**QUEST FOR SOLVING TELECOMMUNICATION COMPANY CHURN RATE**

**NAM2 — TASK 1: DATA DASHBOARD AND STORYTELLING**

**REPRESENTATION AND REPORTING — D210**

**PRFA — NAM2**

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**SEPTEMBER 19th, 2022**

**Part 1: Interactive Data Dashboard**

Section A1: Data Sets [Churn Data and Dictionary Files](https://access.wgu.edu/ASP3/aap/content/f9tjr8djg83jd8c3sdf8.zip) (Churn\_clean.csv) : provided data set

<https://tasks.wgu.edu/student/001429984/course/23540008/task/2804/overview>

## Telco-Customer-Churn.csv

<https://www.kaggle.com/code/bhartiprasad17/customer-churn-prediction/data>

Section A2: Installation Instructions

To assist users in installing the dashboard, you can offer detailed instructions. It is not necessary to install this. Observe this link: <https://public.tableau.com/views/RepresentationandReportingNAM2D210IbrahimbyIbrahimSuleiman/Story1?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link>

Section A3: Navigation Instructions

**Churn and streaming movies**

For both the telco customer churn data (new) and the churn cleaned data (old), the top data displays the average number of telecom company customers that churned after using their subscriptions to stream movies, with the churn difference being used to color the data. Change the "Colorblind" dropdown menu's selection to Yes or No to improve your ability to see the colors.

1. Observe how the numbers dramatically differ between the two groups: the group with no streaming movies had a churn rate of 0.15661, while the group with one streaming movie had a churn rate of 0.13687 and the group with no internet service had a churn rate of 0.0740.
2. See how the filter changes by switching between the various bars.

**Dependents with online security along with multiple lines**

The information on the left and right includes many lines for both the churn data (old) and telco customer churn data, as well as a breakdown of the number of dependents who have and do not have internet security (new).

1. To observe how the numbers alter depending on whether a consumer has 0 or 1 internet access, click through the various bar categories for dependent and multiple line bars.
2. To see how the statistics change, select "0" or "1" or "no internet service" for churn. Then, repeat step one. To show the values of dependents who have either 0 or 1 online security and many lines, toggle between the various online security options.

**Contract versus churn and phone service**

The numbers for both the telco customer churn data (new) and the churn cleaned data (old) for the different contacts are shown in the data on the left, and the sum of customers who do churn and had phone service subscriptions is shown in the data on the right. For each data collection, the values are based on the overall number of consumers.

1. In the "contract?" filter, select "0," "1," or "Two Year." Observe that for both data sets, the churn rate is lowest for the 48–166 group.

2. Keep in mind that for both data sets, the contract with the highest amount has the lowest churn rate—48.

**Marital status with Income**

The information to the left and right shows the number of yearly equipment failures for both the churn data (old) and the telecom customer churn data (new) in different genders, as well as the % of customers' income who are married, never married, separated, widowed, or divorced. For each data set, the entire population is used to calculate the percent.

Change "yes" or "no" in the "Colorblind" dropdown menu to improve your ability to see the colors.

Pay attention to how the pie charts are substantially smaller than those with fewer annual equipment failures. As a result, a larger percentage of the population in both datasets does not experience churn.

Part II: Panopto Storytelling with Data

Section B: Panopto Demonstration

Representation and Reporting – NAM2 | D210 link for Panopto video::

<https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=d203d98d-04f5-4869-b05a-af1900bf6fd1>

Part III: Reflection Paper

Section C1: Dashboard Alignment

The problem of client churn in telecommunications firms is getting worse and worse. A consumer leaving a business is referred to as churning. Customers can select from a variety of service providers in the telecommunications sector and proactively switch from one provider to another. Customer "churn" is the proportion of customers who discontinued utilizing a provider's good or service over a specific period of time.

In this very competitive industry, some telecommunication industries might have average yearly churn rates of up to 25%. Customer retention has now surpassed customer acquisition in importance due to the fact that it is 10 times more expensive to gain new customers than to keep existing ones. Since this is a problem for many telecoms firms, external firms appear to have an excessive amount of turnover annually.

Knowing which consumers are most likely to cancel their contracts within specific time frames would help telecommunications firms plan for and/or avoid the cancellation by providing pre-service customer acquisition and retention on such customers. In order to better understand the data, I decided to concentrate on the churn condition.

