D210 Essay

Telecommunication Churn Data

Darien Nguyen

Western Governors University

D210: Visualization

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**Part 3: Reflection Paper**

C.  Write a reflection paper to demonstrate your understanding of data representation and reporting by doing the following:

1.  Explain how the purpose and function of your dashboard align with the needs outlined in the data dictionary associated with your chosen data set.

The main objective of the newly created dashboard is to provide businesses with a clear and comprehensive view of the various factors that contribute to customer churn, such as gender, income, monthly charges, and data usage per year. This aligns with the requirements stated in the data dictionary, which includes detailed information on customer demographics, service usage, and contract details.

With this dashboard, users can easily and quickly identify patterns and trends in customer churn based on selected parameters, and dive deeper into the data to uncover more insights. For instance, users can filter data by gender to investigate whether gender plays a role in churn rates, or by income level to explore correlations between income and churn.

Overall, this dashboard offers a user-friendly interface for exploring and analyzing the data related to customer churn. It enables businesses to gain valuable insights into the factors contributing to churn and identify areas for improvement that can help reduce churn and increase customer retention. By leveraging these insights, businesses can make data-driven decisions to improve their customer experience and retention efforts, which ultimately contributes to their bottom line.

2.  Explain how the variables in the additional data set enhance the insights that can be drawn from the data set you chose from the provided options.

The newly added dataset comprises a variety of columns, including information on churn, account duration, contract renewals, data plans, data usage, customer service interactions, call frequency during the day, monthly charges, overage fees, and roaming minutes. These data points offer valuable insights into customer behavior and churn rates. By analyzing factors such as the data usage and monthly charge, it's possible to gauge how customer satisfaction impacts churn in relation to data set one.

Additionally, factors like account gender and contract renewal can help identify patterns of customer loyalty and retention. By studying usage patterns, billing patterns, and overage fees, businesses can discover hidden patterns that can help reduce churn rates. With this more detailed dataset, businesses can gain a better understanding of the factors contributing to customer churn and develop targeted retention strategies to reduce churn rates and boost customer satisfaction.

3.  Explain **two** different data representations from your dashboard and how executive leaders can use them to support decision-making.

The dashboard I have developed features two crucial data visualizations that provide important insights into customer churn.

The first visualization is a map that displays the average monthly charge for each state in relation to the churn rate. This visualization enables executive leaders to identify which states have higher churn rates and compare them with the average monthly charge for each state. This data helps businesses make informed decisions about adjusting prices or promotions to retain customers in states with high churn rates.

The second visualization is a bar graph that depicts the bandwidth usage and churn rate for each state. This graph provides executive leaders with valuable insights into which states have the highest bandwidth usage and the highest churn rates. By analyzing this data, businesses can identify network issues that may require attention, such as improving internet speed or network coverage in specific areas. Additionally, this data can be leveraged to make strategic decisions about targeted marketing campaigns or promotional offers that may help improve customer retention rates in states with high churn rates and high bandwidth usage.

In total, these two data visualizations provide businesses with valuable insights that can be used to make informed decisions and drive growth. By leveraging these insights, businesses can optimize their pricing strategies, improve network performance, and design targeted marketing campaigns that increase customer retention and boost their bottom line.

4.  Explain **two** interactive controls in your dashboard and how *each* enables the user to modify the presentation of the data.

The dashboard I created features two interactive controls that provide users with valuable insights into customer churn. The first control is a demographic map of the US that allows users to visualize the relationship between the average monthly charge and the churn rate across different states. This map enables users to hover over each state to view the specific values for each variable. Additionally, the map provides a drop-down menu that enables users to switch between monthly charge and churn rate as the primary variable. By changing the primary variable, users can quickly identify states that have high churn rates, high monthly charges, or both.

The second interactive control is a bar graph that displays the median bandwidth usage for each state in relation to churn rate. Users can select different states from a drop-down menu or by clicking on a specific bar in the graph. This enables users to focus on specific states and see how the median bandwidth usage varies with churn rate. Additionally, the graph provides a slider that enables users to adjust the bandwidth usage threshold for defining churned customers. By modifying this threshold, users can explore different scenarios and see how the churn rate changes with different bandwidth usage criteria.

5.  Describe how you built your dashboard to be accessible for individuals with colorblindness.

**C5 Colorblindness**

To make the dashboard more accessible for individuals with visual impairments and colorblindness, I added alt text to all images, charts, and used a blue-orange color palette. These choices help to aid readers with visual impairments as they provide a wider range of visual manipulation. Also, the choice for blue-orange colors is due to the friendliness it has with colorblind individuals as these colors are more accessible to those with such color impairments. I also made sure to use clear and concise language in all text descriptions and labels to make them easily understandable for users with cognitive or language disabilities. Furthermore, I made sure to use a font size that is large enough to be readable for users with low vision. Finally, I made sure that the dashboard is compatible with screen readers and other assistive technologies, such as keyboard-only navigation, to ensure that it can be used by individuals with disabilities who rely on these technologies.

