

# MSDS 670

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Week 8 – Final Project

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# Overview

- Data sourced from
  - web-scraped Wikipedia data
  - gejson/shape-file data downloaded from the web
  - See references
- Population data specific to counties in Colorado was sourced
- Multiple choropleth maps and bar charts were created
- Comparisons created for the most crowded as well as the least crowded counties in Colorado



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History

▼ The 64 counties of the State of Colorado

2022 population estimates

Former counties

County high points

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## List of counties in Colorado

29 languages

Article Talk

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From Wikipedia, the free encyclopedia

Coordinates: 38.9972°N 105.5478°W

The U.S. State of Colorado is divided into 64 counties. Two of these counties, the City and County of Broomfield and the City and County of Denver, have consolidated city and county governments. Denver serves as the state capital. Counties are important units of government in Colorado since there are no civil townships or other minor civil divisions.

El Paso County with a 2020 population of 730,395 is the most populous Colorado county, while San Juan County with a 2020 population of 705 is the least populous. Las Animas County with an area of 4,776 square miles (12,369 km<sup>2</sup>) is the most extensive Colorado county, while the City and County of Broomfield with an area of 34 square miles (87 km<sup>2</sup>) is the least extensive. The City and County of Denver with a 2020 population density of 4,674 residents per square mile (1,805 km<sup>-2</sup>) is the most densely populated Colorado county, while Hinsdale County with a 2020 population density of 0.71 resident per square mile (0.27 km<sup>-2</sup>) is the least densely populated.

Mount Elbert, the highest summit of Colorado and the entire Rocky Mountains at 14,440 feet (4,401.2 m) elevation, is located in Lake County. The point where the Arikaree River flows out of Yuma County and into Kansas is the lowest point in Colorado at 3,317 feet (1,011 m) elevation.<sup>[a]</sup> This point, which is the highest low point of any state, is higher than the high points of 18 states and the District of Columbia.<sup>[1]</sup>



The location of the State of Colorado in the United States of America.

