**Part 1: Interactive Data Dashboard**

*Note: Your responses to the task prompts must be provided in a document file. Unless otherwise specified, responses to PA requirements that are included in a python or R studio notebook will not be accepted.*

A. In a document file, do the following:

1. Provide a copy of your interactive Tableau dashboard to support executive decision-making. Your dashboard must be accessible to users with colorblindness and must include the components in *each* of the following bullet points:

• data integrated from two sources: **one** of the provided data sets and **one** additional external, public data set

\*Shown in workbook\*

• **four** different data representations to summarize the data or display trends

\*Shown in workbook\*

• **two** different interactive controls that allow the user to modify the presentation of data

\*Shown in workbook\*

• **two** different metrics or key performance indicators computed using data from both chosen data sets

\*Shown in workbook\*

1. There does not seem to be a clear cut relationship between certain age groups and who churns away/has the shortest tenures. However, looking at the age groups that are mostly churning away can yield some insight onto some of the specific issues that some ages do have and can allow you to appeal to them specifically.
2. It is clear that states with a higher average number of customer service calls do tend to churn away. This indicates that this is something the WGU telecommunications business should take into consideration.

2. Provide *both* data sets that serve as the data source for the dashboard.

* WGU’s Customer Churn Dataset
* The Telco Customer Churn Dataset, imported from the Big Query Table

3. Provide step-by-step instructions to guide users through the dashboard installation.

1. First thing I did was upload both of my data sets, my Original Churn Dataset and the BigQuery Churn Dataset from Kaggle
2. I knew that I wanted to focus on churn, tenure so I went ahead and clicked on “create new worksheet” 3 times for each of those (totaling 6)
3. I first used the “packed bubbles" visualization to compare churn to age. To do that I drug the churn and age values into the marks section. I was then able to click the “Show Me” feature in the top right corner and it showed me some visualizations and I ended up deciding on the packed bubble one.
4. Next I used the symbol map visualization to compare the customer churn values with the monthly charge values for each state. Initially, I dragged the churn dimension into the columns portion and the State1 (from the BigQuery Churn dataset) into the rows portion. I then went over to the show me in the upper right corner and selected the symbol map visualization
5. After this I created a bar chart to compare the churn to the number of customer service representatives by state. I did so by dragging the State1 to the columns section and the churn and number of customer service calls (BigQuery Churn dataset) to the rows column. Similar to before I then went to the show me button and selected the bar graph.
6. Now from here I clicked “Create new Dashboard” and drug the three visualizations I made onto there.
7. I arranged them how I liked and then clicked the filter button to make it so if I clicked on certain aspects of them they would filter accordingly.
8. I then went back to the packed bubble, bar, and symbol maps worksheets I made for churn and clicked duplicate to create copies of them.
9. I swapped out churn for tenure for the packed bubbles visualization to see the tenure lengths of each age
10. I added Tenure to the bar chart so that I could compare the Tenure lengths to the number of customer service calls for each state. I removed churn so that I could just see those values.
11. From the symbol maps visualization that I duplicated, I swapped out monthly charge for tenure and then I switched it to the maps one so that I could use the different color densities to compare the tenure lengths for each state.
12. After I did this, I created a new dashboard and added these three tenure visualizations to the dashboard.
13. From here, I created my title page and and my conclusion page using text boxes
14. I noticed, also, that most of my values were set to sum so I set all of the Tenure, Number of Customer Service Calls, and Monthly Charge values to averages so that it wouldn't be as skewed by things like state size.
15. Lastly, I clicked on the “Story” button in the bottom right of the page and added all of my visualizations onto story pages, with tiles and small captions.

4. Provide instructions to help users navigate the dashboard.

Click on the colored legends to filter by either churn or state. This tool can be used to help make more informed decisions regarding where to put your resources and direct your efforts to mitigate customers churning away.

*Note: Make sure to save your dashboard as a .twbx file.*

**Part 2: Storytelling with Data**

*Note: Your responses to the task prompts must be provided in a document file. Unless otherwise specified, responses to PA requirements that are included in a python or R studio notebook will not be accepted.*

B. In a document file, provide a link to a Panopto multimedia presentation in which you tell a story about the data to an audience of data analytics peers. Your presentation should implement elements of effective storytelling and include *each* of the following elements:

• an introduction of yourself and your background

\*Shown in workbook\*

• a summary of *both* chosen data sets and the context in which they occur

**WGU Customer Churn Dataset** - In telecommunications, customer churn is the rate at which customers discontinue using a provider’s services within a specific period, with some companies facing churn rates as high as 25% annually. Since acquiring new customers is significantly more expensive than retaining current ones, customer retention is crucial. To mitigate churn, telecom companies aim to predict which customers are most likely to leave. This data set contains customer details regarding telecommunications.

