

# IS 590 DV SP20: DATA VISUALIZATION (NAIMAN, J)

## FINAL PROJECT ARTICLE

### USA Hospital Compare Data Analysis

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#### I. Summary

This dashboard is designed to provide summary information for consumers about existing publicly - reported hospital data. It can be used for exploratory analysis of Hospital General Information dataset to find insights about hospitals across USA. State-wise analysis can be performed using the interactive features provided in this dashboard and important metrics can be monitored. Government rating agencies and patients both can use this information for making critical decisions.

#### II. Dataset

*Hospital General Information.csv*

This dataset can be found on <https://data.medicare.gov/data/archives/hospital-compare>

	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
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
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
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
3	10007	MIZELL MEMORIAL HOSPITAL	702 N MAIN ST	OPP	AL	36467	COVINGTON	3344933541	Acute Care Hospitals	Voluntary non-profit - Private	Yes	Y	3	NaN
4	10008	CRENSHAW COMMUNITY HOSPITAL	101 HOSPITAL CIRCLE	LUVERNE	AL	36049	CRENSHAW	3343353374	Acute Care Hospitals	Proprietary	Yes	Y	3	NaN

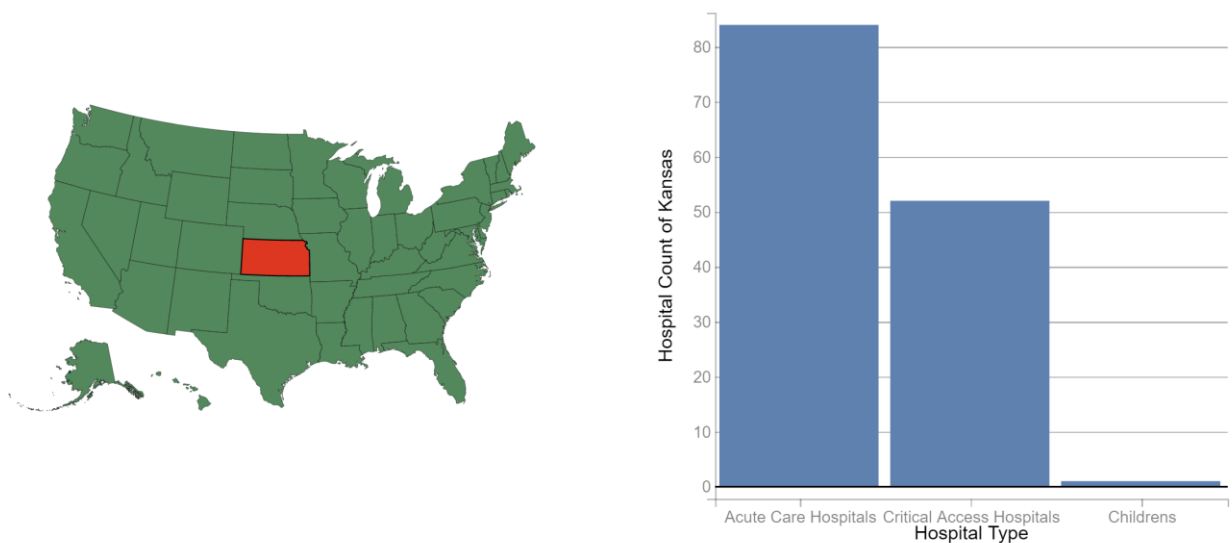
Fig 1. Dataset head

### III. Dashboard Visualizations

The dataset contains information of hospitals across the United States. Key attributes observed are Hospital Type, Hospital Ownership and Hospital Rating. I have developed a dashboard using concepts taught in the Data Visualization class to explore this dataset for the attributes and derive useful insights from the same.

The first dashboard viz is an interactive viz which links the map of USA with the Hospital Type based on the state selected. The user can click on a state and view the number of Hospitals based on Hospital Type in the bar chart on the right of the map. Right now, this works fine except one bug. The state selected needs to be deselected before selecting any other state. This is my central visualization.