The dashboard's goal is to identify those who are most likely to experience and suffer from churn. An intervention for prevention can be used with various consumers at various stages of contracts if we and stakeholders are aware of who is most likely to churn.

Section C2: Additional Data Set Insights

Using the churn\_clean.csv, there is a lot more information in the telco customer churn data.csv file. I could have done a lot more with the contract, yearly equipment failures, prompt response, and other churn concerns if I had had the time or the necessary information in the dataset that was provided. The information in the new dataset offers a fresh perspective on turnover and how it affects consumer subscriptions. It contains a lot of important data that might enable us to look into churn in more detail.

Section C3: Decision-Making Support

The quantity of churn on the "0" streaming area in the first figure reveals that most users are rapidly switching between various types of streaming movies, which is a positive sign. Churn is a difficult, life-challenging circumstance that could occur and influence churn decisions. We can modify the data on the dashboard to just show the users with a high churn rate.

We can observe that the bar for churn is roughly higher than "1" and "no internet service" when we click on "O" for "streaming movies?". Therefore, by promoting streaming movies through discounts and providing prompt assistance when there is equipment breakdown, can aid senior leaders in making judgments on how to increase client involvement. Graphical user interface, application

Description automatically generated

Secondly, customers with a "1" year contract for phone service appear to have a high turnover rate, whereas those with a two-year contract appear to have a lower churn rate. Customers could be persuaded to sign a two-year phone service contract as a result, which would lower the churn rate.

The percentiles for the marital status pie charts are shown below.

Chart, bubble chart

Description automatically generated

The graph below shows different gender categories (male, female, and nonbinary) according to how much tech support each received in relation to the total amount of tech support.

Graphical user interface

Description automatically generated

The dashboard image below shows how much each gender pays for internet service subscriptions (male, female, and nonbinary). It seems that nonbinary people pay less for internet services than males and females. In order to preserve a long-term client relationship, the objective is to encourage non-binary internet service subscriptions.

However, the income and gender picture provides us with information on the amounts of income based on the gender of the customer.

Graphical user interface, application

Description automatically generated

Section C4: Interactive Controls

The average of values filter for the first dashboard in the story is one of the interactive controls. This enables the consumer to determine which streaming movie selections and which streaming movies have high churn rates. For instance, if the viewer clicks on the bar that says "0," they will see a variety of alternative streaming movie churn ranges. The user will then see the three streaming movie categories if they double click on the bar.

On the dashboard of the tale, I have given the option to focus on marital status based on gender and income as well as who has yearly equipment failure. Another interactive control I've provided is this one. I did this by showing a single value (list) or several values (list) on the top right of the dashboard to summarize the total, median, average, minimum, maximum income, and yearly equipment failure. I needed the option to be able to only view those particular statistics without the cluster of those without customer turnover because the focus of the tale was on that topic.

Section C5: Color Blindness

I was able to locate a YouTube video on how to switch between colorblind and colorful dashboards that I used for the first two designs. This demonstrated to me how to offer consumers the choice between a vibrant color palette and a palette that is accessible to colorblind users. As a result, it gives users additional interactive control and makes it available to everyone.

Because it required a variety of colors to match the variety of values, the third graphic was more difficult to create. So I choose a palette with contrasting dark and light hues (there wasn't a "colorblind" palette for this). In order to help with colors that are quite close to one another on the scale, I have also included percentages on each box.

Since the fourth image focuses on the data's five-number summary, it doesn't actually need a lot of color. To add a little bit, I did use Tableau's "colorblind" palette to display the various stream movies and churn rate groups.

Section C6: Data Representation

The fact that a majority of customers' marital status categories in both datasets had yearly equipment failures with an average income lends weight to my story in my pie graphic. However, the bulk of people with a churn likelihood are separated or widowed. That portion of my tale was true. This also makes sense given that it is perceived as a challenge for customers who are divorced or widowed to reorganize their finances and begin their subscriptions separately. They would have a larger population as a result than those who are married.

Section C7: Audience Analysis

I made the decision to base my story on a typical incident because my audience consists of employees and stakeholders of telecommunication companies. When customers decide to change their subscriptions or memberships, they frequently research their problems, wishes, and possibilities online before becoming anxious about improbable events.

This is demonstrated by the character, who after enduring yearly equipment failures, looks up her monthly bill on her phone. As she reads more of the novel, the protagonist begins to become increasingly anxious. She doesn't take the time to focus on statements that might be less supported by fact and study and instead just reads the first one.

