# Student Immigration to Canada Dashboard

Students' immigration insights from 2015 -2023

Final Project Comp :2256 Tableau

International students play a pivotal role in shaping Canada's rich and diverse educational environment. Renowned for its top-tier education system, cultural inclusivity, and hospitable atmosphere, Canada stands as an alluring hub for global learners. This analysis ventures into the realm of international student dynamics within Canada. Through the lens of this dataset, we gain valuable insights into the amalgamation of cultural, academic, and background diversity within Canadian education. Over the past eight years, significant shifts in immigration laws and educational policies have been witnessed, geared towards accommodating an increasing influx of international students. However, recent governmental pronouncements hint at forthcoming regulatory changes in student visas aimed at mitigating the prevailing housing crisis. Utilizing Power Query and visualizing outcomes through Tableau, we delve into trends spanning from 2015 to 2023, with a focus on variables such as province/territory, education level, gender distribution, and more. This exploration aims to unravel nuanced patterns and shed light on the impact of international student demographics on the Canadian education landscape.
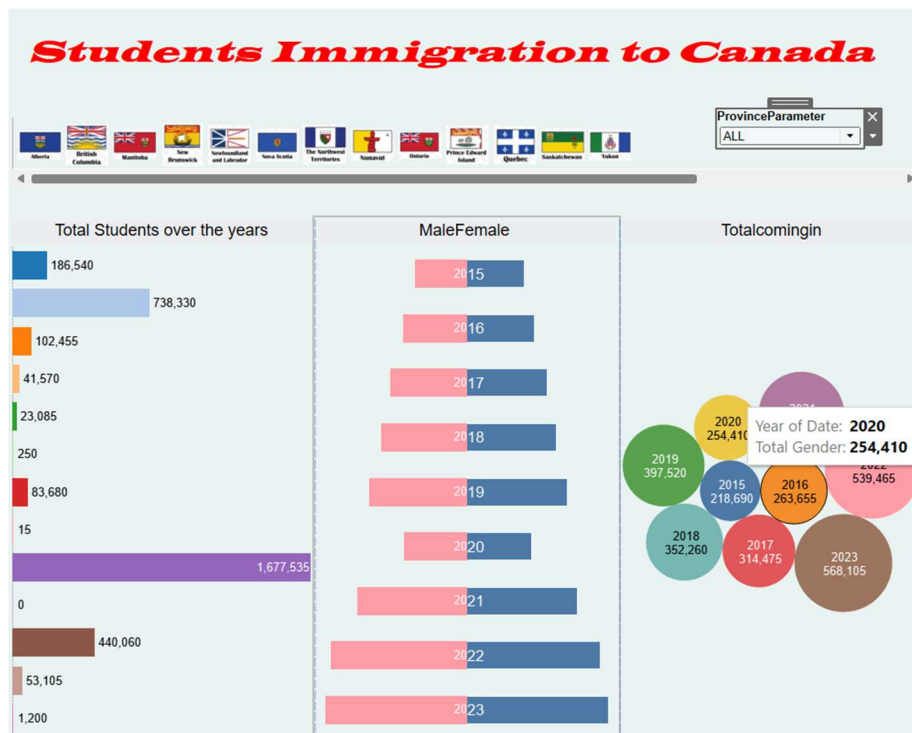
About the Dataset

The dataset you've obtained from Permanent Residents — Canada.ca Open Government Temporary Residents: Study Permit Holders – Monthly IRCC Updates comprises information on individuals immigrating to Canada under various categories spanning from 2015 to August 2023. Specifically, you've chosen two data files:

1. Canada – Study permit holders by study level, province/territory and year in which permit(s) became effective.
2. Canada - Study permit holders by province/territory, gender and year in which permit(s) became effective.

These datasets provide a comprehensive overview of study permit holders entering Canada, offering insights into their demographics, educational pursuits, and regional distribution.

The first dataset likely contains details regarding the study level (such as secondary or post-secondary education), province/territory of study, and the corresponding years when permits were issued. This information can be instrumental in understanding the educational preferences and geographic distribution of international students within Canada.

The second dataset likely focuses on the gender distribution of study permit holders across different provinces/territories and the corresponding years of permit issuance. By examining gender trends within the context of immigration, it becomes possible to discern any gender-specific patterns or disparities in study permit issuance and educational opportunities across regions.

ETL (Extract, Transform, Load)

For the ETL process, we initially gathered data on Immigration Category, Gender, study level (such as secondary or post-secondary education), and province/territory , along with the corresponding years, consolidating them into an Excel file.

