Answer 2.6
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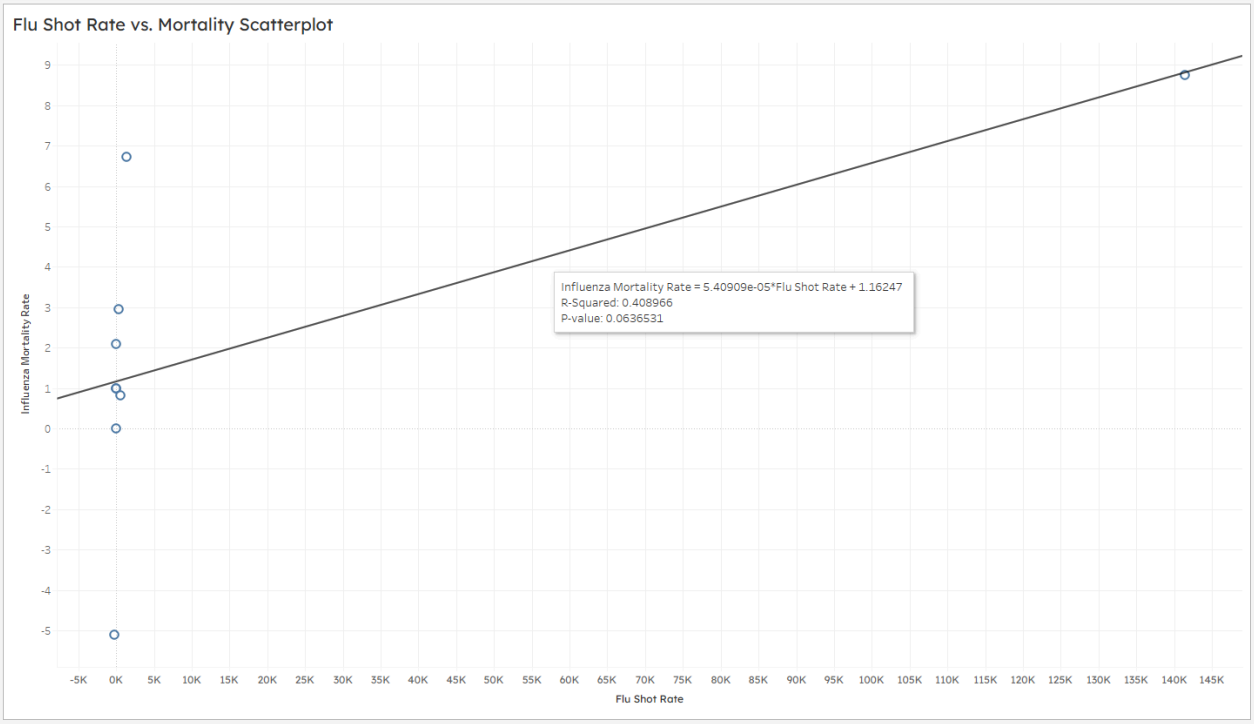
[Flu Shot Rate vs. Bubble & Scatterplot]

Scatterplot and Trend Line: Flu Shot Rate vs. Influenza Mortality Rate

Question: What is the relationship between flu shot rates and influenza mortality rates across states?

Purpose:
The goal is to explore whether higher flu vaccination rates are linked to lower mortality rates. Understanding this connection could help improve public health strategies and better allocate resources for vaccination campaigns in areas that need them most.



Data Used:

- **Flu Shot Rate**: The percentage of the population vaccinated for influenza.
- **Influenza Mortality Rate**: Mortality rate per population due to influenza.

Steps to Create:

1. I created a scatterplot with **Flu Shot Rate** on the X-axis and **Influenza Mortality Rate** on the Y-axis.
2. I added a **linear trend line** to show the correlation between the two variables.
3. The **R-squared value** from Tableau was converted to the **Pearson correlation coefficient** for easier interpretation.

