D211: Advanced Data Acquisition

Task 1

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# Part I: Data Dashboards

## Provide a copy of your dashboards that support executive decision-making.

### Provide *both* sets that serve as the data source for the dashboards.

The csv file that I utilized to copy my cleaned dataset into Postgres, via saving to C:\Users\Public\Desktop in Labs on Demand, will be attached to my submission. The csv file must be saved to the desktop in order for PGadmin to have access to the file for importing the data (Stack Overflow, 2021). The remainder of the data that I will utilize in my dashboard will come from various tables in the medical\_data.public schema in PGAdmin.

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

To open my dashboard on the virtual machine, the following steps will need to be taken:

* + 1. Open PGadmin and navigate to medical\_data.public schema
       1. I am putting this before downloading the files as I have run into issues with PGadmin if it’s not the first program opened
    2. Click the “Query tool” button in the browser ribbon, leave the query editor open
    3. Download hosp\_gen\_info\_4.csv from my submission and save to ‘C:\Users\Public\Documents’ (Stack Overflow, 2021)
    4. Download D211 Executive Readmission Dashboard – updated query.twbx from my submission and move it to the desktop
    5. Return to PGAdmin, returning to the open query editor for medical\_data.public
    6. Copy and paste the SQL query, or re-write it manually, into the query editor
    7. Run the SQL query
    8. Open Tableau desktop
    9. Select “Open Workbook”
    10. Open D211 Executive Readmission Dashboard – updated query.twbx from the desktop
        1. When prompted for username and password:
           1. Username: postgres
           2. Password: Passw0rd!
        2. The custom SQL query utilized to create the dashboard will have been saved as part of the package, and will automatically load the data from PGadmin

### 3. Provide clear instructions to help users navigate the dashboards.

Instructions for the dashboard can be found in the lower right-hand corner of the dashboard. The instructions state the following:

“Please use **only the filters** to modify the visualizations. If you have any questions, reach out to [lbenis2@wgu.edu](mailto:lbenis2@wgu.edu).

This is an executive summary dashboard showing ReAdmission rate across multiple variables. It is meant to allow for exploration of questions such as, “In which state are our hospitals readmitting the most patients” or “How long are our readmission patients typically staying in the hospital?”

### 4. Provide a copy of *all* SQL code and other code supporting the dashboards

The following two queries were utilized in the query editor within pgAdmin to create my new table and bring in the relevant data, after the CSV was saved to C:\Users\Public\Documents. In order to correct an error message that was noted, ENCODING was including in the copy statement (PostgreSQL Tutorial, 2022).

CREATE TABLE IF NOT EXISTS Hosp\_gen\_info (

ProviderID INT PRIMARY KEY NOT NULL

, HospitalNM VARCHAR(255)

, Address VARCHAR(255)

, City VARCHAR(255)

, State VARCHAR(2)

, ZIP INT

, CountyNM VARCHAR(255)

, HospitalTypeDSC VARCHAR(255)

, HospitalOwnershipDSC VARCHAR(255)

, HospitalRatingNBR INT

);

COPY Hosp\_gen\_info

FROM ‘C:\Users\Public\Documents\hosp\_gen\_info\_4.csv’

ENCODING ‘UTF8’

DELIMITER ‘,’

CSV HEADER;

The following query was used to gather the relevant data that I wanted for creating my dashboard.

SELECT

Pat.\*

, admis.initial\_admission

, comp.complication\_risk

, job.job\_title

, loc.ZIP

, loc.city

, loc.state

, loc.county

, services.services

, services.diabetes

, services.arthritis

, services.overweight

, services.hyperlipidemia

, services.backpain

, services.anxiety

, services.allergic\_rhinitis

, services.reflux\_esophagitis

, services.asthma

, hosp.hospitalratingnbr

FROM medical\_data.public.patient        pat

    INNER JOIN medical\_data.public.admission    admis

        ON pat.admis\_id = admis.admins\_id

    INNER JOIN medical\_data.public.complication        comp

        ON pat.compl\_id = comp.complication\_id

    INNER JOIN medical\_data.public.job

        ON pat.job\_id = job.job\_id

    INNER JOIN medical\_data.public.location     loc

        ON pat.location\_id = loc.location\_id

    INNER JOIN medical\_data.public.servicesaddon        services

        ON pat.patient\_id = services.patient\_id

    INNER JOIN medical\_data.public.hosp\_gen\_info hosp

        ON loc.ZIP = hosp.ZIP

# Part II: Demonstration

## Provide a link to a Panopto multimedia presentation in which you present the dashboards to an audience of data analytics peers. You should do *all* of the following in your presentation:

A link to the Panopto presentation will be included with my submission, but is [linked here as well](https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=0e8b031d-7067-45e3-ab34-b0170035678d). The following subjects will be discussed in the video, with a summary written under each header as well to line up with what is said during the presentation.

