Portfolio Item Four: Geospatial Analysis on Non-English-Speaking Households in the Durham Region

Introduction

This report was created to analyze the non-English speaking households in the Durham Region of Ontario. The analysis features a thematic map created using Foursquare Studio, highlighting specific regions of each municipality that have a population of residents who do not speak English at home. Along with an infographic, embedding the thematic map and insights obtained from it.

The dataset used for this analysis was health data from Durham Region's open data portal. The dataset was generic and included all kinds of health data (i.e. live birth rate, unemployment, shelter costs, seniors living alone). However, for this analysis, the data was filtered to only include the count of non-English speaking households per municipality in the Durham Region.

- **Please click here to view the Thematic Map.**
- **Please click here to view the Infographic**

Tools Used and Process of Creating the Infographic

The tools used for this analysis are Foursquare Studio, Canva, and Microsoft Excel. The process of creating the infographic began with creating the thematic map on Foursquare Studio, performing visualizations on Microsoft Excel, and lastly embedding the thematic map and visuals onto an infographic via Canva.

To create the thematic map the dataset was uploaded onto Foursquare Studio and filters were applied to showcase only data on non-English speaking households. Then the latitude and longitude values were added in the geo columns, to represent the geospatial data. Next, a layer was added using the point format to indicate the regions with non-English speaking households. Lastly, calculations of the highest and lowest percentages of non-English speaking households were performed, to help illuminate trends.

Upon creating the thematic map, the dataset was loaded on Microsoft Excel to create the visualization needed for the infographic. Finally, using the insights gained from the thematic map and Excel visualizations, the infographic was created through Canva by inserting these as images.

The process of importing and working with the dataset on Microsoft Excel to create the visualization was straightforward. Insights were obtained through the filtering of data, which were translated into visualizations. Working with Foursquare Studio was challenging at first, as it was a relatively different user interface from the other business intelligence tools utilized in this portfolio. A lot of the available settings were rather cluttered, especially the formatting options when creating a layer. However, after spending more time exploring the various options it became relatively easy to pick up on.

Infographic Component: Stat Summary and Design

The stat summary presented at the top of the infographic (**Figure 1**), presents a high-level overview of the data by providing the average percentage and the highest percentage of households that do not speak English at home. This visual was added on top to represent a quick overview of the data present in the infographic. Stat summaries are crucial for infographics as oftentimes, a lot is going on in infographics. The summarized statistics help make use of the data being presented, while also providing key insights to the reader. The map icon used in the centre helps add a sense of understanding of the infographic being a geospatial analysis. The language icon also reinforces the reader with the topic of the infographic. The description on top helps the reader understand what the infographic is about. It also helps identify the geospatial analysis aspect of the infographic. Lastly, the theme of the infographic follows a blue, peach, and green theme to stay consistent with the colours presented in the thematic map.

Infographic Component: Thematic Map

The thematic map embedded from Foursquare Studio (*Figure 1*) indicates the specific regions within each municipality in the Durham Region using a red-coloured point, that increases in size depending on the value. The street view was applied for the visualization to add better colour and contrast to the visual, it also helped in better segregating the north and south regions of a given municipality (by following the street lines). The red colour for the point was used to stand out on the map and ensure the data points were being showcased accurately. Next, a line was drawn highlighting the Ajax and Pickering regions to showcase these municipalities having a higher percentage. Finally, the stat summary on

the corner summarizes the highest and lowest percentages to help produce insights on the thematic map.

Infographic Component: Doughnut and Bar Chart

The doughnut chart used in this infographic (***Figure 3***), showcases the relative proportion of the non-English speaking households for the top four municipalities. Despite the thematic map pinpointing all the relevant regions, this visualization helps narrow down the data to focus on specific regions that have a high percentage. The bar chart serves to provide the average percentages of non-English speaking households of each municipality (***Figure 4)***. The thematic map only provides the geographic distribution but not the actual values. To help fill that gap this bar chart was used to take the average percentage of each municipality and compare that to all the reported municipalities with non-English speaking households.

