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WGU D210
Representation and Reporting
Task 1: Data Dashboard and Storytelling
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Part 1: Interactive Data Dashboard

1. Datasets (csv files are attached to submission):

- Medical_clean_prepared_d209_task1.csv
- Hospital_readmissions.csv -
https://www.kaggle.com/dubradave/hospital-readmissions/?select=hospital_readmissions.csv

2. How to install dashboard:

The dashboard has been published in Tableau public which is a free platform to publicly share data visualizations online making it the easiest way to share my dashboard. No need to install, just click the public link:

https://public.tableau.com/views/D210DB_17029466236870/Dashboard1?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

3. How to navigate dashboard:

Patient ReAdmission with Diabetes

The data presented on the left and right reveals the percentages of diabetic patients that were readmitted or not readmitted colored by 'yes' or 'no' in both the Kaggle data and WGU data set. The filters allow access to evaluate the percentages of patient readmission without diabetes as well.

We can notice that the data set on the right had a greater number of readmissions that had been diagnosed with diabetes than the left data set.

Number of Diabetic Patients by Age

The data presented on the left and right reveals the total number of diabetic patients categorized by age. The filters give the option to evaluate the total amount of patient readmission without diabetes as well.

We can observe that the data set on the left had more patients admitted between the age of 40-50. As for the data set on the right, we can scroll to find that most of the diabetic patients admitted were of the age of 74.

Average Initial Days Hospitalized of Patients of Age with Diabetes

The data presented on the left and right reveals the average number of days spent in the hospital by age with diabetes. The filters give the option to evaluate the average amount of patient readmission without diabetes as well. On the side there is a filter that will show each age group individually. On the right side, there is a highlight filter that can be utilized to look at each age individually.

We can observe that the data on the left includes the average/median time spent in the hospital for all age groups diagnosed with diabetes. It shows that the average number of days diabetic patients of all age groups spend about 4 days hospitalized. On the right side, it reveals that the average number of days hospitalized for diabetic patients was 35 days.

Number of patients w/ Diabetes by Age

The data shown on the left and right presents the total number of patients with diabetes categorized by age group. The filters give the option to evaluate the average amount of patient readmission without diabetes as well.

We can observe from the data on the left side that as the number of patients gets smaller the pigment of color gets lighter. There are filters to better interpret each age group at a smaller scale. You can see the higher number of patients with diabetes are in the same age group of 70 for both data sets.

Part 2: Storytelling with Data

Link:

<https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=d3e159ad-1f4a-4c19-8d2e-b0dd0012fb1b>

Part 3: Reflection Paper

C1. 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 underlying issue in the medical industry is patient readmission. This could be caused by hospitals being over confident and underprepared. Due to this, many outside organizations penalize hospitals for a high amount of readmissions.

The main objective of this dashboard is to observe the diabetic health conditions of patients and to identify which patients are more at risk based on specific factors, such as age. These results can help hospitals correctly treat patients based on their age and different stages of life.

C2. 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 additional data set 'medical_clean.csv', provides general insight of the different patient's health conditions. The 'hospital_readmission.csv' data set provides extra insight to help support how diabetes is one of the highest readmitted diseases. It also gives insight more specifically on how much of an impact diabetes could be treated across different age groups to prevent readmission.

C3. Explain two different data representations from your dashboard and how executive leaders can use them to support decision-making.

The pie chart labeled 'Patients Readmitted with Diabetes' shows a significant difference of readmission for patients with diabetes between both datasets. This could be due to the total amount of data collected varying between data sets. The filters on the side can help to show the percentages of patients without diabetes for a better understanding of the data. In the additional data set, 'medical_clean.csv', the pie chart on the right shows that there are more non-readmitted patients with diabetes than patients who were readmitted with diabetes. In the new data, 'hospital_readmission.csv', the pie chart on the left shows there were more readmitted patients with diabetes than none readmitted.

The bar graph labeled 'Patients by Age with Diabetes', we can observe that the additional data set on the left had more patients admitted between the ages of 40-50. As for the new data set on the right, we can scroll to find that most of the diabetic patients admitted were of the age of 74. These two age groups in relation to the health and body changes, there is not a huge difference.