### Describe the technical environment used to create the dashboards.

My dashboard was created using Tableau Desktop version 2021.4. This was utilized within the WGU virtual environment, Labs on Demand.

### Demonstrate the functionality of the dashboards.

My dashboard allows for filtering on 3 different variables: patient gender, readmission status, and patient state of residence. Utilizing these filters, managers can quickly see how many patients are represented in the visualizations, whether those patients readmitted to the hospital, and where they initially presented to the hospital prior to their stay.

### Explain the SQL scripts used to support the creation of the dashboards.

There are two SQL scripts that I utilized to create my dashboard. The first was creating a table within the PostgreSQL database in PGadmin. The process of creating a table is done using DDL (data definition language). The portion of the query where the data was copied into the table from the CSV was done using DML (data manipulation language). The second query utilized during the dashboard creating process was creating a connection to the database within Tableau public. This was again done using DML to select the relevant data for the analysis.

### Explain how the data streams were prepared to support the analysis.

The external dataset was prepared utilizing R studio to remove outliers and null values, as well as reducing the number of columns. This removed unnecessary variables so that they wouldn’t be included within the table.

Following creation of the table and importing the data to PGadmin, the relationship between my tables was explored, and samples of the tables were viewed via the “View first 100 rows” options to see how my data was organized.

A connection was then created to the database within Tableau to allow for continuous updates to the dashboard as new data is imported or inserted into the database.

### Describe how data were aligned with other data points.

Utilizing the “Generate ERD (beta)” function by right clicking on “Tables (7),” we can see the ERD for our tables within the medical\_data.public schema. This shows us the star-shaped data model, with patient being the fact table and it being surrounded by dimension tables pertaining to any of our patients.

### Demonstrate how the databases were created.

The creation queries can be visualized within PGadmin. By right clicking on the database, the database query can be viewed, followed by the schema, all the way to the tables.

### Explain how referential integrity was enforced in the database.

Within the medical\_data.public schema, there are foreign keys within patient table that reference primary keys within other tables. Primary keys must be unique within each table. Because the foreign keys reference primary keys within separate tables, referential integrity is maintained.

# Part III: Report

## Write a report to outline the data exploration, use of advanced SQL operations, and the analysis of the data. Do the following as part of your report:

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

I decided once again in this course to utilize the medical\_data database, as I have become familiar with using this dataset throughout my studies. I also work for a healthcare organization as an analyst, so feel very comfortable with medical data. There is no data dictionary provided within this task, thus exploration of the database was performed within PGadmin and the ERD was visualized to determine the relationship between tables.

I recreated my dashboard from the prior course from scratch, utilizing a connection to a PostgreSQL database rather than uploading a CSV file to tableau public. The medical\_data database has many details surrounding patients’ stays within the hospital, including length of stay, services utilized, patient comorbidities, and patient demographics. This allows for analysis of readmission rate based on various patient factors.

Furthermore, this dashboard aligns with the needs of the multiple stakeholders interested in the dashboard. Individuals at the executive level and above would likely have an interest in how their specific region, if not beyond, are managing patient readmission. There are likely compensation goals related to this reporting, which will allow managers to key in on specific providers/areas that may need improvement.

### Justify the selection of the business intelligence tool you used.

I have decided once again to use Tableau as my business intelligence tool for this course. Tableau Desktop is provided to us in the Labs on Demand environment at no cost. I am familiar with utilizing Tableau public in the prior course, as well as for other projects previously. Tableau is intuitive and relatively easy to use for beginners, thus lending itself well to this project.