Even though churn is something that happens more frequently, the majority of the target audience can connect to the situation and (hopefully) laugh about it. Customers who believe they are eligible for particular perks, savings, and discounts and who are certain they will be charged more in the future frequently patronize telecommunications firms, despite the fact that monthly fees and yearly equipment failures are frequent. The character in the story tells the customer support agent that she thinks she has excessive monthly rates rather than a more typical telecommunications issue in the winter.

Section C8: Universal Access

I made several different attempts to tailor my presentation to a variety of audiences. My tale was first published on Tableau public, where anyone with an internet connection can read it for free. I also kept the number of graphs or images on each dashboard to a manageable level. This makes it easier to read the offered information without being distracted or confused.

To ensure that everyone who can see may comfortably read the text, I chose appropriate colors and provided choices for color blindness. I avoided utilizing complex graphs and statistical analysis techniques because the visualizations should be accessible to all users, regardless of their level of expertise. It was intended to be simple to read and understand for everyone.

Section C9: Effective Storytelling

In his book Storytelling with Data from 2015, Knafilic writes on page 150, "A good tale grabs your attention and takes you on a journey, generating an emotional response. That was my first instance of using storytelling. No matter who you are, you've all looked up your symptoms online and become alarmed.

I made it relatable to my audience in an effort to grab their attention. After hearing the tale, I wanted them to reflect on: "Oh! That has been done by others besides just me." In his book Storytelling with Data from 2015, Knafilic writes on page 154, "The first thing to do is present the plot, building the backdrop for your audience."

I did my best to do this by asking the audience to visualize a price increase or inclination in monthly charges. I ask them to come up with a variety of difficult scenarios that will cost them barely enough to subscribe. Everyone has encountered a rise in the price of goods and services as well as a telecommunications-related equipment malfunction. A consumer can undoubtedly picture the difficulties even if they have never experienced yearly equipment breakdown. I want to make it interesting and relatable so that the audience would want to keep reading to find out the outcome.

Section D: Sources

How to Swap Between Colorblind and Colorful Dashboards. (2016, July 5). YouTube.

<https://www.youtube.com/watch?v=3iNl7KMK8pM>

Knaflic, C. N. (2015). Storytelling with data: A data visualization guide for business professionals. Wiley .(Chapter 1, Chapters 3-5, Chapters 7 - 8)

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## Telco-Customer-Churn.csv

Story Transcript

Hello, Ibrahim Suleiman is my name. I work as a data analyst for the Board of Health in Chamblee, Georgia's Dekalb County. Since I've been working in the logistics and business sectors for a few years, I've also completed a few projects involving customer retention and telecom data. I've selected the first dataset from the supplied information. The churn clean csv file, which I'll send together with my other docs, displays a wide range of various telecommunication and churn data provided by a telecommunication business about its clients.

I've decided to pay particular attention to turnover, marriage status, contracts, age, dependability, and income. I discovered the second dataset I've chosen on Kaggle. The Telco-Customer-Churn.csv data, which will also be supplied with my other documents, displays a variety of data from a telecom firm on its customers, including information on their yearly equipment failure, internet service, churn rate, and income. I've decided to pay particular attention to gender, phone, internet, and technical support.

Although I have not directly battled with churn, I have grown up witnessing my parents suffer with it, thus that is why I chose these things. It was difficult to watch Dad make difficult choices, and I was always scared that someday I would have to do the same. Therefore, I was interested in the patterns and how likely it was that I could deal with them.

Imagine being charged quickly each month for a subscription. You're strapped for cash, unsteady, and experiencing mild anxiousness. When you have mounting debt and routine equipment breakdowns, it can seem as though the world is spinning out of control. You are aware that something is wrong with you and that you should call the telephone provider. You rise and put your phone in its place. You are not confident in the customer service's ability to respond quickly while it is snowing outdoors.

So, in the midst of a snowstorm, you call your telecommunications provider, which is located approximately 20 miles away, to ask them to take care of your equipment failure since you aren't in a good position to drive yourself.

You make the decision to research the most cost-effective and cutting-edge telecommunications provider for a lower rate as you sit in your living room. The following two sources demonstrate that people with two-year contracts experience fewer equipment problems, a quicker response, and a reduced rate. The telecommunications firm phoned you back when you eventually restored your internet service, asked what the problem was, and offered you a two-year contract at a lower rate with new equipment to make up for the yearly equipment failure. Due to new developments and efforts to preserve positive customer relations, you will receive an annual renewal credit.