For stakeholders, knowing that the majority of people who have diabetes are between 40 and 70 years, it should be taken into account how they can help prevent adults from developing diabetes into their older years and to identify if there are any indicators that might show if someone is more likely to develop it. Some solutions would include preventative coaching that could potentially help older adults.

C4. Explain two interactive controls in your dashboard and how *each* enables the user to modify the presentation of the data.

One of the interactive controls would be the filter of the range of values located on the second dashboard at the bottom. This filter allows the user to view a specific count of patients with diabetes categorized by age. The filter has a range from the lowest count of patients with diabetes to the highest count of patients with diabetes. If the user was to slide the filter to the left it would eliminate the age ranges that fall under the new min and max set of age groups.

Another interactive control located on the first three dashboards would be the filter to focus on specific features such as age or selection of disease. The filters help specifically for users to be able to focus on those with or without diabetes to help with the main analysis.

C5. Describe how you built your dashboard to be accessible for individuals with colorblindness.

In creating the graphs for this presentation, I paid special attention to how colors come across. I utilized a youtube video that showed me how to switch from a colorful color palette to a colorblind-friendly palette. This was done by creating a new parameter for the dashboard. I only changed what needed to be changed to color blind friendly due to the other

graphs already being color blind friendly. This is another interactive control for the user, so it makes it accessible to every possible user.

C6. Explain how two data representations in your presentation support the story you wanted to tell.

One data representation that helped with the support of my story is the pie chart. For both datasets, the readmission percentages were very different. This observation does not quite support my story which could be due to the total amount of data collected varying between data sets. There could be multiple factors of why the percentages were significantly different. We can notice that the data set on the right had a greater number of readmissions that had been diagnosed with diabetes than the left data set.

Another data representation would be the bar graph that shows that the majority of patients with diabetes. We can observe that the additional data set on the left had more patients admitted between the ages of 40-50. As for the new data set on the right, we can scroll to find that most of the diabetic patients admitted were of the age of 74. The observations make sense due to the fact that as people get older, they become less active and not as alert to watching what they eat.

C7. Explain how you used audience analysis to adapt the message in your presentation.

The audience that I am presenting to are mostly stakeholders and hospital staff. I wanted to present related scenarios based on the main issue of diabetes since there were a significant number of patients with the disease in both data sets. One scenario is introduced by using a sensitive example of how fitness and nutrition plays a huge part of our well being and if we don't live a moderately healthy lifestyle it can diminish our quality of life which could lead to a shorter life expectancy. This could be a sensitive topic for people who want to see their loved ones get older.

Another scenario presented was that as people get older, it is most likely that they will experience a time in their life where it gets the best of them which leads them to create bad habits (it happens to the best of us). Both scenarios can be relatable to every human being due to the fact that we all must go through the circle of life. It is important to continue to stay motivated and make your health a priority.

C8. Describe how you designed your presentation for universal access by all audiences.

The dashboard is hosted on Tableau Public, allowing anyone with internet access and the link to view the fully functional dashboard complete with its interactive controls. Furthermore, the dashboard is optimized for a wide range of devices, catering to both computer users with standard monitors and phone users with smaller, vertical screens.

C9. Explain two elements of effective storytelling that you implemented in your presentation and how *each* element was intended to engage the audience.

What exactly is *story* ? At a fundamental level, a story expresses how and why life changes. Stories start with balance. Then something happens— an event that throws things out of balance. McKee describes this as “subjective expectation meets cruel reality” (Knafllic, 2015).

One effective way of storytelling that I implemented was first grabbing the audience's attention with a relatable topic on fitness and nutrition. This can be a sensitive topic since health is such a huge part of a person's way of living.

Another effective way I utilized was to create a harsh reality to express the effects of diabetes. I tried to paint a picture of emotions that people feel as they get older in terms of their health. Everyone has experienced a time in their life where life gets the best of them and starts to create bad habits. Staying motivated and making your health a priority no matter what age you are can prevent a lot of health issues.

D. Sources

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