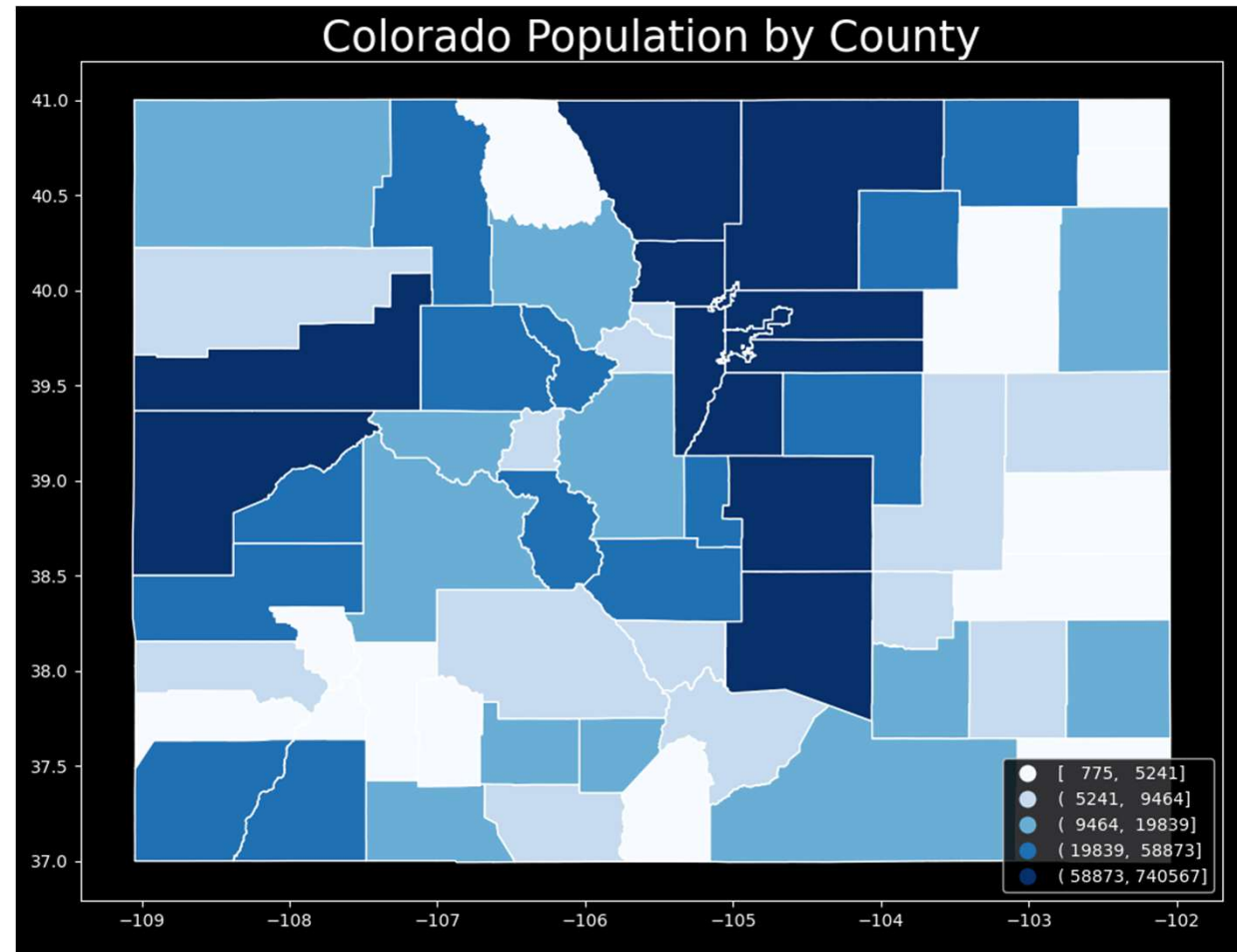


The 64 counties of the U.S. State of Colorado.

Source: [https://en.wikipedia.org/wiki/List\\_of\\_counties\\_in\\_Colorado](https://en.wikipedia.org/wiki/List_of_counties_in_Colorado)

