Project Task 1: Dashboard

DSC640

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Summary

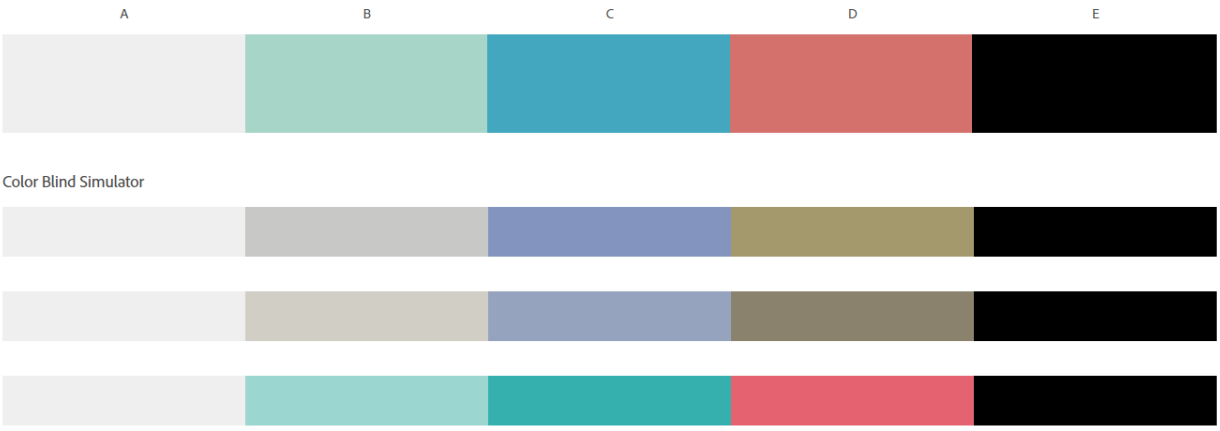
[Link to Github Dashboard]

Applied Design methodologies

The design for Dashboard was made with Gestalt Principles of visual perceptions. I chose fixed 1600x900px presentation size. Each chart is carefully placed and made based on similarity, proximity, enclosure, and continuity. I kept 25px margin on both left and right side of the sheet and 14px margin on top and bottom. Dashboard has three vertical sections that can be recognized by color and proximity:

1. Section 1 – Airline Accidents
2. Section 2 – Airline Fatalities
3. Section 3 – Airline Financial

Similarity: All charts that illustrates accidents are in shades of **blue**. All charts that illustrate fatalities are in shades of **red**, and all charts that illustrates financial information are in shades of **green**. These colors were chosen because they are complementary in color wheel, and they are color blind friendly.



Proximity: All the charts that illustrate information about accidents are closed together with smaller space in between each chart (14px) vertically and horizontally. Same idea was applied to illustrate fatalities and financial information. Bigger gap was used to separate each section (25px).

Closure and Continuity: Unnecessary elements such as vertical axis for bar charts were also removed or used lighter shade to hide it. White space was used to separate each chart and each chart had a lighter shade of grey.

Preattentive attributes were put to signal viewer to look for information. Zigzag "z" to position and put most important information from left to right. Only three colors and its shades were used. No other color was used.

Charting

This was mostly time series data visualizations; I chose **data between 1990 – 2019 for accidents and fatalities data, 1985-2014 for airlines safety data and 1995-2019 for financial data.** Area charts and bar charts were used to show time series data. Maps were used to show geographic locations and

Area charts KPI metrics: Because there was so much information, and I did not want to leave anything out. These were created to give a quick number to show how accidents, fatalities and financial changed over 25+ years.

1. Global Accidents per 1 million Flights
2. U.S Accidents per 1 million Flights
3. Global Fatalities per 1 million Flights
4. U.S Fatalities per 1 million Flights
5. Passenger per 1 million Flights
6. Revenue Passenger Miles

Area chart for Passenger enplanement: Again, for the dashboard purposes I used area chart instead of line chart. Aesthetically it looked a bit more dramatic than line chart, and there was a sharp increase in passenger growth in 2010 which I wanted to emphasize, so I picked area chart for this one.

Bar charts for safety data: Bar charts are easy to understand and great to show categorical data. these were used to show accidents and fatalities by different airlines, each were sorted to show highest first.

Bar chart for Passenger Revenue per ASM: This was used to show passenger revenue per Available seat per miles and how profitable airline industry is. Bar charts were used instead of area charts because area charts were already used in KPIs, I did not want it to be redundant and I reserved line charts for internal review. Additionally, bar charts are good to highlight bars that are important, such as dip in revenue. It is difficult to show that in line or area chart, with bar we can emphasize by highlighting t.

Maps: Maps were used to show top 20 airlines by countries for accidents and fatalities between 1985-2014. It is an excellent way to show geographic locations of crashes.

Bubble Charts: Horizontal bubble charts were used to compare accidents and fatalities rates per 100 million miles traveled. I used bubble charts because they are good at comparing based on volume and size.

Overall, my findings were, U.S airlines used to a bit unsafe before 2000s. However, after 2000s, U.S airlines safety has increased, I researched a bit and found out lots of strict safety regulations were put in place to increase safety and security after 2001 crash and 2009 crash. I plan to present same results by describing and adding annotations to it. I would like to mention I used all the data before year 2000 for dashboard and did not include 2020 data because revenue was down due to COVID-19, and it is irrelevant to plane crash. However, I will briefly go over it in executive summary because it is also related to passenger safety.

Ethical Considerations: This information is going to stakeholders and public, so I had to make sure I present correct information. I tripled checked my work to make sure, I am using right information. Though, there is a small possibility of human error, but other than that all the data used were from official government websites, educational websites, or aviation organization. This is about public safety so the project should go through multiple reviews before the information goes public

References

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