

Unit 5 Data Project

Project Part 1:

1. In your own words, explain three principles of effective data communication from the lecture material
 - The data should be clear and easy to understand
 - The data should be impactful for the information you're trying to present
 - The data should tell a story
2. In your own words, summarize the following concepts as they relate to visual perception:
 - Order: The data you present should follow a logical order
 - Hierarchy: The data is arranged in a tree like structure with parent and children structures
 - Relationships: A set of related data fields.
 - Convention: Naming conventions in data analysis are rules that are followed to identify and categorize information to make it easier to understand.

Answer the following:

How will an understanding of these concepts help you create better data visualizations?

Learning these concepts gives you a foundation to build your data analysis project on, and also teaches you important rules to follow when creating your presentation.

3. Given the scenarios below, write which graph would be best to use for the data and what makes it an effective choice:
 - Comparison between values: Bar Graphs
 - Comparison to the whole: Pie chart
 - Change over time: Line graph
 - Ranking data: Bullet chart
 - Correlation: Heat map
 - Geographical charts: Heat Map
 - Measuring a target: Bullet Chart
 - Showing Outliers: Scatterplot

Answer the following:

How will an understanding of these concepts help you create better data visualizations?

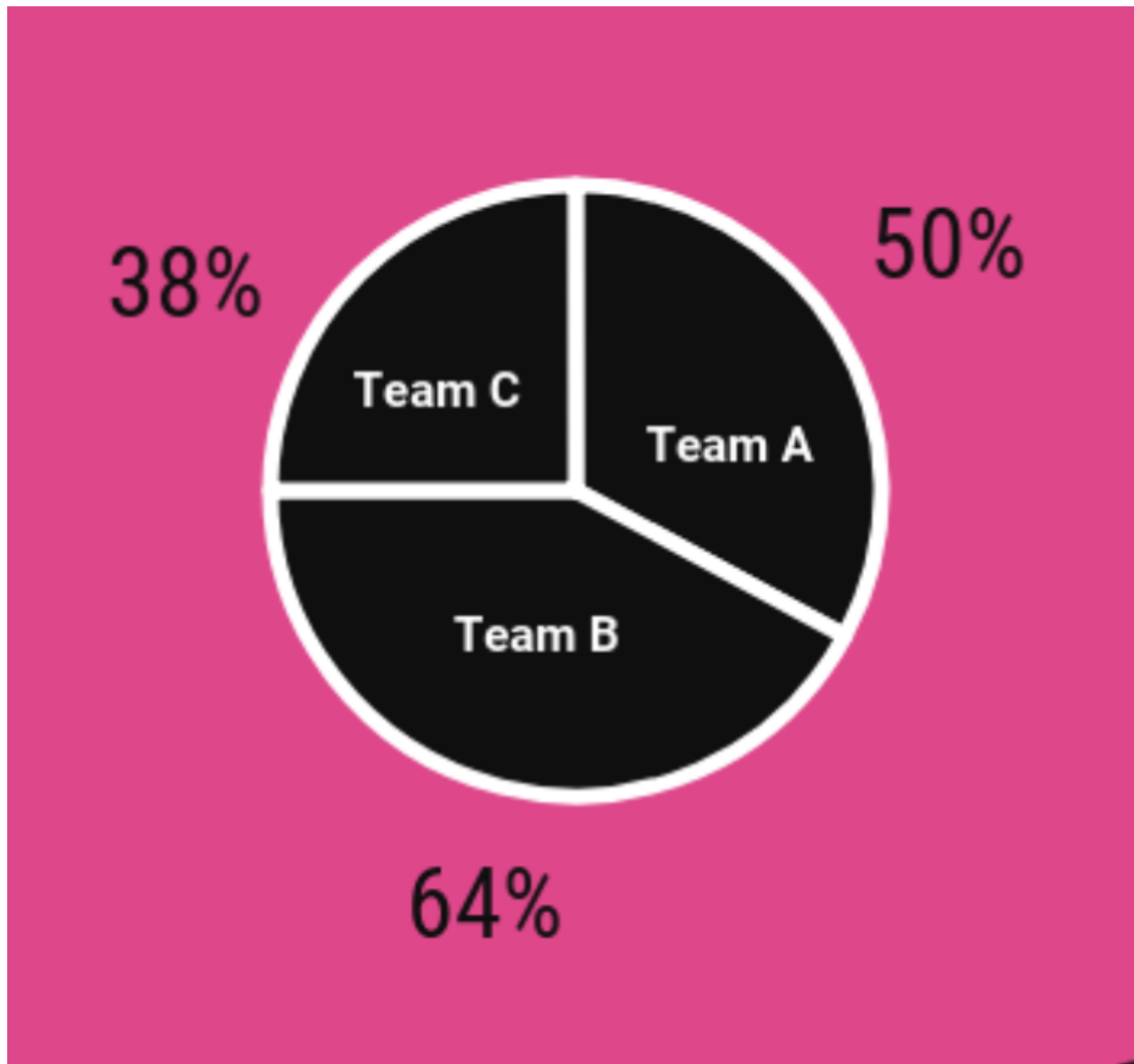
It will give you the information needed to create graphs that align with the information you are trying to present.