Conclusion and Interpretations

In conclusion, this infographic on the non-English speaking households of the Durham Region provides a geospatial analysis to understand the regions with higher and fewer households that don't speak English. As presented in the thematic map, the municipalities closer to Toronto have more non-English speaking households. The majority of the data points were also situated in the southern and more populated regions of Durham. While some regions may not show a high overall average, specific neighbourhoods within them, such as North Oshawa report higher percentages compared to areas like South Oshawa.
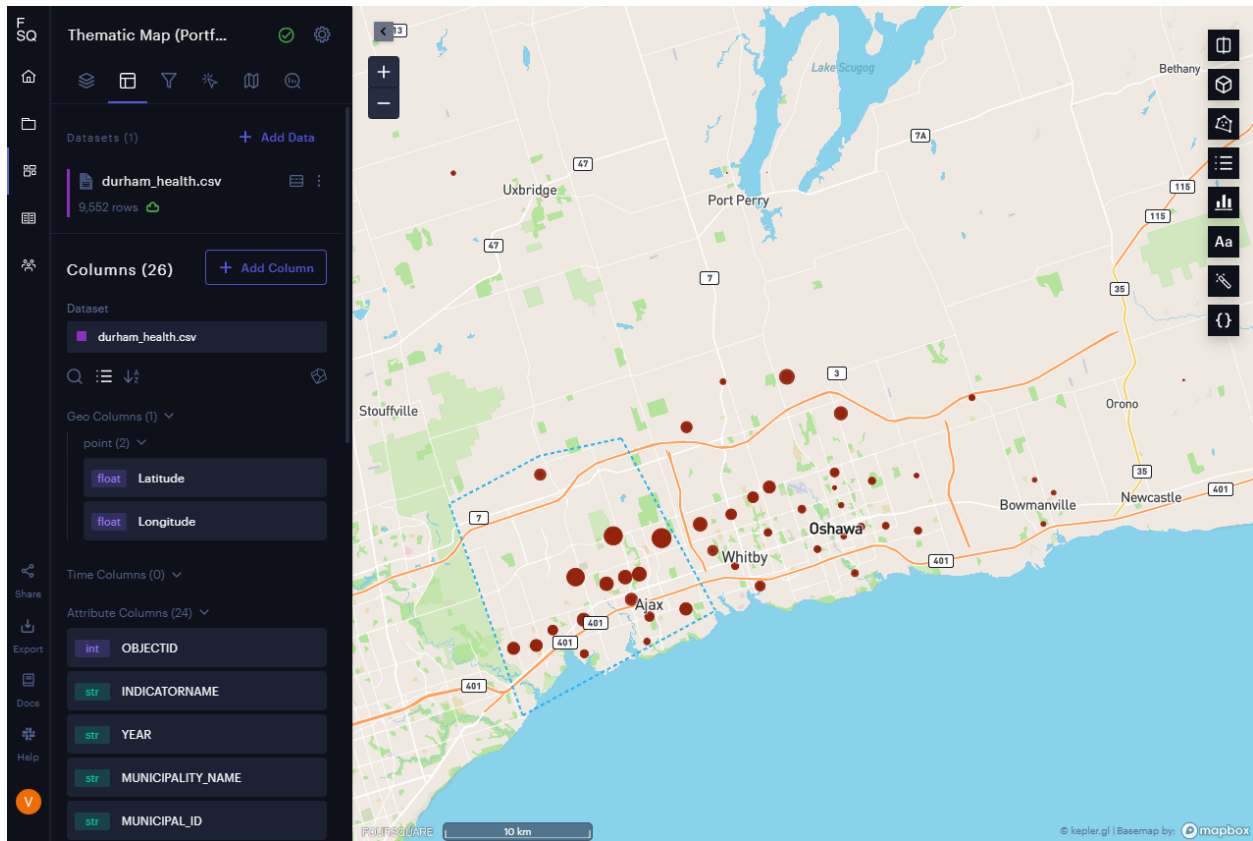
Appendix