### Explain the steps used to clean and prepare the data for the analysis.

The steps that I utilized to clean my external data source are the same as the ones utilized in D210. I once again am using a hospital rating dataset from Kaggle. The dataset is titled “Hospital ratings” and includes Medicare and Medicaid ratings for hospitals throughout the US. I utilized R Studio to upload and clean my dataset.

My original external dataset contained many extra variables beyond the variables of interest, as well as observations with missing values. This dataset was therefore also cleaned by removing the additional columns/variables that were not going to be utilized in this analysis. The data was then determined to have missing values, and some outliers were found for the continuous variables. Any observation containing a null value or an outlier were removed. This process reduced the size of the dataset from 4812 observations and 28 variables to 3563 observations of 10 variables.

This CSV file was exported to my personal computer, then emailed to my school email. Once in the Labs on Demand environment, I logged into my school email to access the CSV file. I downloaded the file, opened it using LibreOffice and saved it to ‘C:\Users\Public\Desktop’. This allowed me to copy the data into the PostgreSQL database using a query.

### Summarize the steps used to create the dashboards.

The steps that I utilized to create my dashboard are as follows:

* Creating Visualizations
  + Already navigated to “Sheet 1”
    - Rename “Sheet 1” as “State Pt Count” either from right-clicking and selecting “Rename” or double clicking “Sheet 1”
    - From the list of dimensions/measures on the left:
      * Drag the “State” dimension to rows
      * Right click on “Patient\_id” dimension and create a copy
        + Move this copy down to measures
      * Drag the “Patient\_id (copy)” measure to columns
        + Change the “Measure” from Sum to Count, if needed (mine auto populated as a count)
      * Drag the “Re Admis” dimension to “Color” in the marks tab
        + Click on “Color” in the marks tab
        + Click on “Edit Colors…”
        + On right side, click “Automatic” under “Select Color Palette”