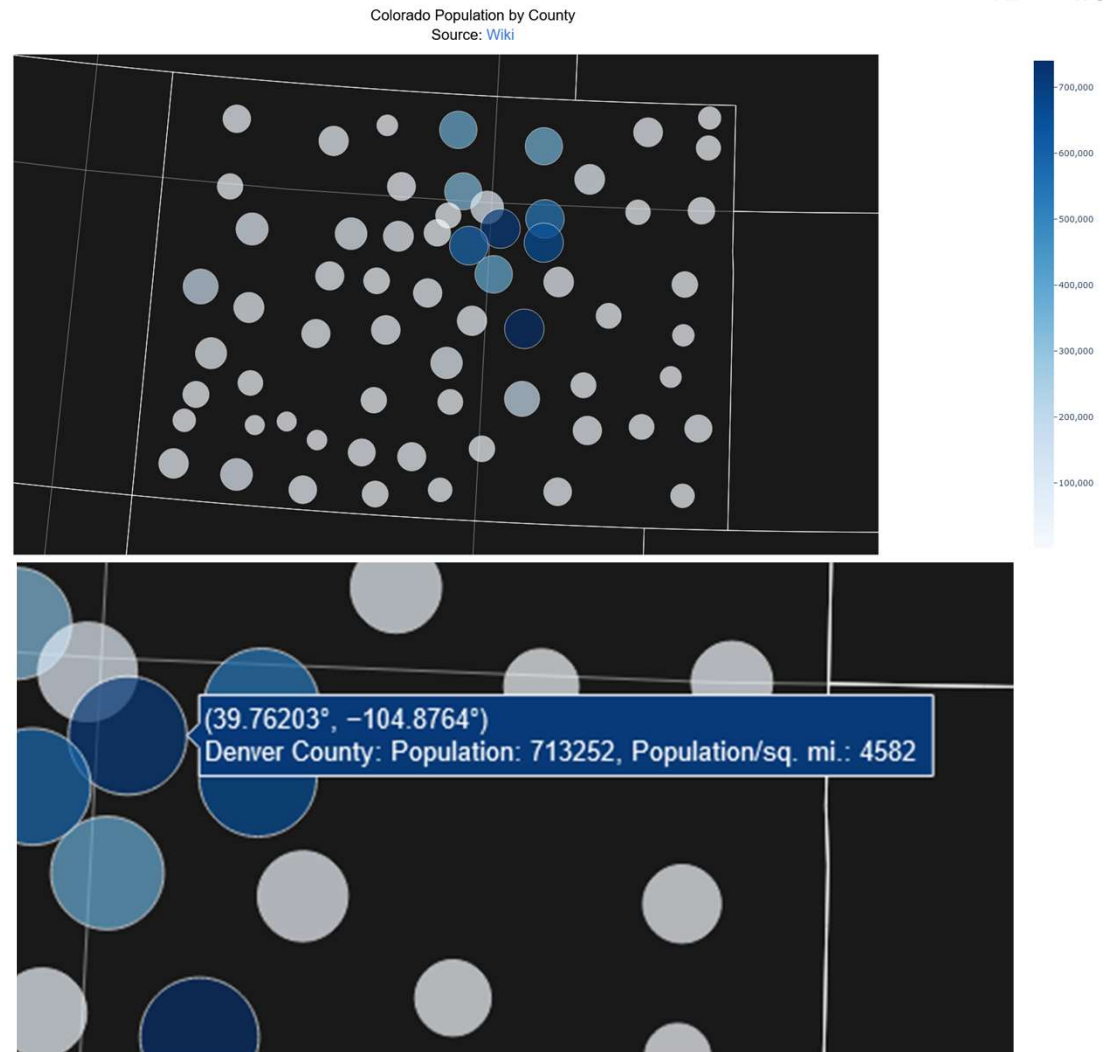
# Visualization 1

- Provides static look at populations within counties
- Created in geopandas
- White-Blue single-color mapping makes for easy comparisons
- Takeaways:
  - The population definitely trends along I-25, from Colorado Springs up to Fort Collins
  - Could refine the colormap intervals a bit
  - Western Colorado population increased as well, why?
    - Getting close to Moab, close to I-70 still



# Visualization 2

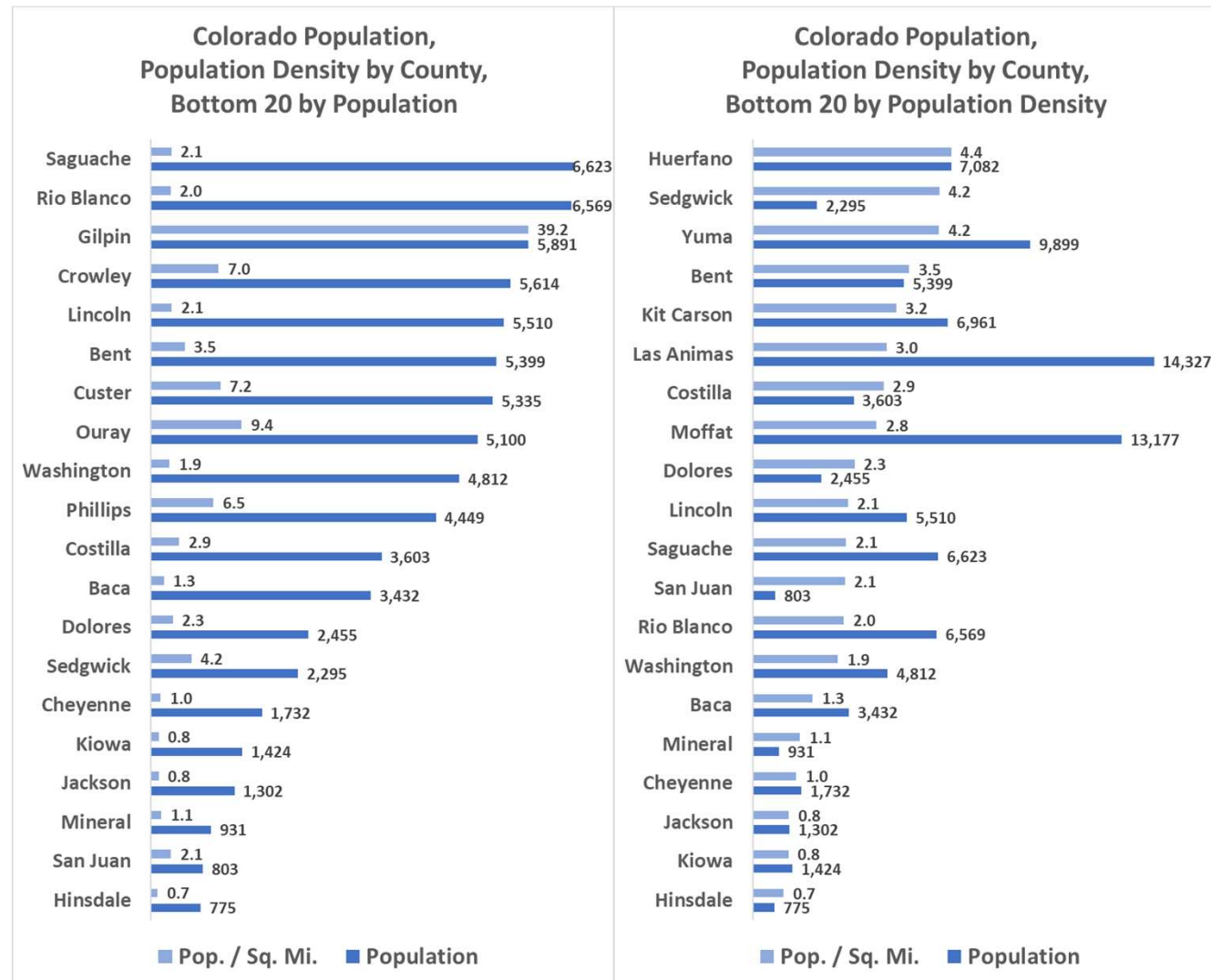
- Created using a plotly graph object  
Scattergeo visualization based on lat/lon coordinates
- Interactive, tooltips show:
  - Lat/Lon
  - County name
  - Population
  - Population Density
- Html, save-able. Source is linked in title
- White-blue scale again
  - Transparency alters the colors a bit
- Takeaways:
  - The I-25 trend is easily seen here as well with most blue circles clustered around the popular highway