**(Kaggle) Telco Customer Churn Dataset**- this is sourced from the BigQuery table containing information about telecommunications customers. This dataset is intended to help predict customer churn, which occurs when customers discontinue the company's services. It includes customer attributes such as account details, usage data, services used, and a label indicating whether the customer churned.

• an outline of key results from your analysis of the two data sets

\*Shown in workbook\*

• **two** different data representations to serve as supporting evidence for your results

\*Shown in workbook\*

• a summary of actionable insights based on your results

The exact course of action to take is outside of my scope of knowledge. However, I would recommend WGU getting their hands on the number of customer service calls and focusing on fixing the issues of the states that have the highest amounts of them. I do also feel that it is imperative to get this tool into the hands of a subject matter expert at the state level so that they, having the necessary knowledge, can direct the resources they have access to towards the proper places to further reduce customer churn.

*Note: Your two data representations may come directly from your Tableau dashboard created in part A.*

*The audiovisual recording should feature you presenting the material on screen (i.e., not in voiceover or embedded video) and should simultaneously capture both you and your multimedia presentation.*

*For instructions on how to access and use Panopto, use the "Panopto How-To Videos" web link provided below. To access Panopto's website, navigate to the web link titled "Panopto Access," and then choose to log in using the “WGU” option. If prompted, log in using your WGU student portal credentials, and then it will forward you to Panopto’s website.*

*To submit your recording, upload it to the Panopto drop box titled “Representation and Reporting – NAMx | D210.” Once the recording has been uploaded and processed in Panopto's system, retrieve the URL of the recording from Panopto and copy and paste it into the Links option. Upload the remaining task requirements using the Attachments option.*

**Part 3: Reflection Paper**

*Note: Your responses to the task prompts must be provided in a document file. Unless otherwise specified, responses to PA requirements that are included in a python or R studio notebook will not be accepted.*

C. In a document file, 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.

My dashboard aligns with the data by allowing the stakeholders to hone in on the different aspects of their data to help them make more informed and specific decisions regarding where to allocate their resources to help reduce customer churn.

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 variables in the additional dataset allow us to compare customer churn values from the Telco customer data to help us make some assumptions about things that are not shown in our data but that we should also consider as well.

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

* The “**Churn vs Number of Customer Service Calls**” visualization shows the number of customers that churn away vs not for each state based on the average number of customer service calls. Stakeholders can look at the legend on the right side of the screen and use it to hone in on specific states to get a better look at which ones have the highest numbers of customer service calls with a higher level of churn and address those areas to help with people leaving.
* The “**Average Tenure by State**” visualization uses colors to compare average tenure lengths across the US. The deeper red colors indicate shorter tenures while blue colors indicate longer tenures. Stakeholders can look at the states with the deeper red hues and focus on figuring out why that is that way/allocate resources towards increasing the tenure lengths in those states.

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

* There is a legend on the “**Churn vs Number of Customer Service Calls”** visualization where you can select True(churned away) and False (didnt churn). If there is a particular state that you want to hone in on, you can either click on the column itself or go up to the Churn v monthly charge visualization and click on that as well. It will hone in on that specific aspect for the other visualizations on the dashboard as well.
* There is a similar feature on the “**Average Tenure by State**” visualization but instead of clicking on the little pie charts you can click on the actual state itself on the map. Doing this will cause the other visualizations on the dashboard to hone in on that state as well.

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

To ensure that colorblind individuals can also see the visualizations, I made sure to use color palettes that are colorblind friendly (like red to blue, orange to blue) as well as include labels and interactive visualizations so that they can navigate the dashboard with ease.

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

The “**Churn vs Number of Customer Service Calls”** and the “**Average Tenure by State**” support the story that I wanted to tell by depicting the states that exhibit the most customer churn and how the number of customer service calls is a good indicator that something needs to be changed to reduce it.

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

I tailored my presentation by analyzing the audience’s background, knowledge, and needs, adjusting the content accordingly. My audience in this case, would be the stakeholders for these telecommunications companies. They have a background in telecommunications so they are knowledgeable of the terms like customer churn and tenure. Also, some of my visualizations (like the “Churn by Monthly Charge for each State”) are geared towards them by allowing them to look at and manipulate some of the parameters and metrics that they, in particular, would be most interested in. Heads of these telecommunications companies would definitely love to be able to see their average monthly costs on a state level in relation to who is churning away vs who isn’t.

8. Describe how you designed your presentation for universal access by *all* audiences.

To design my presentation for universal access, I used simple, clear language and avoided jargon to ensure everyone could understand the content. I incorporated high-contrast colors, readable fonts, and descriptive visuals for accessibility

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

1. **Clear Structure**: I started with an introduction, followed with key data insights, and ended with actionable conclusions. The goal was to guide the audience through the presentation logically.
2. **Focus on Key Insights**: Highlight the most important data points that support your message, avoiding unnecessary details.

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

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