Select “Color Blind” option

* + - * + Change “No” to a light gray
        + Change “Yes” to a dark gray
    - Drag the “State” dimension to the Filter tab
      * Keep the option “Select from list” under “List”
      * Click “OK”
      * Hover over “State” under Filter tab and click the drop-down arrow
      * Click “Show filter”
    - If desired, sort the visualization by “Count of Case Order” on X-axis
  + Create a new sheet, “Sheet 2”
    - Rename “Sheet 2” as “ReAdmis Status by Gender” either via right-clicking and selecting “Rename” or by double clicking “Sheet 2”
    - Drag “Re Admis” dimension to rows
    - Drag “Patient\_id (copy)” measure to “Text” in the marks card
      * Change the measure of “Case Order” from Sum to Count, as in the previous sheet if it did not auto populate as a Count
      * Click “Text” in the marks tab
      * Click the elipses (…) next to the text box with our measure to open the label editor
        + Change the color of the text from black to white (or gray)
        + Click “OK”
    - Drag “Patient\_id (copy)” measure to “Size” in the marks tab
    - Drag “Gender” dimension to “Color” in the marks tab
      * Click “Color” in the Marks tab and select “Edit Colors…”
      * Under “Select Color Palette,” change “Automatic” to “Color Blind”
      * Make “Female” the burnt orange in the top right corner
      * Make “Male” the blue in the top left corner
      * Make “Prefer not to answer” the pale yellow towards the bottom right
      * “X” out of the color selections when finished
    - Change the type of visualization
      * In the Marks tab, under Marks
      * Change “Automatic” to “Bar”
    - Drag “Gender” dimension to Filters tab
      * Hover over “Gender” field in Filters tab
      * Click drop-down arrow
      * Click “Show Filter”
    - Click “Fit” along top toolbar (4th from the right, it’s a dropdown menu that says “Standard” as a default)
      * Change “Fit” from “Standard” to “Entire View”
  + Add another new sheet, “Sheet 3”
    - Rename the sheet “Initial\_days x ReAdmis” using the same method as above
    - Continuing to utilize fields available to the left
    - Right click on “Initial days” measure
      * “Duplicate” the field to make a copy
        + For the moment, I am leaving it as “initial\_days (copy)”
      * Drag “initial\_days (copy)” measure up to dimension
    - Create a bins in the “initial\_days (copy)” dimension
      * Right click on “initial\_days (copy)” dimension
      * Hover over “Create >” and select “Bins…”
      * Change bin size to 1
      * Click “Enter” on keyboard
      * This step will create a new dimension: “initial\_days (copy) (bin)
    - Drag “initial\_days (copy) (bin)” dimension to columns
    - Drag “patient\_id (copy)” measure to rows
      * Change “Measure” from Sum to Count as needed
    - Drag “Re Admis” dimension to “Color” on marks tab
      * This will have maintained the same color formatting as earlier
    - Drag “Re Admis” dimension to Filters tab
      * Keep filter as is, with “Select from list” and all boxes checked
        + Click “OK”
      * Hover over “Re Admis” dimension in Filters tab
        + Click drop-down arrow
        + Select “Show filter”
  + Add another new worksheet, “Sheet 4”
    - Rename the worksheet “ReAdmit Status by Admit Location and CompRisk”
      * Utilize method described above via right-click or double click
    - Selecting fields from left (custom query)
    - Drag “readmis” dimension to “Text” on the Marks tab
    - Drag “Initial\_admission” dimension to “Text” on the Marks tab
    - Drag “Complication risk” dimension to “Text” on the Marks tab
    - Drag “patient\_id (copy)” measure to “Size” on the Marks tab
    - Drag “patient\_id (copy)” measure to “Color” on the Marks tab
    - Click “Color” on the Marks tab, select “Edit Colors…”
      * Change “Palette” from Automatic to Gray
      * Check the box that says “Stepped color”
      * Change the value from “5” steps to “9”
* Creating KPIs
  + Create a new worksheet, “Sheet 5”
    - Rename the sheet “Total Patients Displayed”
    - Drag “patient\_id (copy)” measure to “Text” in Marks tab
    - Click on “Text” in Marks tab, select “…” to bring up label editor
      * Highlight “<CNTD(patient\_id (copy))>”
        + Change font size to 20
        + Change text color to a light blue (light blue in top row of default palette)
        + Make text **bold**
        + Center align text
        + Click “OK”
    - Hover over title, click drop-down arrow
      * Select “Edit Title…”
      * Highlight “<Sheet Name>” and replace with “Total Patients” on one line, then press “Enter” on keyboard and type “Displayed” on a second line
      * Highlight the full title and center align it
    - Along top toolbar, click “Fit”
      * Select “Entire View”
  + Create a new worksheet, “Sheet 6”
    - Rename worksheet “Hosp Rating KPI” via method discussed above
    - Drag “hospitalratingnbr” measure to “Text” on Marks tab
    - Change measure of “Hospital overall rating” from Sum to Average
      * Click drop-down arrow
      * Hover over “Measure”
      * Select “Average”
    - Change number of decimal places value is rounding to
      * Once again click the drop-down arrow of “Hospital overall rating”
      * Select “Format…”
      * Change “Numbers” under “Default” from “Automatic” to “Numbers (Custom)”
      * Change “Decimal Places” to 2 and click outside of the editor
      * Click “X” in top right of text formatter
    - Click “Text” in the Marks tab and select “…” to bring up label editor
      * Change the font to match the prior KPI
        + Size 20
        + Change the font color to the blue in the top row
        + Make the text **bold**
        + Center align the text
        + Click “OK”
    - Hover over “Hosp Rating KPI” on the page and click the black drop-down arrow
      * Click “Edit Title…”
        + Change the title to “Average Hospital” on the first line, and “Rating” on the second line
        + Center align the text
        + Click “OK”
    - Along the top toolbar, select “Fit”
      * Select “Entire View”
* Creating/modifying filters
  + Creating the filters has been done throughout the process
  + 3 filters have been “created” via clicking “Show Filter” in the steps above
  + The 3 filters present are as follows:
    - State
    - Gender
    - Re Admis
  + Modifying “States” filter
    - Navigate back to “State Pt Count” sheet
      * Click drop-down arrow on filter, or right click on filter
      * Select “Multiple values (dropdown)”
    - Navigate back to “ReAdmis Status by Gender” sheet
      * Click drop-down arrow on filter, or right click on filter
      * Hover over “Customize”
      * Unselect “Show ‘All’ Value”
    - Navigate back to “Initial\_days x ReAdmis” sheet
      * Click drop-down arrow on filter, or right click on filter
      * Hover over “Customize”
      * Unselect “Show ‘All’ Value”
* Putting it all together (Dashboard)
  + Create a new dashboard worksheet by clicking “New Dashboard”
  + Add KPIs
    - Drag “Total Patients Displayed” onto dashboard
      * It will take up entire space currently
    - Drag “Hosp Rating KPI” and split the space vertically with “Total Patients Displayed”
  + Add visualizations
    - Drag “Initial\_days x ReAdmis” to sheet and have it take up the lower left quarter of dashboard
      * Right click on visualization title (patient\_id (copy)) and select “hide”
    - Drag “ReAdmit Status by Admit Location and CompRisk” to lower right quarter of dashboard
    - Drag “State Pt Count” to take up bottom half of “Initial\_days x ReAdmis”
    - Drag “ReAdmis Status by Gender” to take up bottom half of “ReAdmit Status by Admit Location and CompRisk”
    - Aside: when populating dashboard with visualizations, keep the filters and legends that populate
  + Formatting
    - Add dashboard title
      * Drag “Text” object to the very top of the dashboard
        + Should be the “thin line” option at very top
      * Edit Text to say “D211 Executive Dashboard - ReAdmissions”
      * Make text size 20, change color from gray to black, and center align
    - Drag up bottom borders of KPIs to allow more room of visualizations
      * KPIs should have just enough room to fully display their titles and values
    - Drag up bottom borders of top row of visualizations to allow more room of bottom visualizations
      * Space should be approximately evenly split between all four visualizations
    - Reorganize Legends and Filters
      * Bring “State” filter just about all the way to the top
        + Leave slight space above it
      * Below “State” filter, place “Gender” filter
      * Below “Gender” filter, place “Re Admis” filter
      * Leave slight space below “Re Admis filter”
      * Bring “Count of Patients” legend under “readmis” filter
      * Place “Re Admis” legend under “Count of Case Orders” legend
      * Place “Gender” legend under “Re Admis” legend
      * Drag “Text” object to just above “State” filter
        + Name the text: “Filters:”
        + Keep font size 9
        + Center align the text
      * Drag “Text” object to just above “Count of Patients” legend
        + Name the text: “Legends:”
        + Keep the font size 9
        + Center align the text
  + Providing general instructions
    - Drag a “Text” object to the bottom right corner of the dashboard, under the legends
    - Input the following text, with similar formatting:

