hospitals	Proprietary	...
...
4807	670118	FIRST TEXAS HOSPITAL	9922 LOUETTA RD	HOUSTON	TX	77070	HARRIS	8442641435	Acute Care Hospitals	Proprietary	...
4808	640001	LBJ TROPICAL MEDICAL CENTER	FAGAALU VILLAGE	PAGO PAGO	AS	96799	NaN	6846334590	Acute Care Hospitals	Government - Hospital District or Authority	...
4809	650001	GUAM MEMORIAL HOSPITAL AUTHORITY	850 GOV CARLOS G CAMACHO ROAD	TAMUNING	GU	96913	NaN	6716472552	Acute Care Hospitals	Government - Local	...
4810	650003	GUAM REGIONAL MEDICAL CITY	133 ROUTE 3	DEDEDO	GU	96929	NaN	6716455500	Acute Care Hospitals	Voluntary non-profit - Private	...
4811	660001	COMMONWEALTH HEALTH CENTER	PO BOX 409CK, NAVY HILL ROAD	GARAPAN	MP	96950	NaN	6702348950	Acute Care Hospitals	Proprietary	...

4812 rows x 28 columns

```
In [3]: hospitaldata.isnull()

Out[3]:
```

	Provider ID	Hospital Name	Address	City	State	ZIP Code	County Name	Phone Number	Hospital Type	Hospital Ownership	...	Readmission national comparison	Readmission national comparison
0	False	False	False	False	False	False	False	False	False	False	...	False	False
1	False	False	False	False	False	False	False	False	False	False	...	False	False
2	False	False	False	False	False	False	False	False	False	False	...	False	False
3	False	False	False	False	False	False	False	False	False	False	...	False	False
4	False	False	False	False	False	False	False	False	False	False	...	False	False
...
4807	False	False	False	False	False	False	False	False	False	False	...	False	False
4808	False	False	False	False	False	False	True	False	False	False	...	False	False
4809	False	False	False	False	False	False	True	False	False	False	...	False	False
4810	False	False	False	False	False	False	True	False	False	False	...	False	False
4811	False	False	False	False	False	False	True	False	False	False	...	False	False

4812 rows x 28 columns

```
In [4]: hospitaldata.isnull().sum()

Out[4]:
```

Provider ID	0
Hospital Name	0
Address	0
City	0
State	0
ZIP Code	0
County Name	15
Phone Number	0
Hospital Type	0
Hospital Ownership	0
Emergency Services	0
Meets criteria for meaningful use of EHRs	143
Hospital overall rating	0
Hospital overall rating footnote	3414
Mortality national comparison	0
Mortality national comparison footnote	3460
Safety of care national comparison	0
Safety of care national comparison footnote	2644
Readmission national comparison	0
Readmission national comparison footnote	3795
Patient experience national comparison	0
Patient experience national comparison footnote	3443
Effectiveness of care national comparison	0
Effectiveness of care national comparison footnote	3610
Timeliness of care national comparison	0
Timeliness of care national comparison footnote	3546
Efficient use of medical imaging national comparison	0
Efficient use of medical imaging national comparison footnote	2779
dtype:	int64

```
In [5]: hospitaldata.notnull()

Out[5]:
```

	Provider ID	Hospital Name	Address	City	State	ZIP Code	County Name	Phone Number	Hospital Type	Hospital Ownership	...	Readmission national comparison	Readmission national comparison
0	True	True	True	True	True	True	True	True	True	True	...	True	True
1	True	True	True	True	True	True	True	True	True	True	...	True	True
2	True	True	True	True	True	True	True	True	True	True	...	True	True
3	True	True	True	True	True	True	True	True	True	True	...	True	True
4	True	True	True	True	True	True	True	True	True	True	...	True	True
...
4807	True	True	True	True	True	True	True	True	True	True	...	True	True
4808	True	True	True	True	True	True	False	True	True	True	...	True	True
4809	True	True	True	True	True	True	False	True	True	True	...	True	True
4810	True	True	True	True	True	True	False	True	True	True	...	True	True
4811	True	True	True	True	True	True	False	True	True	True	...	True	True

4812 rows x 28 columns

```
In [6]: hospitaldata2=hospitaldata.groupby(['Hospital Ownership','Hospital Type']).size()
hospitaldata2

Out[6]:
```

