D211 Advanced Data Acquisition Performance Task 1

Data Analysis Instructions

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MSDA D211

February 2023

Part 1 A: Data Dashboard Instructions

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

The step-by-step instructions to guide users through the dashboard installation are as follows:

1. Download the organised_gen file onto your machine. In this scenario, the churn dataset was already provided to me in SQL by the WGU lab machine, so that is how this installation guide will describe it as well. You will need to make sure your user in pgadmin has permission to use the organised_gen file on your machine.
2. Open postgresql through pgadmin, open the churn database, create a new query sheet inside of the churn database. To open the churn database, follow these clicks
    a. Servers - postgresql 13 - churn (when you click this it will connect the churn database if it shows it is disconnected) - right click churn - create - sql query editor.
3. Upload the queries from the “queries.txt” file and run them, please note you will have to adjust the query where it pulls the organised_gen file onto your environment using the correct file path. You may also choose to open the “create_tables” sql file to run the same query if you’d like.
4. Run the code, you will see you have created a new table in the churn database and filled it with our data.
5. The data joining will happen in tableau, all we needed SQL for was to add our datafile to the existing database so we can then upload the entire database to tableau
6. Open Tableau Desktop, click new file

7. Click the blue link “connect to data”. In the search bar type in and then select “postgreSQL”. Type in the information where you data was stored. For me, it was
    a. localhost
    b. Port: 5432
    c. Databases
    d. Churn
    e. Username: postgres
    f. Password: Passw0rd!

We now have all of the tables in Tableau!

8. On the left side of the screen under connections, click localhost. Click the customer table under tables and drag it to the center. Double click customer, and then click and drag the location table next to the customer table and left join onto the location_id. Next, click and drag the electricity table into the data source.
9. Follow the prompts and connect the data through State name as a relationship.
10. Exclude null values for states in all processes and filters throughout the dashboard. We have now set our data source and can create the four visualizations. Start by navigating to sheet 1.
11. 1st representation: Create a heatmap of the United States with energy per state. Drag states into the column section. Drag the variables generation (megawatthours) and bandwidth into the rows section, this will take a few minutes for tableau to execute the query. Click “Show me” on the top right of the screen and find the option for the geographic visualization. Filter out the unknown. Choose the gray color from the

color-blind accessible color palette. We will add the ranking calculation and tool tip described later in this instruction guide.