Source: [https://en.wikipedia.org/wiki/List\\_of\\_counties\\_in\\_Colorado](https://en.wikipedia.org/wiki/List_of_counties_in_Colorado)

# Visualization 3

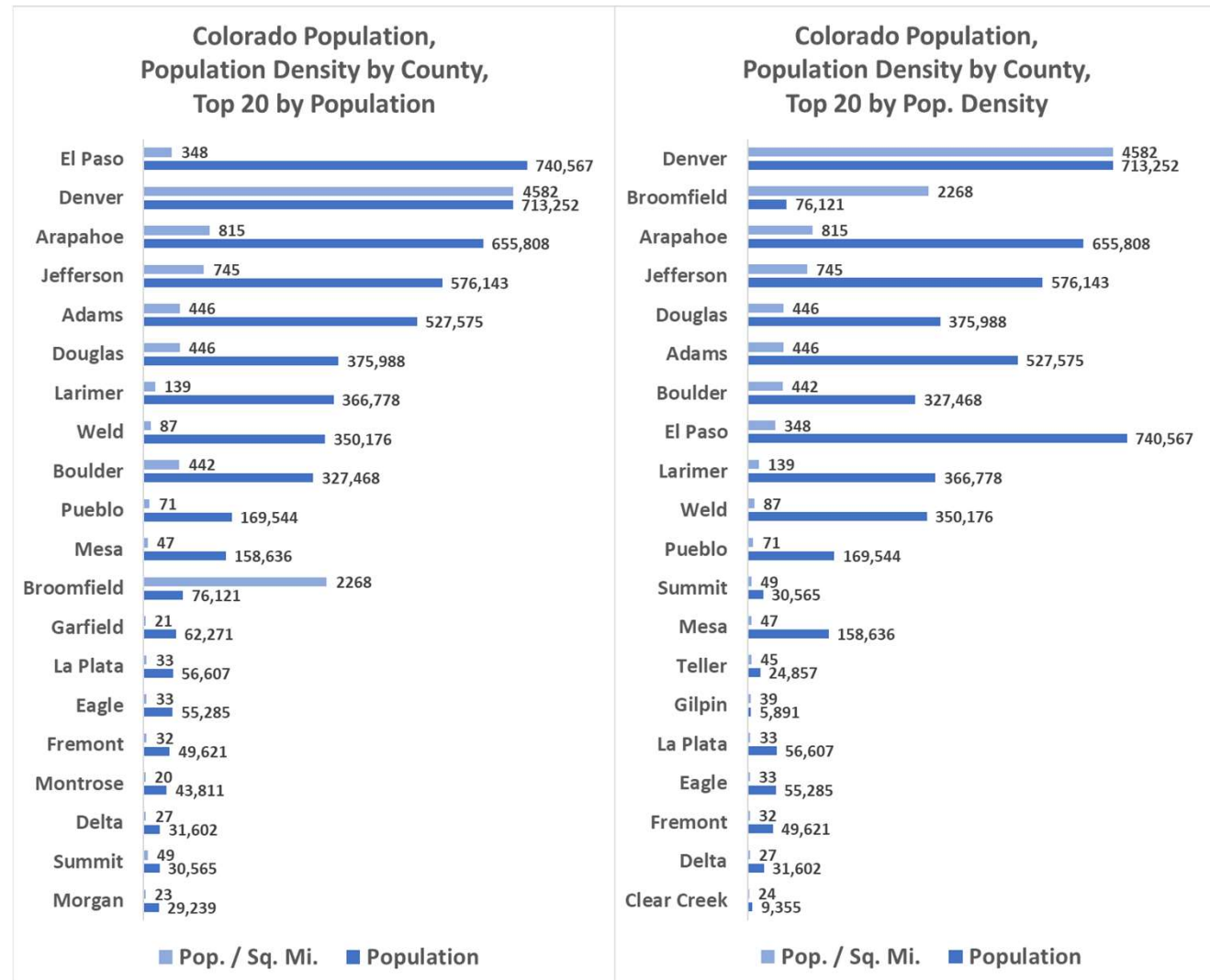
- A visualization of LEAST populated areas (Bottom 20)
- Sorted by either population or population density
  - Leads to different comparisons
- Takeaways:
  - Gilpin County is abnormally clustered/dense given its low population
  - Hinsdale is about as remote as you can get! By either metric
  - Jackson, Kiowa, Cheyenne all contenders