4. Provide three examples of misleading graphs. Explain what is misleading about the graph in your example and what should be changed to make the graph objective and

accurate. Feel free to consult Google for real-life examples of misleading graphs to use as your examples

Examples:

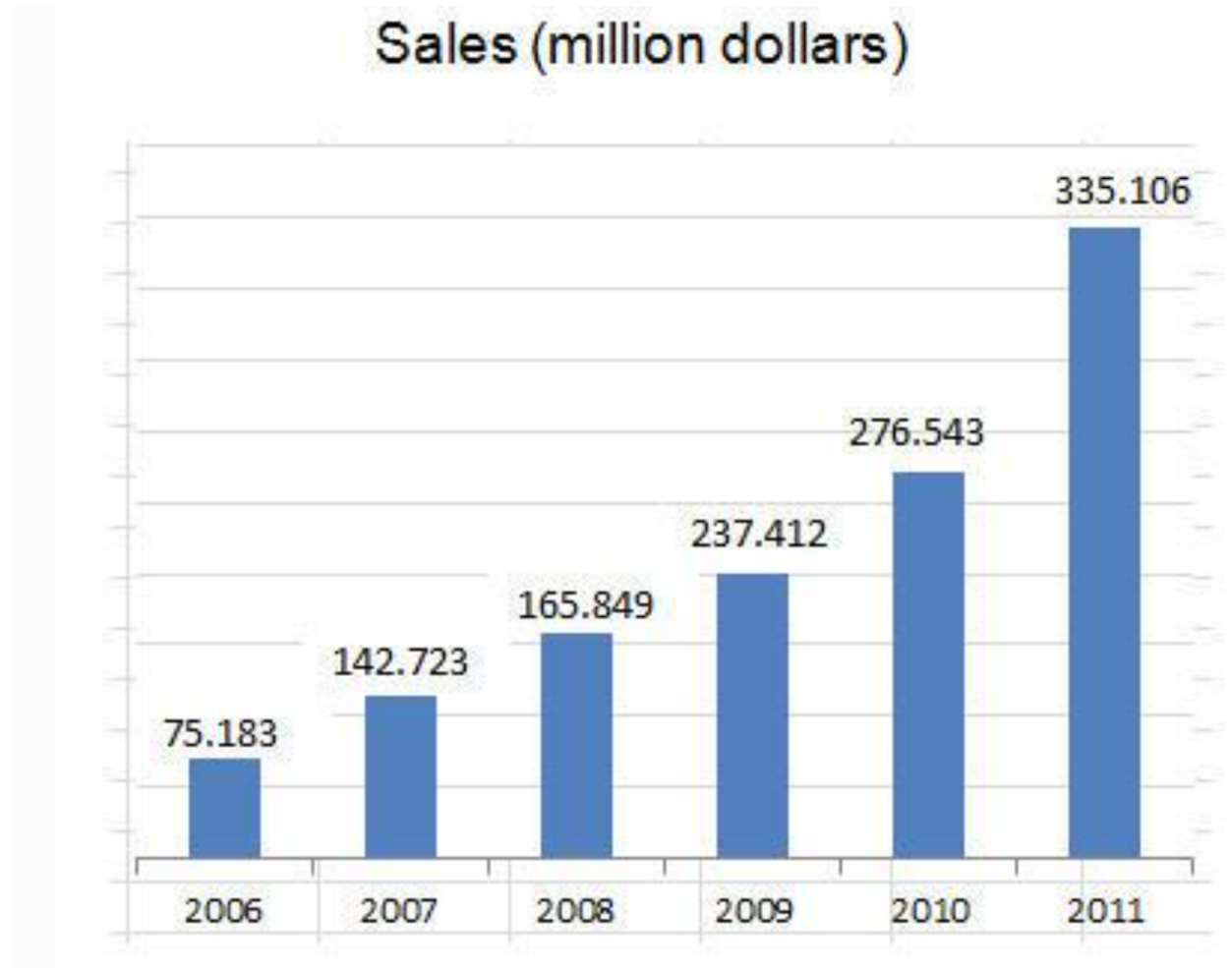
This graph is misleading because pie charts should be used to show the difference between a whole, not between different separate teams.