Given the manageable size of the dataset, I opted for Excel to perform basic data transformations. Utilizing Power Query, I leveraged the shared "Date" field across all datasets to merge them, providing a comprehensive overview of Canada's immigration trends. Additionally, I addressed null values by substituting them with 0.

Considering Canada's 13 provinces, repeating transformations for each province proved cumbersome.

Province/Territory	Date	Secondary or less	Post Secondary	Other Studies	Education level not stated	Year	Female	Male	Another gender	Gender not stated	Total Gender
Alberta	2015-01-01	4135	8705	1855	10	2015	6905	7640	0	0	14545
Alberta	2016-01-01	3925	10390	2065	10	2016	7860	8340	0	0	16200
Alberta	2017-01-01	3895	10890	1960	5	2017	7975	8650	0	0	16625
Alberta	2018-01-01	3965	12925	1955	5	2018	8935	9795	0	0	18730
Alberta	2019-01-01	4610	14215	1715	25	2019	9815	10620	0	0	20435
Alberta	2020-01-01	3225	8880	825	0	2020	6130	6685	0	0	12815
Alberta	2021-01-01	4870	17755	1175	10	2021	11360	12365	0	0	23725
Alberta	2022-01-01	7225	20125	1285	5	2022	14110	14430	0	0	28540
Alberta	2023-01-01	11860	28635	1580	20	2023	17195	17730	0	0	34925
British Columbia	2015-01-01	17365	30260	9815	50	2015	27490	29260	0	0	56750
British Columbia	2016-01-01	19325	37495	9620	40	2016	32615	33030	0	0	65645
British Columbia	2017-01-01	20135	46030	11145	35	2017	37975	38400	0	0	76375
British Columbia	2018-01-01	19690	51615	11245	35	2018	40590	41025	0	0	81615
British Columbia	2019-01-01	20130	56780	10000	35	2019	43110	42960	0	0	86070
British Columbia	2020-01-01	13365	42365	3865	25	2020	29510	29490	0	0	59000
British Columbia	2021-01-01	20895	65495	8330	65	2021	48510	45490	0	0	94000
British Columbia	2022-01-01	24095	77975	9200	35	2022	57835	52500	10	0	110345
British Columbia	2023-01-01	27710	91835	7905	45	2023	54910	53610	10	0	108530
Manitoba	2015-01-01	1045	5210	730	5	2015	2845	4085	0	0	6930
Manitoba	2016-01-01	1235	6390	1000	0	2016	3550	5025	0	0	8575