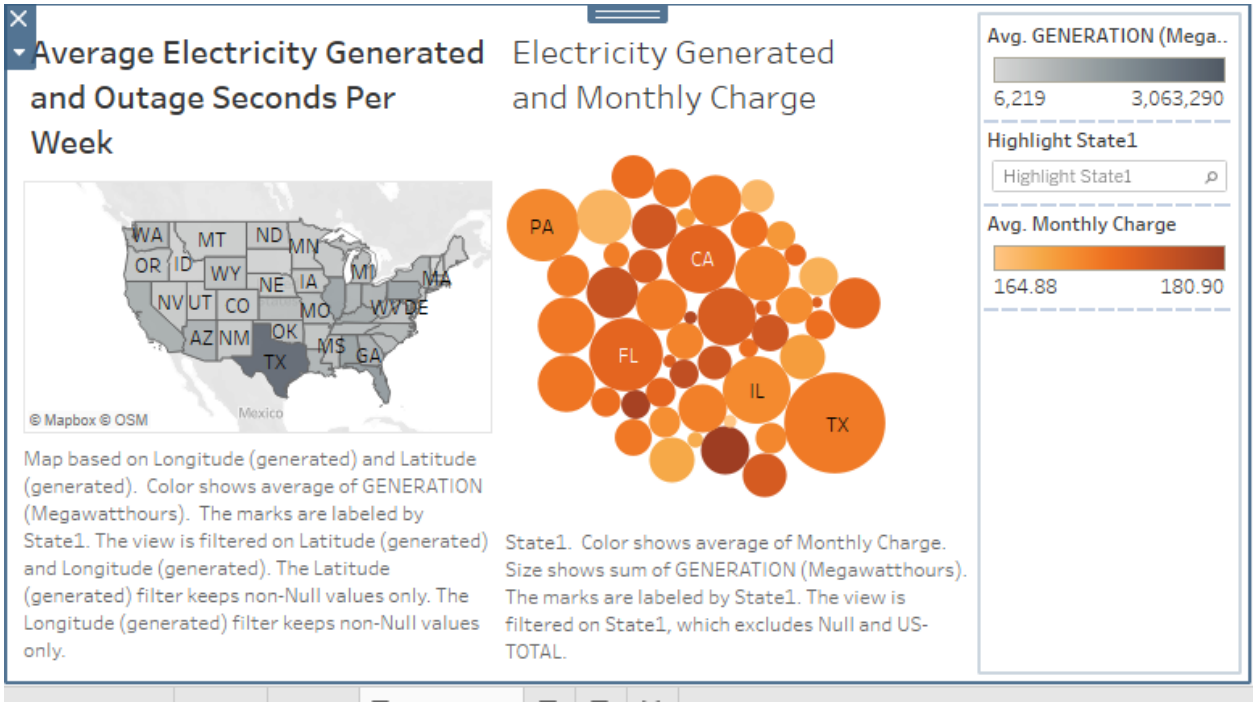
12. 2nd representation. Exclude US-total and nulls. Create sheet 2. Drag the state variable into the column, drag generation (megawatthours) and outage seconds per week into the columns. Go to show me and choose the shape and size graph. Select a color from the color-blind accessible color palette.
13. For color blind accessibility, bring up the color-blind color palette and choose colors from the list with high contrast, I chose the gray option.
14. Drag the corresponding legends from the list of variables to the tooltip option to create the legends.
15. Take the target columns, average monthly charge, generation (megawatthours), and outage seconds per week for our various representations and drag them to the tool tip section to create legends.
16. Click create a dashboard and then double click all of the sheets we have created to automatically bring them into the dashboard.
17. Finally, run the optimizer to resolve any issues, publish and share the dashboard.

3. Provide instructions to help users navigate the dashboard.

The step-by-step instructions to help users navigate are as follows:

- When you first look at the dashboard, allow yourself to digest the entire image. It is made of 2 different representations in 2 squares. On the very right is a panel of legends and interfaces that can change the view of the dashboard:

- The image on the Right is a size map where the size represents the electricity generated by the state and the darkness of color shows the Average Monthly Charge of the state. Darker means a higher Average and larger means more electricity. Hovering your mouse over the state will show the exact information of that state. The legend on the right shows the averaged range scale with color intensity.
- The representation on the left shows a map of the United States, broken up by state, with gray color intensity to show average electricity generation and a tooltip to show the average outage seconds per week. You can click and drag to move your view and scroll (or use the plus and minus symbols) to change the zoom of the map.
- Finally, we have the legend to the right of the two representations. The average outage corresponds to the size map and shows the range and intensity. The next down is the legend showing the average electricity generation of the geography map and the range. We also have the highlight state drill down interface. Here, we can focus our data from both representations to one specific state.


Average Electricity Generated and Outage Seconds Per Week
WA
MT
ND
MN
OR
ID
WY
NE
IA
MI
MA
NV
UT
CO
MO
WV
DE
AZ
NM
OK
MS
GA
TX
© Mapbox © OSM
Mexico
Map based on Longitude (generated) and Latitude (generated). Color shows average of GENERATION (Megawatthours). The marks are labeled by State1. The view is filtered on Latitude (generated) and Longitude (generated). The Latitude (generated) filter keeps non-Null values only. The Longitude (generated) filter keeps non-Null values only.
Electricity Generated and Monthly Charge
PA
CA
FL
IL
TX
State1. Color shows average of Monthly Charge. Size shows sum of GENERATION (Megawatthours). The marks are labeled by State1. The view is filtered on State1, which excludes Null and US-TOTAL.
Avg. GENERATION (Mega..
6,219
3,063,290
Highlight State1
Highlight State1
Avg. Monthly Charge
164.88
180.90