This graph below does not scale properly to the information being shown, 2 medals for 500 medals, then the US should show 8 medals for almost 200. It is a misleading graph.



Once again, this graph is not proportional to the figures being shown and the top figure in 2011 should be scaled down to show the proper comparison.



5. In your own words, answer the following questions:

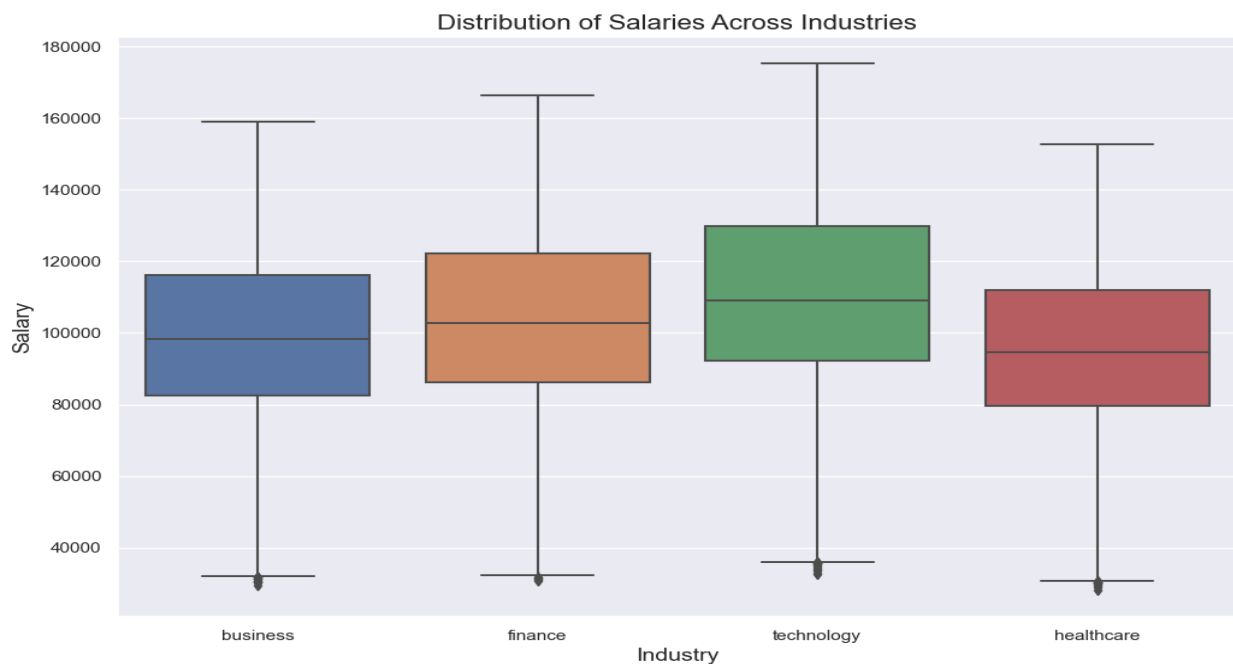
- What is “visualization clutter?”: Visualization clutter is when there are too many things happening in your visualization, or can also be bad color combinations, too much text, etc.
- What are the main components of a graph? Variables, title, x/y axis, or clear indication of each data point.
- What are three techniques you learned to make data visualizations more clear? Keep it clean and clear to read, include a compelling story, visually appealing
- How can the use of color affect the way your visualizations are understood? Color can convey a message, like using the color green and red can convey messages for green to show growth and red to show a deficit.

