Performance Assessment for D210 Representation and Reporting

By: Kevin Sandoval

Part 1: Interactive Data Dashboard

A1.

A copy of the interactive Tableau dashboard is provided in the submission and is also accessible in the link here: [Dashboard.](https://public.tableau.com/app/profile/kevin.sandoval3912/viz/D210ReportingandPresentation/TelecomChurnPresentation)

A2.

Both datasets used in the Tableau Dashboard are included in the submission.

A3.

No installation of the dashboard is necessary to view. The only step required to view the dashboard is to follow this link here to [access the dashboard on Tableau Public.](https://public.tableau.com/app/profile/kevin.sandoval3912/viz/D210ReportingandPresentation/TelecomChurnPresentation)

A4.

The dashboard is relatively simple and straightforward; after accessing the dashboard through either of the links above, the user is presented with the Intro page of the presentation. The user can click on either the boxes below the title, or the arrows on either side of the boxes to change the pages in the dashboard. There are 4 pages which include the Intro, Demographic information, Actionable Insights, and the Conclusion.

* **Intro:** There are no interactive elements in the introduction for the user to use. Progressing to the next page can be accessed by the boxes above or the right arrow.
* **Demographics:** There are two filters on this page. The user can select or deselect and then click apply on the gender filter to filter by a gender. The age filter is a slider range. The user can change the data using this filter by sliding the filter to create a range. For example, by deselecting “Female”, clicking apply, and moving the slider to have 30 on the low end and 45 on the high end, we can see the data for Males aged 30-45. The user can also hover over an individual pie chart slice, or bar in the bar graph. If the user selects a bar in the bar graph, they may see an option box pop up to “Keep-Only” or “Exclude.” This is another way of filtering. If the user edits the data and cannot figure out how to revert to the original, there is a small revert button above the “Demographic” box above the graphs.
* **Actionable Insights:** There are two filters on this page. The user can select or deselect and then click apply on the gender filter to filter by a gender. The age filter is a slider range. The user can change the data using this filter by sliding the filter to create a range. For example, by deselecting “Female”, clicking apply, and moving the slider to have 30 on the low end and 45 on the high end, we can see the data for Males aged 30-45. The user can also hover over one of the rectangle data points in the Monthly Charge graphs, or a rectangle data point in the Contract Churn charts to see more information. If the user selects a rectangle data point, they may see an option box pop up to “Keep-Only” or “Exclude.” This is another way of filtering. While not interactable, there is a gradient scale to the side that shows how the color of the graph changes with the churn rate, or monthly charge. If the user edits the data and cannot figure out how to revert to the original, there is a small revert button above the “Actionable Insights” box above the graphs.
* **Closing:** There are no interactive elements in the closing for the user to use. Progressing to the previous page can be accessed by the boxes above or the left arrow.

Part 2: Storytelling with Data

B.

A link to the Panopto video of the storytelling of the dashboard is provided in the submission file and is also accessible with a link here: [Panopto Video](https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=413a83db-0dd0-48d8-8eb3-b22801510546)

Part 3: Reflection Paper

C1.

The purpose of my dashboard was to analyze the demographic information and churn rates of the WGU Churn dataset and compare it with the California Q2 2022 Telecom dataset. I looked at the age and gender demographics specifically which fits in with what the EVP is looking for. I also looked at the Monthly Charge and Contract type for each customer in an age bin of 5 years, while also examining if they churned or not. The contract type and charge that a customer pays could drive the decisions of the customer which is what the SVP is looking for in this analysis. These metrics correctly showcase what the leaders are looking and can create actionable insights for the company.

C2.

The additional dataset is data compiled from a California telecom company in Q2 of 2022. The dataset has a lot of similarities to the WGU dataset and includes Age, Gender, Churn, Contract Type, and Monthly Charge. These are all very interesting metrics to compare to the WGU dataset as certain trends may arise in one dataset or another and could showcase some insight. For example, if we notice that an age range or contract type is churning more frequently in the WGU dataset, then we can focus on advertising or working with that group to try and retain that demographic more efficiently.