Figure 1: Stat Summary

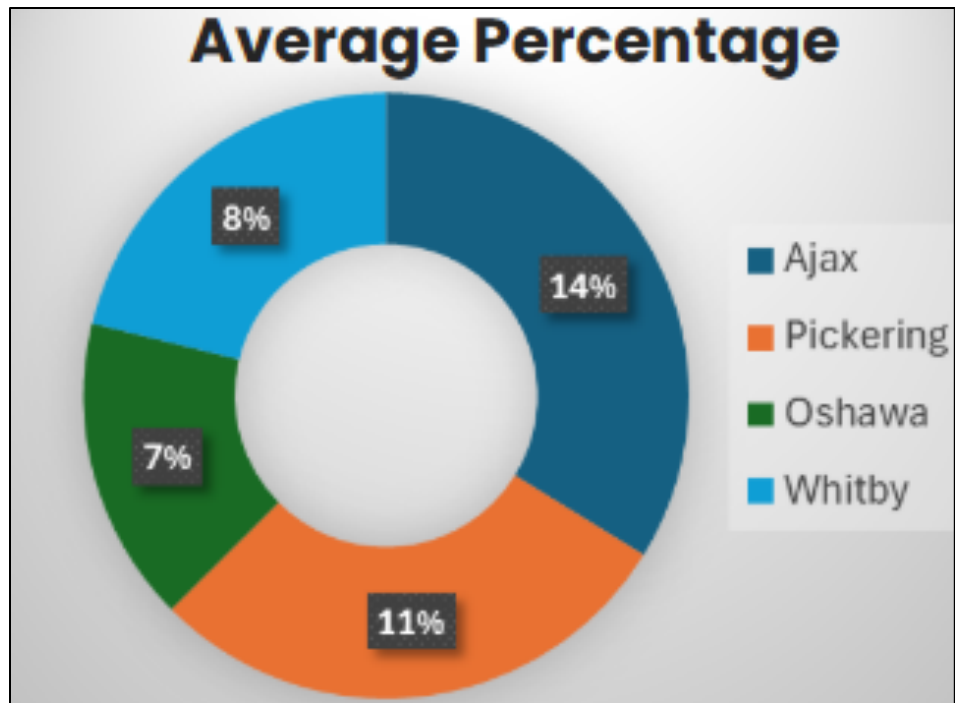*Figure 2: Thematic Map on Foursquare Studio*
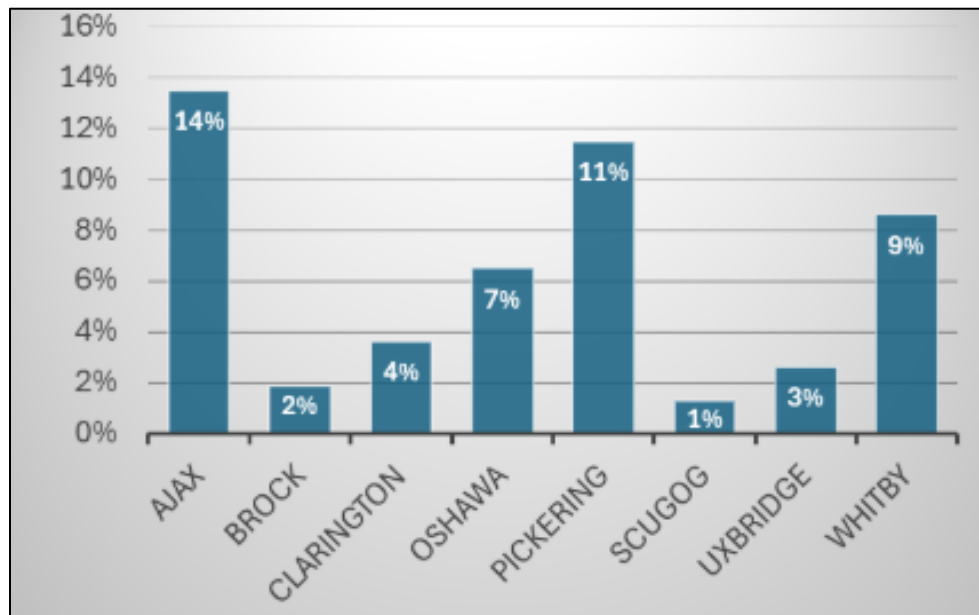
Figure 3: Doughnut Chart

Figure 4: Bar Chart

References

"Health Neighbourhoods Data Table." *Durham Open Data*. Regional Municipality of Durham, https://opendata.durham.ca/datasets/DurhamRegion::health-neighbourhoods-data-table