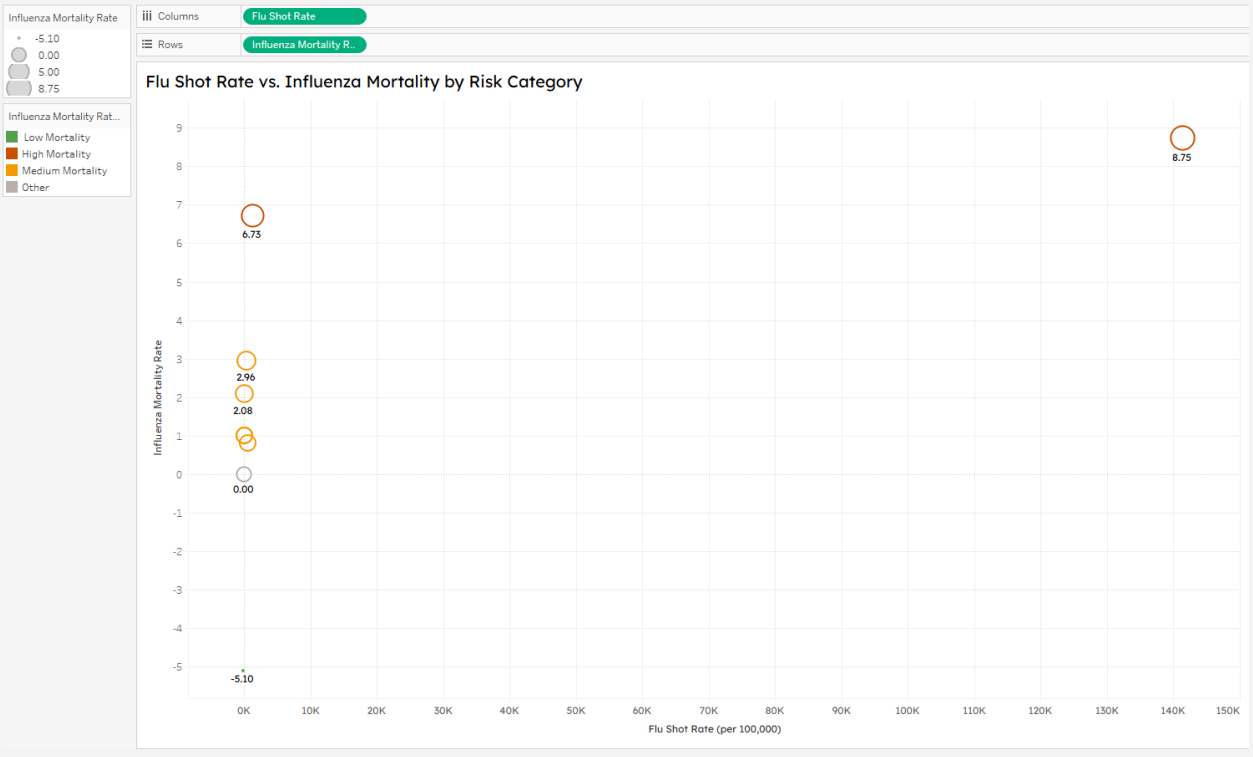
Analysis:

- The **R-squared value** is **0.408966**, which means about **41%** of the variation in influenza mortality rates can be explained by flu shot rates.
- The **Pearson correlation coefficient (r)** is **0.6395**, showing a **moderate positive correlation** between flu shot rates and mortality rates.
- **Observation**: While the scatterplot shows some clustering, a few points are farther away from the trend line. This could mean there's variability or other factors influencing the relationship.

Important Considerations:

- This analysis assumes the data is accurate and reflects state-level trends.
- Missing values (nulls) were excluded to keep the data clean.
- I noticed that the correlation direction in Tableau is positive, while my earlier calculation in Exercise 1.8 showed a weak negative correlation. This difference could be due to how the data was prepared, the presence of outliers, or calculation methods. I'll need to look into this more to figure out what's causing the discrepancy.

Observations and Insights:



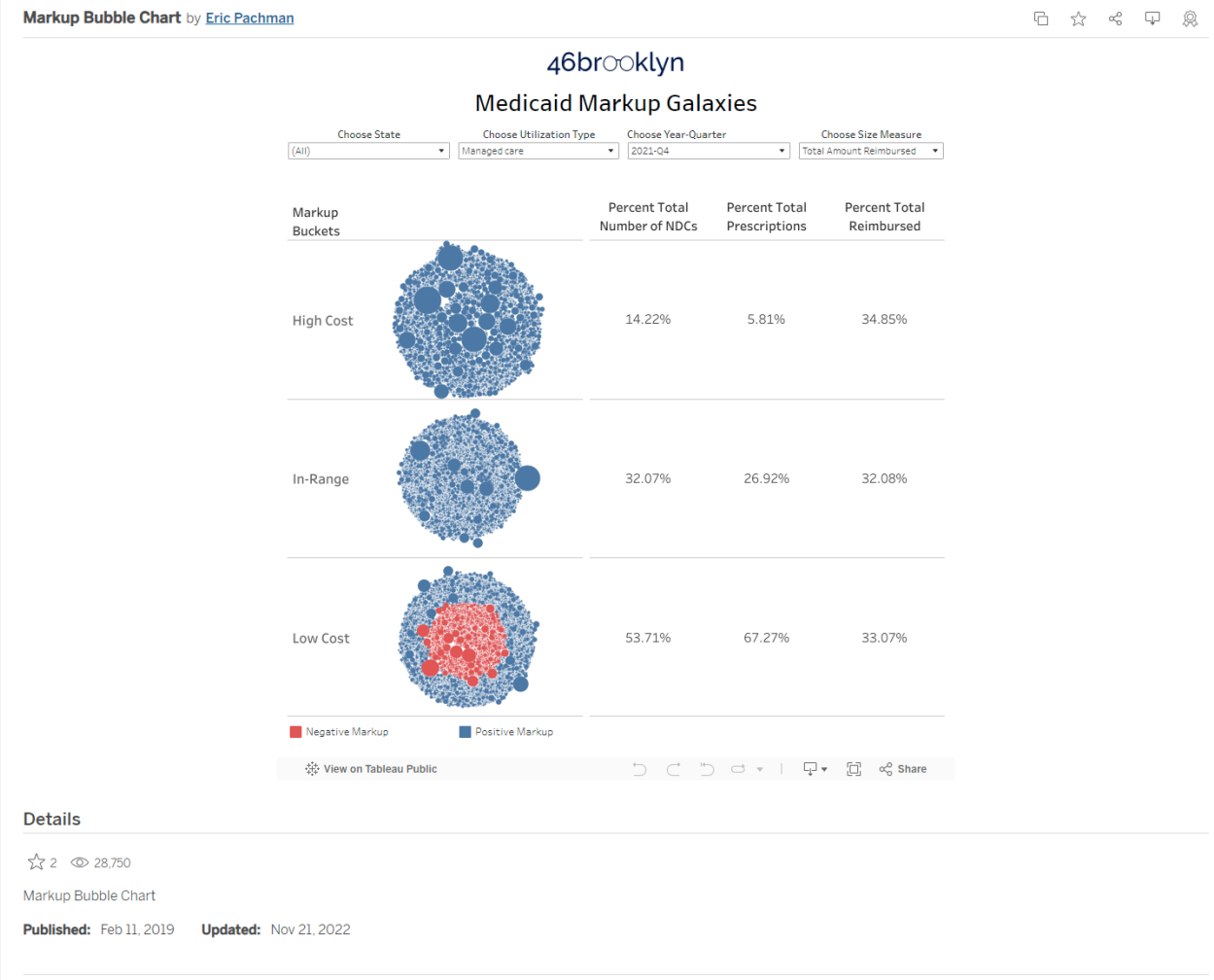
The scatterplot and bubble chart helped to show the connection between flu shot rates and influenza mortality rates. Even though there is a general pattern, the points don't stick closely to the trend line. This suggests there are other factors impacting mortality rates beyond just vaccination rates.

When breaking down the influenza mortality rates into groups (Low, Medium, and High), the bubble chart made it easier to see how these groups compare. The colors and bubble sizes showed which data points stood out the most, like the high mortality rate at 8.75. This data point draws attention and could represent a unique case worth exploring further.

One limitation to keep in mind is the missing values, which were grouped as 'Other.' These missing values mean some data might not fully represent the bigger picture.

Overall, the visualizations were useful in making patterns clearer, but they also highlight the need to look deeper into other factors that may influence these trends.

Critique of "Markup Bubble Chart" by Eric Pachman



What Works Well:

- **Hover Tooltips:** I like how you can hover over the bubbles to see detailed information. That feature makes the chart more interactive and easy to explore.
- **General Idea is Clear:** Even without much context, it's obvious that the larger bubbles represent something bigger or more important.

What Could Be Improved:

- **Overcrowded Layout:** The chart feels really crowded, especially in areas with a lot of overlapping bubbles. It's hard to focus on specific parts of the data.

- **No Explanation of Purpose:** There's no description or caption explaining what the bubble chart is supposed to show. It leaves me guessing about the main takeaway.
- **Blue Color Blending:** The use of blue for all bubbles makes it tough to see differences, especially when the bubbles are smaller and start to overlap. The colors don't help the chart stand out.

Suggestions:

- **Spread Out the Bubbles:** Adjust the layout or add spacing between bubbles to reduce the overcrowded feel. Maybe transparency would help too.
- **Add a Caption or Title with Context:** A short description or a clear title explaining the chart's purpose would help users understand the story behind the data.
- **Use Contrasting Colors:** Try using different colors for different groups or categories to make the chart easier to read and emphasize key points.

Overall, the chart has potential but could do a lot more to help viewers quickly understand the data. Small changes like adding a description and improving the colors would make a big difference.

You can check out the chart here.