C3.

The first two data representations I used were bar and pie charts. I used bar charts to showcase the count of ages in an age range of 5 years. I decided to bin the age range as it made the display much easier to read, and people tend to not change too much on a year-to-year basis. The bar chart for age can be used by the executive leaders to get an idea of the demographic of their customer base. For example, the California dataset had an age range distribution that looked roughly normal, with the most amount of people aged between 30-60. The WGU age range distribution was more uniform, which could indicate difficulty in emphasizing the age range to focus their retention efforts on. The pie chart I used was for the Gender demographics. This is an easy way for the executive leaders to see the distribution of male and female customers and can compare that to the age ranges as well.

C4.

The two interactive controls I decided to use was a Gender selection filter and an age range slider filter. The gender filter allows the user to look at only female, or only male customers and the other visualizations will update when applied. The age range slider filter allows the user to edit a slider to find an age range that they may find interesting. For example, if the user is interested in the monthly charge or contract type for men aged 34-48, that would be an easy modification to make with the given filters.

C5.

For colorblind accessibility I changed the pie chart color palette to a Tableau Color Blind palette default setting. For the rest of the data, I followed tips from the article “5 Tips on Designing Colorblind-Friendly Visualizations” by Jeffrey Shaffer. I avoided using red and green together and kept things simple on a light/dark grading with blue as the color.

C6.

The Monthly Charge per age bin with the row being if the customer churned or not is a great visual to help with the story I wanted to tell. For the WGU dataset, it shows a clear gap in monthly charge between those who churned and those who didn’t. The overall average monthly charge per age didn’t change as much, but it was clear that of the people who churned, they had a significantly higher monthly charge on average. This is a similar trend in the California dataset; however, we can see that the average monthly charge increases as you age, showcased by the gradient. The other data representation I used was the churn percentage per contract type. Without using the filters, we can immediately see that WGU does a much better job of retaining customers with a Month-to-Month contract type. However, compared to the California dataset they struggle to retain customers with a Two-Year contract type. This helps support the story I want to tell which is that WGU should prioritize the retention of the customers with longer contracts. They are doing well on the Month-to-Month level but there can be vast improvement on the Two-Year retention rate.

C7.

Since my audience are executive leaders without technical knowledge, I tried to use graphs and charts that are easy to read and interpret. I created a conclusion sheet to also help describe the results of the analysis for anyone who is less technical. Although the executive leaders aren’t versed in the data analytics technicality, they do have business acumen and I tried to create a report that would showcase a trend or pattern that could help improve the business.

C8.

I designed my presentation to be as simple to access as possible. I published it to Tableau Public and so anyone with the link to the presentation can access the dashboard. I created the dashboard with a clear introduction, analysis, and conclusion which should help all audiences understand the progression in the dashboard.

C9.

One of the elements I used for effective storytelling is setting up the problem in the introduction. I showed the audience what the idea for the analysis was for and then walked them through the process of viewing the analysis. Another element I used was to show the narrative of the problem. We can see through the intro that we are analyzing the differences of the datasets, then we look at the differences, and then we have the conclusions at the end. The conclusion wraps up the narrative and lets the audience know that the analysis has ended and lets them see the interesting trends we found as well as the recommended course of action we plan to take.

D.

Shaffer, Jeremy (April 20, 2016). *5 Tips on Designing Colorblind-Friendly Visualizations* Retrieved November 13th, 2024,<https://www.tableau.com/blog/examining-data-viz-rules-dont-use-red-green-together>

Zhuang, Shi Long (July 5th, 2022). *Telecom Customer Churn* Retrieved November 1st, 2024 From <https://www.kaggle.com/datasets/shilongzhuang/telecom-customer-churn-by-maven-analytics>