I also utilized Tableau Pro for data cleaning and cross-referenced it with the cleaned data in Excel to ensure accuracy and consistency. By cross-referencing between Tableau and Excel, I ensured that the data integrity was maintained throughout the cleaning process.
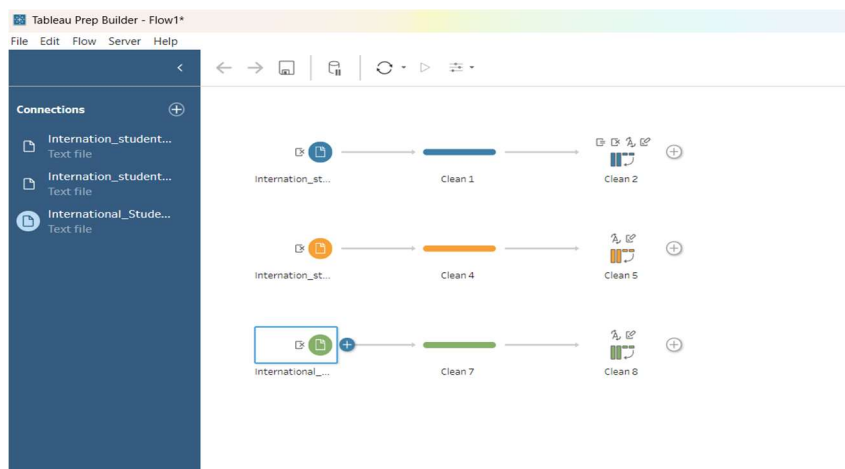
However, having completed these tasks, I successfully loaded the transformed data onto Tableau. This platform now enables us to conduct visual analyses, unveiling latent insights within the dataset.
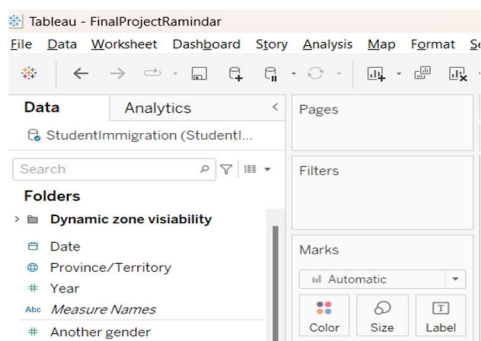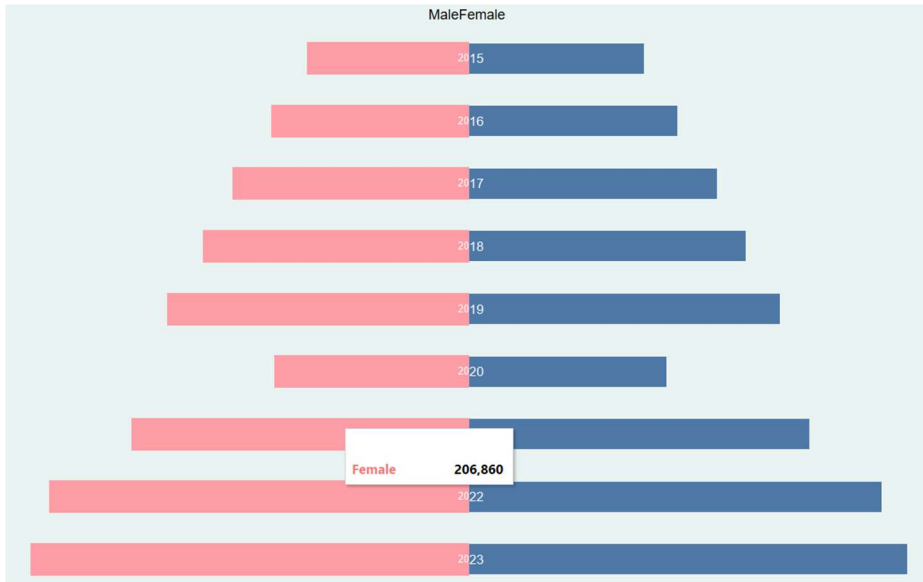
Visualization

Visualization of the data was conducted using Tableau, where I employed dynamic visualization techniques to seamlessly swap between sheets representing all 13 provinces on the dashboard. For each of the 13 provinces, I created three distinct sheets to provide comprehensive insights.


In the first sheet, the total number of students for each study level (such as secondary or post-secondary education) was displayed over an 8-year period. This visualization aimed to showcase the distribution of students across different educational levels over time.


The second sheet focused on analyzing the percentage of male and female students over the years. By examining gender-specific patterns, I aimed to identify any disparities in study permit issuance and educational opportunities between genders.