Hospital Count by Hospital Type for selected State



**Fig 2. Central Viz**

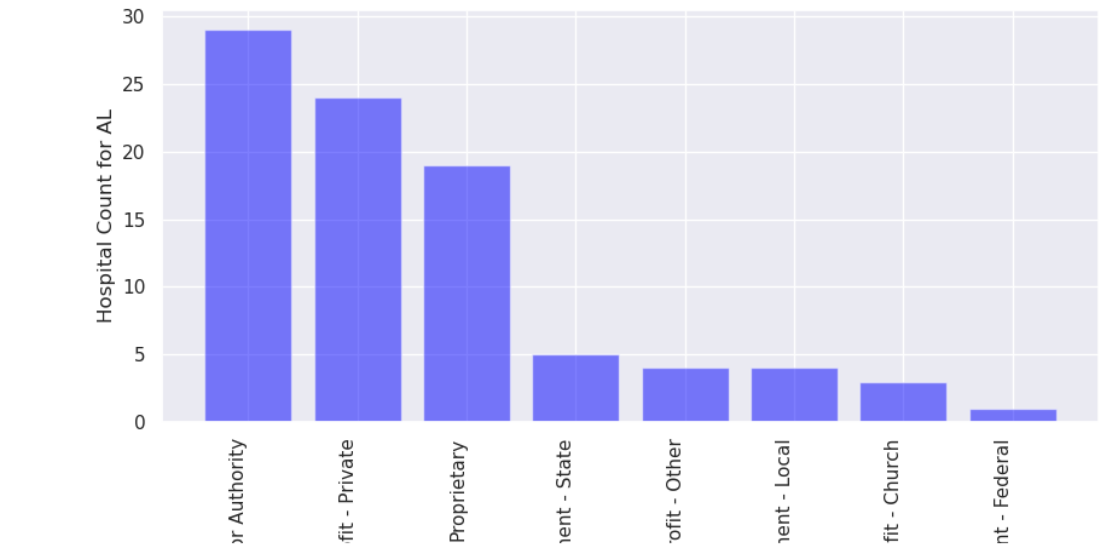
First contextual viz links a dropdown with State abbreviations and a bar chart containing Hospital count and Hospital Ownership. User can select the state name and view its number of Hospitals based on Hospital Ownership.

This was the most fun part of the project. Implementing interactivity in maps was interesting and insightful. I am looking forward to add additional features in this interactive viz and see if it can be linked to all my visualizations where state parameter is required.

state  ▼  
figy  ▼

Figure 7

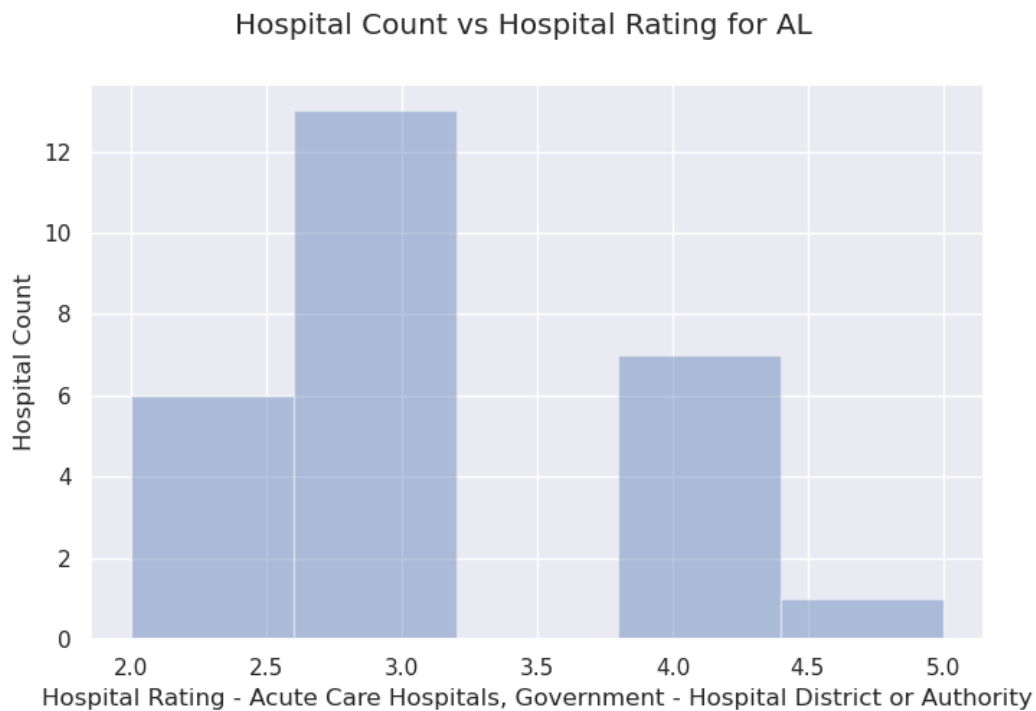
Hospital count by Hospital Ownership for AL



**Fig 3.** Contextual Viz 1

Second contextual viz links a dropdown with State abbreviations and a bar chart containing Hospital Rating and its Hospital Count for the selected state. User can select the state name and view its number of Hospitals based on Hospital Ratings.

state	AL
hosp_type	Acute Care Hospitals
hosp_owner	Government - Hospital District or Authority
figy	5



**Fig 4. Contextual Viz 2**

#### IV. Future Scope

This is a static dashboard for exploratory analysis of Hospital General Information dataset. Next steps include adding selection of state based on map for all the visualizations. Also, we can add another visualization for top performing hospitals.

Improvements in the current version include:

- Fixing the state selection bug in the central visualization.
- Linking state from map with all contextual visualizations.

#### V. Further Reference

Link to myBinder :

[https://mybinder.org/v2/gh/anish94/Hospital\\_data\\_analysis/master?filepath=USA-hospital-data-analysis.ipynb](https://mybinder.org/v2/gh/anish94/Hospital_data_analysis/master?filepath=USA-hospital-data-analysis.ipynb)

Github repo: [https://github.com/anish94/Hospital\\_data\\_analysis](https://github.com/anish94/Hospital_data_analysis)