Hospital Ownership	Hospital Type	
Government - Federal	Acute Care Hospitals	37
	Critical Access Hospitals	8
Government - Hospital District or Authority	Acute Care Hospitals	273
	Childrens	1
	Critical Access Hospitals	287
Government - Local	Acute Care Hospitals	176
	Critical Access Hospitals	231
Government - State	Acute Care Hospitals	50
	Childrens	3
	Critical Access Hospitals	12
Physician	Acute Care Hospitals	65
	Critical Access Hospitals	3
Proprietary	Acute Care Hospitals	725
	Childrens	8
	Critical Access Hospitals	67
Tribal	Acute Care Hospitals	5
	Critical Access Hospitals	4
Voluntary non-profit - Church	Acute Care Hospitals	278
	Childrens	1
	Critical Access Hospitals	64
Voluntary non-profit - Other	Acute Care Hospitals	359
	Childrens	16
	Critical Access Hospitals	87
Voluntary non-profit - Private	Acute Care Hospitals	1401
	Childrens	70
	Critical Access Hospitals	581
dtype:	int64	

```
In [7]: hospitaldata3 = hospitaldata.groupby(['State']).size()
hospitaldata3

Out[7]:
```

State	
AK	22
AL	90
AR	75
AS	1
AZ	80
CA	343
CO	78
CT	31
DC	8
DE	7
FL	187
GA	133
GU	2
HI	23
IA	116
ID	41
IL	180
IN	120
KS	137
KY	94
LA	121
MA	64
MD	49
ME	33
MI	131
MN	131
MO	112
MP	1
MS	95
MT	62
NC	107
ND	44
NE	89
NH	26
NJ	66
NM	41
NV	35
NY	171
OH	168
OK	124
OR	60
PA	171
PR	52
RI	11
SC	60
SD	60
TN	107
TX	411
UT	46
VA	86
VI	2
VT	14
WA	91
WI	126
WV	49
WY	28
dtype:	int64

```
In [8]: hospitaldata4 = hospitaldata[hospitaldata['State'] == 'TX']
hospitaldata4

Out[8]:
```

	Provider ID	Hospital Name	Address	City	State	ZIP Code	County Name	Phone Number	Hospital Type	Hospital Ownership	...
3954	450002	PROVIDENCE MEMORIAL HOSPITAL	2001 N OREGON ST	EL PASO	TX	79902	EL PASO	9155776011	Acute Care Hospitals	Proprietary	...
3955	450007	PETERSON REGIONAL MEDICAL CENTER	551 HILL COUNTRY DRIVE	KERRVILLE	TX	78028	KERR	8308964200	Acute Care Hospitals	Voluntary non-profit - Private	...
3956	450010	UNITED REGIONAL HEALTH CARE SYSTEM	1600 11TH STREET	WICHITA FALLS	TX	76301	WICHITA	9407643055	Acute Care Hospitals	Voluntary non-profit - Private	...
3957	450011	ST JOSEPH REGIONAL HEALTH CENTER	2801 FRANCISCAN DR	BRYAN	TX	77802	BRAZOS	9797763912	Acute Care Hospitals	Voluntary non-profit - Private	...
3958	450015	PARKLAND HEALTH AND HOSPITAL SYSTEM	5200 HARRY HINES BLVD	DALLAS	TX	75235	DALLAS	2145908000	Acute Care Hospitals	Government - Hospital District or Authority	...
...
4803	670114	WEIMAR MEDICAL CENTER	400 YOUNGS DR	WEIMAR	TX	78962	COLORADO	9797258274	Acute Care Hospitals	Proprietary	...
4804	670115	CLEVELAND EMERGENCY HOSPITAL	1017 S TRAVIS AVE	CLEVELAND	TX	77327	LIBERTY	2816595400	Acute Care Hospitals	Proprietary	...
4805	670116	WISE HEALTH SYSTEM	3200 NORTH TARRANT PARKWAY	FORT WORTH	TX	76177	TARRANT	8175027300	Acute Care Hospitals	Government - Hospital District or Authority	...
4806	670117	TEXAS GENERAL HOSPITAL-VZRMCLP	707 N WALDRIP ST	GRAND SALINE	TX	75140	VAN ZANDT	9039625200	Acute Care Hospitals	Proprietary	...
4807	670118	FIRST TEXAS HOSPITAL	9922 LOUETTA RD	HOUSTON	TX	77070	HARRIS	8442641435	Acute Care Hospitals	Proprietary	...