In the third sheet, the total number of students arriving each year was depicted, allowing for an analysis of the overall percentage increase in student enrollment over time. This visualization provided insights into the trends and fluctuations in student migration to Canada across the specified period.
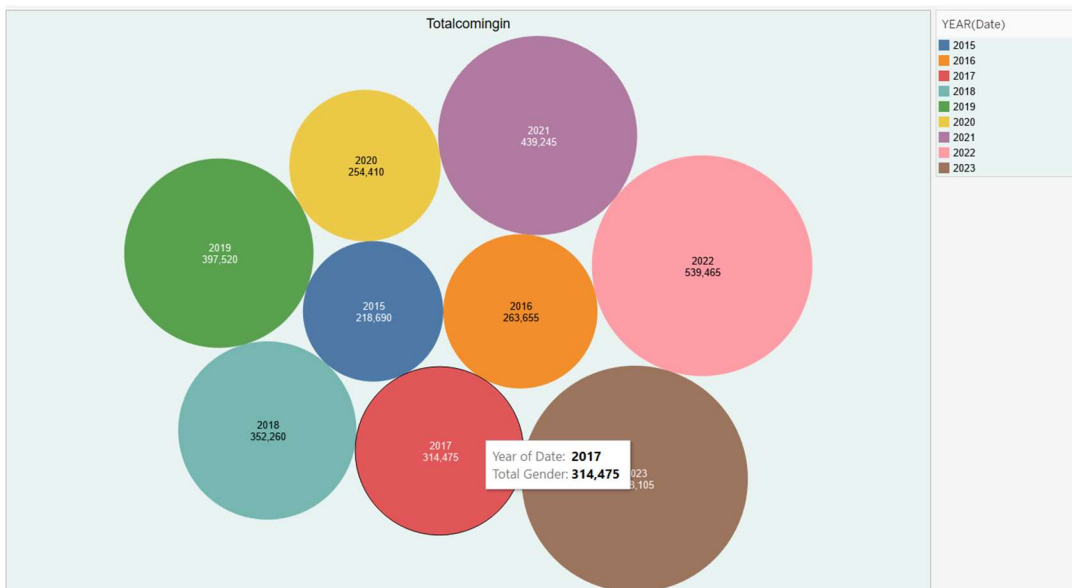
We will go through the British Columbia Student Immigration Dashboard
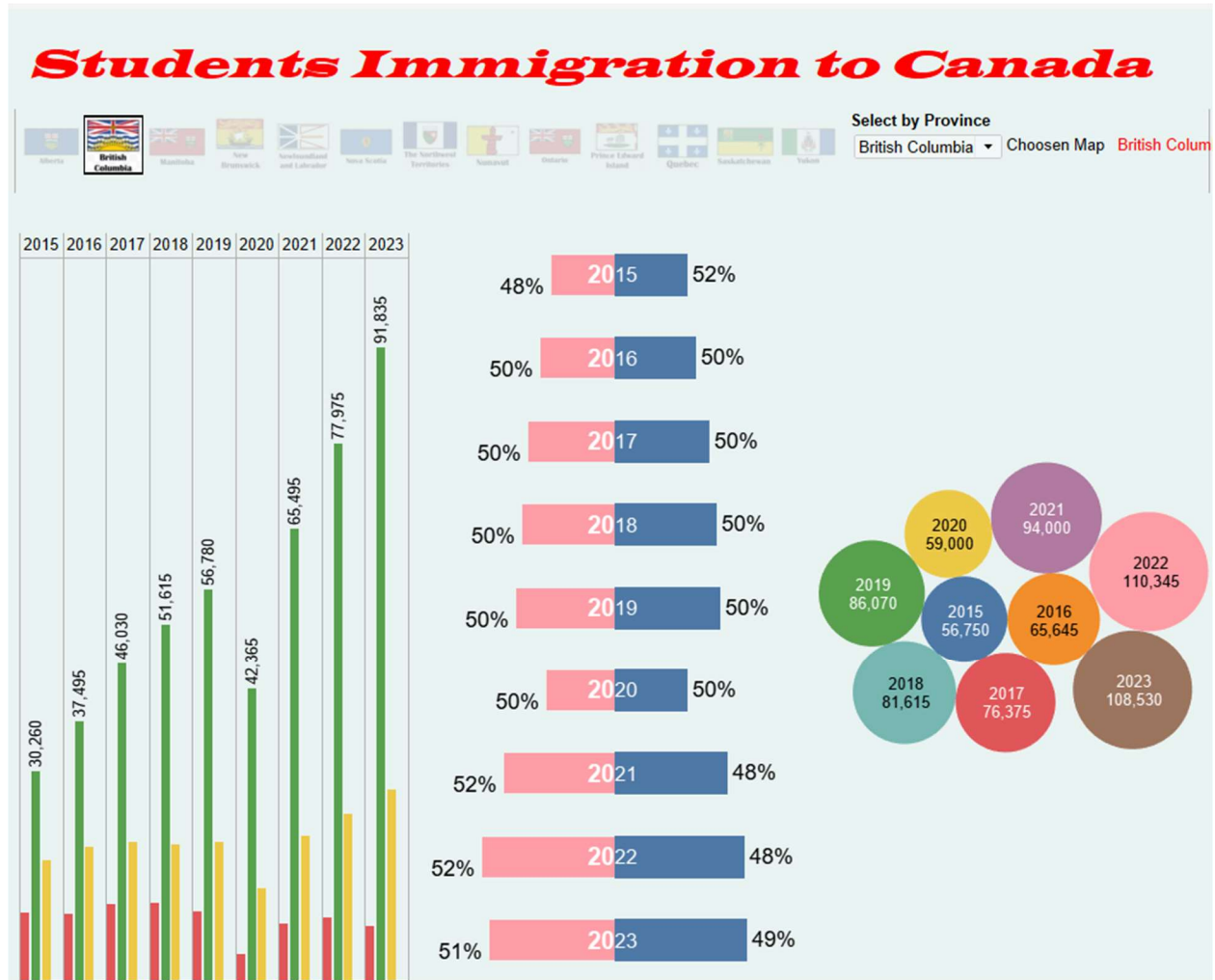
The main dashboard I am focusing on British Columbia, were I highlight four key sections integral to its functionality.