“Please use **only the filters** to modify the visualizations. If you have any questions, reach out to [lbenis2@wgu.edu](mailto:lbenis2@wgu.edu).

This is an executive summary dashboard showing ReAdmission rate across multiple variables. It is meant to allow for exploration of questions such as, “In which state are our hospitals readmitting the most patients” or “How long are our readmission patients typically staying in the hospital?”

* + - Change the font size to 8, keep the text right aligned
    - Click on either “ReAdmit Status by Admit Location and CompRisk” or “ReAdmis Status by Gender”
      * Drag the right border slightly to the left to allow more room for our new text box
    - Right click the text instructions that have just been entered or click the drop-down arrow
      * Select “Edit height”
      * Adjust to approximately 230-245 pixels (depending on how far the right border was moved to the left)
      * This will allow full visualization of the new instructions
* Editing Mobile Layout
  + Click “Phone” under “Default”; this is located to the left of our dashboard title when viewing the desktop version we were just working on
  + Click the “lock” icon to unlock the view for editing
  + Click the “Layout” tab next to “Dashboard”
    - This is again to the top left, but under the toolbar
  + Under “Item hierarchy” in the lower left, expand “Tiled” and “Vertical”
  + Order the dashboard items/objects in the following way, using either the Tiled/Vertical list or manually dragging them on the dasbhaord:
    - Text Object: D211 Executive Dashboard – ReAdmissions
    - Text Object:
      * “Please use **only the filters** to modify the visualizations. If you have any questions, reach out to [lbenis2@wgu.edu](mailto:lbenis2@wgu.edu).

This is an executive summary dashboard showing ReAdmission rate across multiple variables. It is means to allow for exploration of questions such as, “In which state are our hospitals readmitting the most patients” or “How long are our readmission patients typically staying in the hospital?”

