PROJECT TITLE:
U.S. Hospital Capacity and Admissions Analysis (2020-2024)

TOOLS USED:

- Python (Jupyter Notebook)
    - Pandas (data analysis and manipulation)
    - Matplotlib and seaborn (data visualization)

QUESTIONS:

- Did bed occupancy (a percentage) change over time across different states? By how much?
- Is there any correlation between the number of hospitals reporting and percent of hospital reporting days? Visualize with plot.
- How does ICU bed occupancy compare between different states with high vs. low Covid-19 patient admission?
- What is the trend between pediatrics vs. adult Covid-19 admission across different regions?
- Which states had the highest difference between available beds and occupied beds over time?

KEY INSIGHTS:

- Bed occupancy trends changed across states it showed differences in pandemic impact and response.
- There is a weak correlation between the number of hospitals reporting and percent of reporting days, suggesting that hospitals reporting have little to no impact on reporting days
- State with high COVID-19 admissions experienced higher ICU occupancy showing the stress put on the healthcare system
- Pediatric COVID-19 admissions remain lower than adult admissions, but it depended on the different regions.
- Some states had excess capacity, so more unused beds, suggesting that there is a chance for resource reallocation or incorrect reporting.

RECOMMENDATIONS:

- Improve hospital reporting consistency by paying attention to underreporting regions
- Redistributing resources from areas with excess capacity to those with high ICU stress
- Monitoring trends, specifically pediatrics, this should help prepare pediatric care systems in regions with higher child admissions

FUTURE WORK:

- Notice a trend in vaccine uptake vs. hospital admissions
- Staffing shortages and how they correlate with ICU burdens
- Mortality rates to push for a further understanding of the healthcare burden
- Create predictive models for ICU needs based on COVID or flu trends