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Assignment 6 Written Questions

1. What question(s) are you trying to answer? (Domain situation)
    a. Main Question: What is the relationship between gender and extreme wealth?
        i. How large is the gap in the number of male and female billionaires?
        ii. How do female billionaires compare to male billionaires?
        iii. Is there anything special about the top 10 and top 100 wealthiest women in the world, as compared to men?
    b. Additional questions Answered about the top 10:
        i. How much are the top 10 wealthiest men and women worth?
        ii. How old are the top 10 wealthiest men and women?
        iii. How did they obtain their money?
    c. Additional questions answered about the top 100:
        i. What countries do the top 100 richest people come from?
        ii. What industries do the top 100 richest people work in?
        iii. Which countries have the wealthiest individuals?

2. What data do you need to answer the question and did you need to perform any data transformations? (Data/task abstraction)
    a. To answer the first set of questions (a), I needed to split my data between female and male individuals. I also needed to conduct a few calculations/data transformations to find collective information, such as:
        i. the average age of each gender group
        ii. the number of individuals in each group
        iii. the percentage of individuals in each group
        iv. the total money held by each group
        v. the most popular industry that each group became billionaires through
    b. To answer the second set of questions (b), I needed to distinguish the top 10 wealthiest individuals. The entire set of (over 4000) billionaires would have been too much too show on a bar graph.
    c. To answer the thirst set of questions, I did need to transform the data from a csv file to a json file to more easily see the hierarchical structure of country and industry. I also needed to distinguish the top 100 wealthiest individuals. Again, the entire set of over 4000 billionaires would have been too much to show through circle packing

3. How did you choose to display your attributes? (Visual Encoding and Interaction Idiom)
    a. I decided to facet my displays through juxtaposition. It made sense to have the first graph on the top left, the second on the top right, and the third in the bottom middle. Like we discussed in class regarding the

"storytelling," this format seemed to tell a story. First, a viewer would look at the bar graph to see information about the wealthiest individuals, a logical first step to be interested in. Everyone is most fascinated by the wealthiest of the wealthy (not just any billionaire).

b. As the first graph distinguishes between the wealthiest men and women, they might become curious about this gender gap and want to know more (what percentage of billionaires are female?) From here, they look to the right to see a familiar, clear pie chart showing just this. In addition to giving them this information, it also tells them about the average age and top industry of each gender group.

c. Seeing this general information, they might simply want to know more information. Their gaze shifts down to the final, largest visualization, packed circles, which they can navigate through to look at the countries and industries that the top 100 richest people belong to. They are again reminded of the gender imbalance as the female individuals are highlighted in purple.

d. The colors of the visualizations help to relate each graph to one another, and keep the main theme (gender) in focus throughout each view. The first two graphs distinguish men and female by blue and purple colors, respectively. The final graph uses the purple once again to highlight female individuals. While the third graph does not color the male circles in blue, the graph itself is blue suggesting the over-whelming, all-encompassing nature of the gender gap.

e. I decided to use a clustered bar graph first as it was the most familiar visualization for most people to look at. It was also the best choice for highlighting a small amount of comparable categorical data and I could use tooltips to find information about the specific individuals. The circle graph was another familiar visualization that was simple to view as there were only two groupings (male and female). It emphasizes the percentage of female billionaires compared to male billionaires and also offered a great way to show more general information about each group (average age, total net worth, top industry). Again, tooltips could be easily utilized. Finally, the last visualization was slightly more creative for the viewer to understand how to use. However, it showed both the most detail (100 individuals are represented) and some of the most general information (countries, industries). A hierarchical structure made sense to display both country and industry and the purple circles helped to emphasize gender. While less space-efficient, it allowed more clarity and exploration (through zooming) for the viewer. Zooming was the best method to display both general and detailed information.