Source: [https://en.wikipedia.org/wiki/List\\_of\\_counties\\_in\\_Colorado](https://en.wikipedia.org/wiki/List_of_counties_in_Colorado)

# Visualization 4

- A visualization of MOST populated areas (Top 20)
- Sorted by either population or population density
  - Leads to different comparisons
- Takeaways:
  - Denver is definitely crowded 😊
  - Broomfield is abnormally crowded given its lower population
  - El Paso has a huge population but also a huge area, still relatively not crowded



Source: [https://en.wikipedia.org/wiki/List\\_of\\_counties\\_in\\_Colorado](https://en.wikipedia.org/wiki/List_of_counties_in_Colorado)



# Conclusion

- The population definitely spikes along the major highways in Colorado
  - I-25, I-70
- Interactive charts are more useful at the time of viewing
  - Hard to provide all the information at once though
- Hinsdale is about as remote as you can get! By either metric
- Jackson, Kiowa, Cheyenne all very remote
- Broomfield is abnormally crowded given its lower population
- Denver is definitely crowded
- Future Thoughts
  - A 3D bar chart of population density would be really cool
  - Need to compare Denver county with other major cities across the US now
  - Need to bring in housing availability, start to calculate a home affordability value
  - Would like to get more granular
  - Would like to bring in other factors too
  - Plotly was being difficult with shapefiles but I'd like to re-visit

Source: [https://en.wikipedia.org/wiki/List\\_of\\_counties\\_in\\_Colorado](https://en.wikipedia.org/wiki/List_of_counties_in_Colorado)



Most Crowded Areas in Colorado



Least Crowded Areas in Colorado

# References

- [https://en.wikipedia.org/wiki/List\\_of\\_counties\\_in\\_Colorado](https://en.wikipedia.org/wiki/List_of_counties_in_Colorado)
- <https://www.youtube.com/watch?v=7NmBCUOIYPk>
- <https://plotly.com/python/scatter-plots-on-maps/#geographical-scatter-plot-with-pxscattergeo>
- <https://matplotlib.org/stable/tutorials/colors/colormaps.html>
- <https://data-cdphe.opendata.arcgis.com/datasets/colorado-county-boundaries/explore>