* + - Text Object: “Filters:”
    - Filter: “State”
    - Filter: “Re Admis”
    - Filter: “Gender”
    - Text Object: “Legends:”
    - Legend: “Count of Patients”
    - Legend: “Re Admis”
    - Legend: “Gender”
    - Sheet: “Total Patients Displayed”
    - Sheet: “Hosp Rating KPI”
    - Sheet: “Initial\_days x ReAdmis”
    - Sheet: “ReAdmit Status by Admit Location and CompRisk”
    - Sheet: “State Pt Count”
    - Sheet: “ReAdmis Status by Gender”
  + Upon completion of this, lock the mobile dashboard for editing and return to the default layout
* Final touches
  + Modifying filters once more
    - Navigate back to the default/desktop dashboard
    - Perform the following actions for all three filters:
      * Click on drop-down arrow or right click on the filter
      * Hover over “Apply to Worksheets”
      * Select “All Using this Data Source”
  + Modifying visualization titles as needed
    - Initial\_days x ReAdmis
      * Click on drop-down arrow or right click on title
      * Select “Edit Title”
      * Change name to “Distribution of Initial Stay”
      * Click “OK”
    - State Pt Count
      * Click on drop-down arrow or right click on title
      * Select “Edit Title”
      * Change name to “Patient Counts by State”
      * Click “OK”
    - ReAdmis Status by Gender
      * Click on drop-down arrow or right click on title
      * Select “Edit Title”
      * Change name to “ReAdmission Status by Gender”
      * Click “OK”
  + Hiding all sheets
    - Right click on Dashboard 1
      * Select “Hide All Sheets”
  + Renaming Dashboard sheet
    - Right click and select “Rename” or double click on “Dashboard 1”
    - Name it “Exec Dash – ReAdmissions”
* Save the Tableau Workbook as a .twbx file
  + I named mine D211 Executive Readmission Dashboard – updated query
  + Email a copy of it to yourself (me, in this instance)
* Also export a copy of the CSV data utilized to the desktop
  + Email this to yourself (me) as well
  + I did not edit the name of the file in this instance
* Accessing the dashboard
  + Close out of Tableau if it is still open
  + Ensure that the necessary tables are still available in pgAdmin/PostgreSQL
  + Open one of the files from earlier (if multiple were saved)
  + Enter the username and password (postgres and Passw0rd!, respectively)
    - There ***will*** be an warning message initially, as the file/source utilizes a custom SQL query
  + This will run the custom query that was utilized to bring the data into Tableau the first time

### Discuss the results of your data analysis and how it supports executive decision-making.

At first glance, one can see there is a bimodal distribution of how long patients are initially staying within the hospital. It is also apparent that those that readmit are within the 2nd, larger, mode. One can also see that California, Texas, and Pennsylvania have the greatest number of patients represented on the dashboard. These 3 states represent approximately 20% of all patients on the initial dashboard. Furthermore, when filtering only on patients that have readmitted, these 3 states maintain their top 3 rankings for volume of readmission patients. When considering all patients, their overall hospital rating falls below average, with a combined average rating of 3.00 compared to 3.10 when all states are shown.

This dashboard very quickly allows us to see what areas of the US may need more attention to improve patient readmission rate, and with it patient satisfaction/hospital rating.

### Discuss the limitations of your data analysis.

One limitation of my data analysis is the small dataset that is utilized in my final dashboard. Within the database, the medical\_data dataset contains 10,000 rows. In my dashboard, I finished with approximately 1,000 patients displayed. This is due to the use of an INNER JOIN on my external dataset for hospital ratings. However, I wanted to ensure that I displayed data only for hospitals that had a rating in the external dataset.

## Record the web sources used to acquire data or segments of third-party code used to support the application. Ensure the web sources cited are reliable.

1. N.a. (2022). Import CSV file into postgresql table. PostgreSQL Tutorial. <https://www.postgresqltutorial.com/postgresql-tutorial/import-csv-file-into-posgresql-table/#:~:text=First%2C%20right%2Dclick%20the%20persons,the%20delimiter%20as%20comma%20(%20%2C%20)%3A>
2. N.a. (2021, September 13). Postgresql copy from CSV file into table in windows through procedure. Stack Overflow. <https://stackoverflow.com/questions/69168201/postgresql-copy-from-csv-file-into-table-in-windows-through-procedure>

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

The web sources that I utilized within my paper are noted above. No other external sources were utilized, as this content was a refresher from D210.

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