

Skilling-3

Hospital Rating Analysis

To Rate the Hospitals based on its performance by EDA

1. Loading data & cleaning

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```
[ ] import pandas as pd
import numpy as np

df = pd.read_csv('skill13.csv', encoding="ISO-8859-1")
df
```

	Provider ID	Hospital Name	Address	City	State	ZIP Code	County Name	Phone Number	Hospital Type	Hospital Ownership	Emergency Services	Meets criteria for meaningful use of EHRs	Hospital overall rating	Hospital overall rating footnote	Mortality national comparison	Mortality national comparison footnote	Safety of care national comparison
0	10001	SOUTHEAST ALABAMA MEDICAL CENTER	1108 ROSS CLARK CIRCLE	DOTHAN	AL	36301	HOUSTON	3347938701	Acute Care Hospitals	Government - Hospital District or Authority	Yes	Y	3	NaN	Same as the national average	NaN	Ab...
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	Yes	Y	3	NaN	Below the national average	NaN	Se...
2	10006	ELIZA COFFEE MEMORIAL HOSPITAL	205 MARENGO STREET	FLORENCE	AL	35631	LAUDERDALE	2567688400	Acute Care Hospitals	Government - Hospital District or Authority	Yes	Y	2	NaN	Below the national average	NaN	Se...
3	10007	MIZELL MEMORIAL HOSPITAL	702 N MAIN ST	OPP	AL	36467	COVINGTON	3344933541	Acute Care Hospitals	Voluntary non-profit - Private	Yes	Y	2	NaN	Same as the national average	NaN	Av...

df.isnull().sum()

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	

df.isnull().sum()

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	
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Timeliness of care national comparison footnote	3546	
Efficient use of medical imaging national comparison	0	
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	dtype: int64	

2. Hospital Analysis-‘Hospital Type’ by ‘Ownership’

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```
#2
hospital_analysis=df.groupby(['Hospital Ownership','Hospital Type']).size()
hospital_analysis
```

Hospital Ownership	Hospital Type	Count
Government - Federal	Acute Care Hospitals	37
	Critical Access Hospitals	8
	Acute Care Hospitals	273
Government - Hospital District or Authority	Childrens	1
	Critical Access Hospitals	287
	Acute Care Hospitals	176
Government - Local	Critical Access Hospitals	231
	Acute Care Hospitals	50
Government - State	Childrens	3
	Critical Access Hospitals	12
Physician	Acute Care Hospitals	65
	Critical Access Hospitals	3
Proprietary	Acute Care Hospitals	725
	Childrens	8
Tribal	Critical Access Hospitals	67
	Acute Care Hospitals	5
Voluntary non-profit - Church	Critical Access Hospitals	4
	Acute Care Hospitals	278
Voluntary non-profit - Other	Childrens	1
	Critical Access Hospitals	64
Voluntary non-profit - Private	Acute Care Hospitals	359
	Childrens	16
	Critical Access Hospitals	87
	Acute Care Hospitals	1481
	Childrens	70
	Critical Access Hospitals	581

dtype: int64

3. Total number of Hospitals in each ‘State’

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```
#3
no_of_hospitals=df.groupby(['State']).size()
no_of_hospitals
```

State	Count
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

4. County wise hospital numbers in 'TX'

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```
#4
country_wise=df[df['State']=='TX']
country_wise
```

County	Hospital ID	Hospital Name	Address	City	State	Zip	County	Phone	Care Type	Ownership	Yes	Y	3	NaN	national average
KERRVILLE	3955	REGIONAL MEDICAL CENTER	COUNTRY DRIVE	KERRVILLE	TX	78028	KERR	8308964200	Care Hospitals	non-profit - Private	Yes	Y	3	NaN	national average
WICHITA FALLS	3956	UNITED REGIONAL HEALTH CARE SYSTEM	1600 11TH STREET	WICHITA FALLS	TX	76301	WICHITA	9407643055	Acute Care Hospitals	Voluntary non-profit - Private	Yes	Y	4	NaN	Below the national average
BRYAN	3957	ST JOSEPH REGIONAL HEALTH CENTER	2801 FRANCISCAN DR	BRYAN	TX	77802	BRAZOS	9797763912	Acute Care Hospitals	Voluntary non-profit - Private	Yes	Y	3	NaN	Below the national average
DALLAS	3958	PARKLAND HEALTH AND HOSPITAL SYSTEM	5200 HARRY HINES BLVD	DALLAS	TX	75235	DALLAS	2145908000	Acute Care Hospitals	Government - Hospital District or Authority	Yes	Y	2	NaN	Same as the national average
...
WEIMAR	4803	WEIMAR MEDICAL CENTER	400 YOUENS DR	WEIMAR	TX	78962	COLORADO	9797258274	Acute Care Hospitals	Proprietary	Yes	Y	Not Available	There are too few measures or measure groups f...	Not Available

5. Distribution of 'Hospital Type' and 'Ownership in Texas'

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```
#5
ownership_texas=df[['State','Hospital Ownership']]
ownership_texas=ownership_texas[ownership_texas['State']=='TX']
ownership_texas
```

State	Hospital Ownership
TX	Proprietary
TX	Voluntary non-profit - Private
TX	Voluntary non-profit - Private
TX	Voluntary non-profit - Private
TX	Government - Hospital District or Authority
...	...
TX	Proprietary
TX	Proprietary
TX	Government - Hospital District or Authority
TX	Proprietary
TX	Proprietary

411 rows × 2 columns

6. Find 'Timeliness of care national comparison footnote' and its 'hospital'

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```
#6
timeliness=pd.crosstab(df['Hospital Name'],df['Timeliness of care national comparison footnote']=="Above the national average")
timeliness
```

Hospital Name	Timeliness of care national comparison footnote
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 × 1 columns

7. 'Hospital rating'

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```
#7
hospital_rating=df[['Hospital Type','Hospital overall rating']]
hospital_rating
```

	Hospital Type	Hospital overall rating
0	Acute Care Hospitals	3
1	Acute Care Hospitals	3
2	Acute Care Hospitals	2
3	Acute Care Hospitals	2
4	Acute Care Hospitals	3
...
4807	Acute Care Hospitals	Not Available
4808	Acute Care Hospitals	Not Available
4809	Acute Care Hospitals	3
4810	Acute Care Hospitals	Not Available
4811	Acute Care Hospitals	Not Available

4812 rows × 2 columns

8. Find 'Acute Care Hospitals' with rating (4) along with 'state'

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```
#8
df.loc[(df['Hospital overall rating']=="4") & (df['Hospital Type']=="Acute Care Hospitals"),['State']]
```

	State
10	AL
11	AL
14	AL
15	AL
17	AL
...	...
4777	TX
4779	TX
4780	TX
4782	TX
4784	TX

724 rows × 1 columns

9. Which type of hospitals has highest 'Non-availability' of 'Safety of Care data'?

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Comment Share Settings

```
#9
res=df.loc[(df["Safety of care national comparison"]=="Not Available"),["Hospital Type"]]
res.mode()
```

	Hospital Type
0	Critical Access Hospitals

10. What are the different types of 'Patient experience national comparison' and list their 'Provider ID'?

```
df.groupby(["Patient experience national comparison","Provider ID"]).size()
```

Patient experience national comparison	Provider ID	
Above the national average	10021	1
	10022	1
	10029	1
	10033	1
	10044	1

Same as the national average	670023	1
	670044	1
	670047	1
	670085	1
	670106	1

Length: 4812, dtype: int64