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| Western Governors University |
| Representation and Reporting |
| D210 |

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**Part 1: Interactive Data Dashboard**

**A: INTERACTIVE DATA DASHBOARD**

<https://public.tableau.com/app/profile/allison.casey/viz/WGU_D210_PA_17270323470660/ChurnComparison?publish=yes>

* Data used from both data sets (churn\_clean.csv, train.csv)
* Data representations to summarize the data or display trends
  + Churn rate
  + Competitor churn rate
  + Average number of times customer contacted technical support for churn and no churn
  + Average number of times competitor customer contacted technical support for churn and no churn
  + Map visualization with other key metrics
* Interactive controls
  + Select specific state
  + Select churn or no churn for map tooltip metrics
* Metrics or key performance indicators computed using data from both chosen data sets
  + Churn rate for both data sets
  + Average number of times competitor customer contacted technical support for churn and no churn for both data sets

**A1: DATA SETS**

1. churn\_clean.csv
2. train.csv
   1. Kaggle data set from: <https://www.kaggle.com/datasets/arashnic/telecom-churn-dataset>

**A2: INSTALLATION INSTRUCTIONS**

The dashboard can be installed or accessed through either using the Tableau public link provided in section A or through using the workbook file D210.twb. To use the link just open it in any browser and the dashboard will come up ready to use. To open it using the workbook, Tableau will need to be installed and then once the file has been opened in Tableau both data sets will need to be added as data sources and then the user should be able to access the five visualizations and the dashboard.

1. With Tableau installed open the workbook
   1. 
2. Add the data sources (do this for both data sets)
   1. A screenshot of a computer

      Description automatically generated
   2. Click “More” under “To a File” A screenshot of a computer

      Description automatically generated
   3. Select the data set and click openA screenshot of a computer

      Description automatically generated
   4. Now all the sheets with the visualizations as well as the dashboard should be accessible and ready to use

**A3: NAVIGATION INSTRUCTIONS**

The dashboard is comprised of five visualizations with two interactive controls. The first two visualizations display the rate of churn for both providers where in this case the data from the external public dataset is being considered the competitor. Hovering over any of the bars for the first two graphs will display the count and percentage of the total that either churned or did not churn. The next two visualizations display the average number of customer contacts compared to whether the customer churned for both data sets and the exact numbers can be shown by hovering over the bars. To the right of these the legend shows the colors indicating churn and no churn for the top four visualizations as well as the interactive state filter which can filter the results displayed by state or states selected for all five visualizations. The bottom visualization displays a map colored by state to easily see the different states and only shows data for the main data set and not the competitor. Each state can be hovered over to view the average monthly charge, the average outage in seconds per week, and the average tenure for customers in that state. This map can also be filtered to show this data only for customers who did or did not churn using the interactive check boxes in the upper right hand corner of the map.

**Part II: Storytelling with Data**

**B: PANOPTO STORYTELLING WITH DATA**

<https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=e5012dbd-0254-4797-ac24-b1f3016cbe1a>

**Part III: Reflection Paper**

**C1: DASHBOARD ALIGNMENT**

The data dictionary explains that the task is to build a data dashboard for executive leaders to be able to explore the data for this company that serves customers in all regions of the United States. The data dictionary also explains churn and the importance of this metric since retaining customers is much cheaper than having to acquire new ones. The dashboard meets these needs through being an easy to navigate, interactive visual of this key information coming from the data set. The dashboard focuses on the churn rate and other factors that have been determined as some of the more statistically significant features regarding churn and tenure in previous performative assessments. Along with the company data the dashboard also incorporates the data of a theoretical competitor so that there can be a comparison between the two.

**C2: ADDITIONAL DATA SET INSIGHTS**

The additional data set contains the churn data for another theoretical telecommunications company with data for customers across the US. The data specifically incorporated into the dashboard from this data set was the churn data and the contacts to customer support as both metrics aligned in that they measured the same things for both companies to they could be compared. Including this secondary data set enhances the insights that can be drawn from the original data set because comparing a business to other companies is helpful for a variety of reasons. It allows the company to understand it’s competitors, identify market gaps and opportunities for growth, and make strategic decisions to help the company better itself over its competitors.

**C3: DECISION-MAKING SUPPORT**

Two different data representations on the dashboard that can be used to support decision making are the Contacts and Competitor Contacts bar graphs. These show the average number of contacts to customer support for customers who did and did not churn for both the company and the competitor. These two different data representations can be compared and used to help understand how the use of how support at each company impacts churn and using the filters this metric can be narrowed in on for specific states. The competitor clearly has more churn based on this metric so that is something to be investigated further about what this company is doing better than the competitor and how that can be expanded upon.

**C4: INTERACTIVE CONTROLS**

The first interactive control is the state dropdown that allows the user to filter the data displayed based on the state or states of their choosing. This will control all four bar graphs and the map as well. The second interactive control applies specifically to the map and allows the user to see the data in the tooltip for each state based on data for customers that did or did not churn or both. This is controlled through the check boxes in the upper right-hand corner of the map.

**C5: COLORBLINDNESS**

The dashboard was designed to be accessible to those with color blindness through only using the color-blind color palettes in Tableau. These color palettes are pre-built into Tableau and specifically designed so that the colors are distinguishable for the several types of color blindness.

**C6: DATA REPRESENTATIONS**

The story that was told was describing how the dashboard can help the executive leaders gain further understanding of the data and build further questions for analysis to help prevent churn among customers. One of the data representations that does this is the churn rate bar graph because it is a starting point showing the amount of churn and gives a baseline understanding of the data of what needs to be prevented and how well the company is currently doing with this metric. A second data representation that supports the story being told is the map. The map is helpful because it offers a visual of each state as well as further information about certain metrics for each state. An executive could use these visuals to identify a certain state with a high rate of churn and compare this rate to the competitor as well as then use the map to further understand metrics for that specific state and see the difference in those metrics for customers that did and did not churn.

**C7: AUDIENCE ANALYSIS**

The audience for this presentation was fellow data analysts and telling them the story of how this dashboard can be presented and helpful to the future audience which are executive leaders. The SVP is specifically interested in improving recruitment and retention so understanding current churn rate and competitors is key to that goal. The EVP and Regional VPs are also interested in churn as well as broad categorization of customers across regions so the map and state filter should be a key point of interest for them and their specific interests related to churn. As a result, the presentation specifically talked about the bar graphs and the comparison of churn with the competitor as well as how the map can be used to help further explore the data and various metric’s relationship to churn.

**C8: UNIVERSAL ACCESS**

The presentation was designed with universal access in mind by presenting a dashboard that was built to be accessible for people with color-blindness as well as having a simple layout and design and clear large labels.

**C9: EFFECTIVE STORYTELLING**

Two elements of effective storytelling that were implemented in the presentation were character and conflict. For this presentation, the characters identified are the executive leaders who would want to use this dashboard. The presentation talks about why this information would be important to them. The conflict of the story would be churn and the need to prevent it. The presentation talks about how the dashboard could be used by the executives to help understand the data and prevent churn through initial insights from the dashboards as well as helping them to ask further educated questions and request further analysis to help prevent churn.

**Sources**

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