6.  Explain how **two** data representations in your presentation support the story you wanted to tell.

Using the additional variables of average monthly charge, average data plan, and churn from the second dataset has proven to be beneficial in supporting and presenting the data story. By analyzing the relationship between churn rate and the average monthly charge, we can identify any possible correlations between the two variables. This information can help in formulating pricing strategies that may lead to a reduction in churn rate, ultimately improving customer retention.

Moreover, examining the churn rate against the average data plan helps us determine whether customers with higher data plans are less likely to churn. If such a relationship exists, it could provide valuable insights to the company, which can then consider offering better data plans or promotions to retain customers.

By and large, incorporating these additional variables into the analysis has enabled us to gain valuable insights into how pricing and data plans affect customer churn. These insights can be used to make informed decisions aimed at improving customer retention, which in turn can positively impact the company's bottom line.

7.  Explain how you used audience analysis to adapt the message in your presentation.

To adapt the message in my presentation, I analyzed the audience to understand their needs, interests, and background knowledge. Based on the audience analysis, which identified the audience as business executives within the telecommunication industry, I tailored the language and content of my presentation to suit their level of expertise and familiarity with the industry. I used industry-specific terms and examples to ensure that the audience could understand the presentation and appreciate its relevance to their work. Additionally, I structured the presentation in a way that highlighted the business implications of the data insights, emphasizing the potential benefits for the audience's organization.

8.  Describe how you designed your presentation for universal access by all audiences through installation and navigation procedures.

Designing a presentation for universal access by all audiences is essential to ensure that the information presented is understood and accessible to everyone regardless of their background, abilities, or limitations. In my presentation, I used various techniques to ensure universal access.

Firstly, I made sure that the language and vocabulary used were clear, concise, and easy to understand. To ensure that the audience could understand technical terms.

Secondly, I used visual aids such as graphs, charts, and maps to illustrate the data in an accessible and easy-to-understand format. I also ensured that the colors and font sizes used were clear and easily distinguishable to accommodate individuals with visual impairments.

**A2 and A3 Installation Instructions**

Thirdly, I used Tableau Public, a free data visualization tool, to upload my dashboard so that anyone with a Tableau Public account can view and share. This allows for universal access to the data and analysis presented in the dashboard, making it accessible to a wide range of audiences. To access the dashboard, simply create a Tableau Public account, and search up, “Darien Nguyen” in the search bar or click/email the [shareable link](https://public.tableau.com/views/Book2_16807024100290/Dashboard1?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link) to the interactive for other viewers.

Lastly, navigating through the dashboard is simple and intuitive. By hovering a clicking through the interactive figures; a reader can highlight, focus, and enhance key data points and numbers within a small field. For example, clicking on a state within the demographic visualization highlights the state and expands the data further into its individual monthly charge rate and customer churn. All other figures also contain the click and focus function in order to enhance navigation.

In conclusion, designing a presentation for universal access involves careful consideration of language, visuals, accessibility, and user-friendly technology. By utilizing these techniques, my presentation was accessible to all audiences, including those with disabilities or limitations, ensuring that the information was clear, concise, and easy to understand for everyone.

9.  Explain **two** elements of effective storytelling that you implemented in your presentation and how *each* element was intended to engage the audience.

Effective storytelling can be a game-changer in business, as it helps to captivate and engage the audience. In my presentation, I focused on two key elements of storytelling that helped to achieve this: emotion and clear narrative structure. By tapping into the emotions of the audience, I was able to make them feel invested in solving the problem of high churn rate. This approach is particularly effective in the business world, where data and numbers alone may not be enough to motivate action.

To guide the audience through the presentation, I structured the story in a clear narrative structure. This approach helped to ensure that the audience could easily follow the story and understand the main points. This is crucial in business, where time is often limited, and the audience needs to be able to quickly grasp the key takeaways.

Largely, by combining emotion and a clear narrative structure, I aimed to make the audience feel invested in finding a solution to the problem of high churn rate. This approach can help to drive action and achieve real results in the business world.

D.  Acknowledge sources, using in-text citations and references, for content that is quoted, paraphrased, or summarized.

Kumar, B. (2020). Customer Churn. Retrieved April 4, 2023, from https://www.kaggle.com/datasets/barun2104/telecom-churn.

E.  Demonstrate professional communication in the content and presentation of your submission.

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