411 rows x 28 columns

```
In [9]: hospitaldata5=hospitaldata[['State','Hospital Ownership']]
hospitaldata5=hospitaldata5[hospitaldata['State']=='TX']
hospitaldata5

Out[9]:
```

	State	Hospital Ownership
3954	TX	Proprietary
3955	TX	Voluntary non-profit - Private
3956	TX	Voluntary non-profit - Private
3957	TX	Voluntary non-profit - Private
3958	TX	Government - Hospital District or Authority
...
4803	TX	Proprietary
4804	TX	Proprietary
4805	TX	Government - Hospital District or Authority
4806	TX	Proprietary
4807	TX	Proprietary

411 rows x 2 columns

```
In [10]: hospitaldata6=pd.crosstab(hospitaldata["Hospital Name"],hospitaldata["Timeliness of care national comparison footnote"],
hospitaldata6=hospitaldata6[hospitaldata["Timeliness of care national comparison footnote"]=="Above the national average"])
hospitaldata6

Out[10]:
```

	Timeliness of care national comparison footnote	False
	Hospital Name	
	ABBEVILLE AREA MEDICAL CENTER	1
	ABBEVILLE GENERAL HOSPITAL	1
	ABBOTT NORTHWESTERN HOSPITAL	1
	ABILENE REGIONAL MEDICAL CENTER	1
	ABINGTON MEMORIAL HOSPITAL	1

	YORK HOSPITAL	2
	YUKON KUSKOKWIM DELTA REG HOSPITAL	1
	YUMA DISTRICT HOSPITAL	1
	YUMA REGIONAL MEDICAL CENTER	1
	ZUNI COMPREHENSIVE COMMUNITY HEALTH CENTER	1

4623 rows x 1 columns

```
In [11]: hospital_ratings = hospitaldata[['Hospital Name','Hospital overall rating']]
hospital_ratings

Out[11]:
```

	Hospital Name	Hospital overall rating
0	SOUTHEAST ALABAMA MEDICAL CENTER	3
1	MARSHALL MEDICAL CENTER SOUTH	3
2	ELIZA COFFEE MEMORIAL HOSPITAL	2
3	MIZELL MEMORIAL HOSPITAL	2
4	CRENSHAW COMMUNITY HOSPITAL	3
...
4807	FIRST TEXAS HOSPITAL	Not Available
4808	LBJ TROPICAL MEDICAL CENTER	Not Available
4809	GUAM MEMORIAL HOSPITAL AUTHORITY	3
4810	GUAM REGIONAL MEDICAL CITY	Not Available
4811	COMMONWEALTH HEALTH CENTER	Not Available

4812 rows x 2 columns

```
In [12]: hospitaldata8=hospitaldata.loc[(hospitaldata["Hospital Type"]=="Acute Care Hospitals")&(hospitaldata["Hospital overall rating"]=="4"),["Hospital Name","State"]]
hospitaldata8

Out[12]:
```

	Hospital Name	State
10	DALE MEDICAL CENTER	AL
11	CHEROKEE MEDICAL CENTER	AL
14	EAST ALABAMA MEDICAL CENTER	AL
15	WEDOWEE HOSPITAL	AL
17	COMMUNITY HOSPITAL INC	AL
...
4777	BAPTIST EMERGENCY HOSPITAL	TX
4779	SETON MEDICAL CENTER HARKER HEIGHTS	TX
4780	BAYLOR SCOTT AND WHITE MEDICAL CENTER MCKINNEY	TX
4782	TEXAS HEALTH HARRIS METHODIST HOSPITAL ALLIANCE	TX
4784	BAYLOR SCOTT & WHITE MEDICAL CENTER- COLLEGE S...	TX

724 rows x 2 columns

```
In [13]: hospitaldata9n = hospitaldata[hospitaldata["Safety of care national comparison"]!="Not Available"]
hospitaldata9n = hospitaldata9n.groupby(['Hospital Type']).size()
hospitaldata9n

Out[13]:
```

Hospital Type	
Acute Care Hospitals	727
Childrens	99
Critical Access Hospitals	1342
dtype:	int64

```
In [14]: hospitaldata10=hospitaldata.loc[:,['Provider ID','Patient experience national comparison']]
hospitaldata10

Out[14]:
```

	Provider ID	Patient experience national comparison
0	10001	Below the national average
1	10005	Same as the national average
2	10006	Below the national average
3	10007	Same as the national average
4	10008	Not Available
...
4807	670118	Not Available
4808	640001	Not Available
4809	650001	Not Available
4810	650003	Not Available
4811	660001	Not Available

4812 rows x 2 columns