Project Part 2:

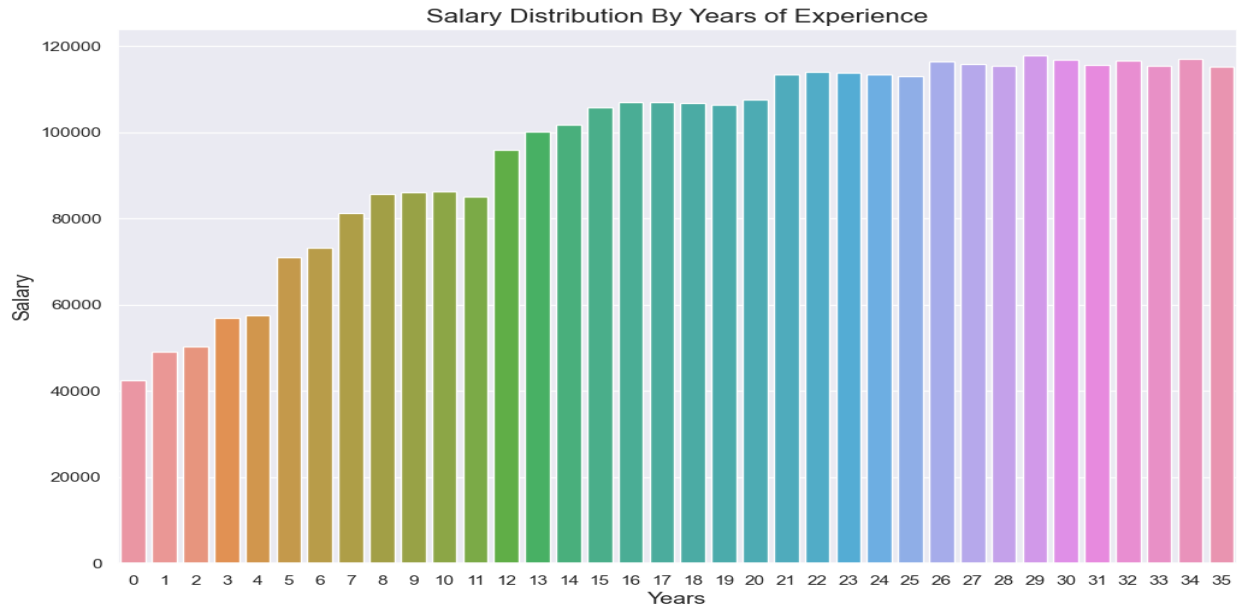
1. Main Idea: What makes one industry more profitable than the others? Is there a way to discover this through the data?
Things to explore:
2. Is industry experience or education more important and does it vary in each industry?
3. Does it benefit an employee financially to have a masters over a bachelors?
4. Visualizations to use: Bar chart,

Report on Slides:

During my research on salary variables, it was found that education and years of experience have an impact on salary. I first looked at Salaries across industries and found that salary variance was the highest between healthcare and tech.



I then looked at years of experience and average salaries and found that years of experience did impact salary, and there was a positive correlation between the two.



Finally, I looked at education and salary and found that there is a large difference in salary when it comes to education, especially between highschool education and master degrees.