On the top of the dashboard, the map icon directs users to the selected province's specific data. The central visualization area encapsulates comprehensive information regarding students' immigration categories.

To the left, the bar chart illustrates the total number of students across various study levels (e.g., secondary, post-secondary, other) spanning from 2015 to 2023. Positioned in

the middle, a butterfly chart visualizes the gender ratio trends over the same period. Lastly, a bubble chart portrays the influx of students to Canada, facilitating analysis of the total student arrivals and percentage increase observed over the preceding eight years. Through these components, the dashboard provides insights into immigration patterns, educational trends, and gender representation within the British Columbia context.

Analysis:

I had many questions getting into the analysis but out of them, I have discussed 3 here.

Which study levels group is more likely to move to Canada?

According to our analysis, students with post-secondary education likely to move to Canada. Out of the total immigration count of 3,495,405, a significant majority, totaling 2,561,405, possessed post-secondary qualifications, constituting a notable ≈ 73.26% of the student immigration demographic. This preference could potentially because:

- Canada is renowned for its high-quality education system, with many prestigious universities and colleges offering a wide range of programs and opportunities for further education and research.
- Canada's immigration policies, such as the Post-Graduation Work Permit Program (PGWPP), allow international students who have completed their studies in Canada to gain valuable work experience and potentially transition to permanent residency, making it an appealing option for students with post-secondary education.

Which year did the highest number of immigrants come to Canada and what were the top 3 province choices for the immigrants?

The year 2023 marked the highest influx of immigrants to Canada, totaling approximately half a million individuals, a notable surge compared to other years, with the exception of a few provinces. This sudden spike notably commenced in 2020. Examining the top three provinces:

Ontario experienced a significant increase in student study permit issued from 119,580 in 2020 to 300,745 in 2023, showcasing a notable spike of ≈ 151.64%.

British Columbia, the issuance of student study permits surged from 59,000 in 2020 to 108,530 in 2023, indicating a similar pattern of substantial spike of ≈83.95.

Quebec the issuance of student study permits surged from 42355 in 2020 to 69,000 in 2023, indicating a similar pattern of substantial spike of ≈62.87%.
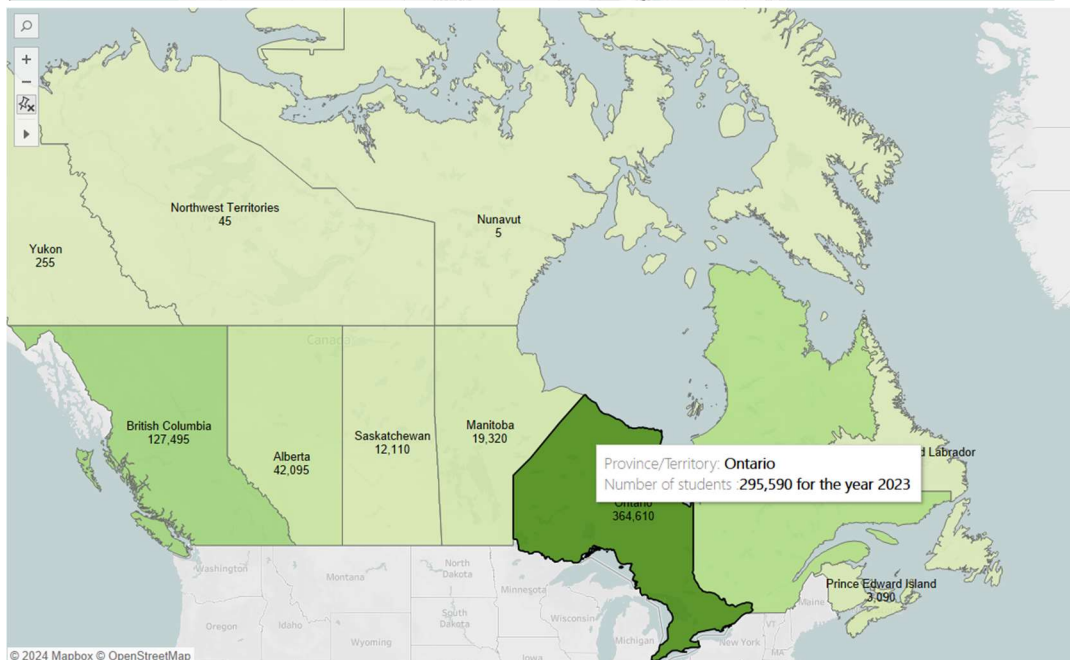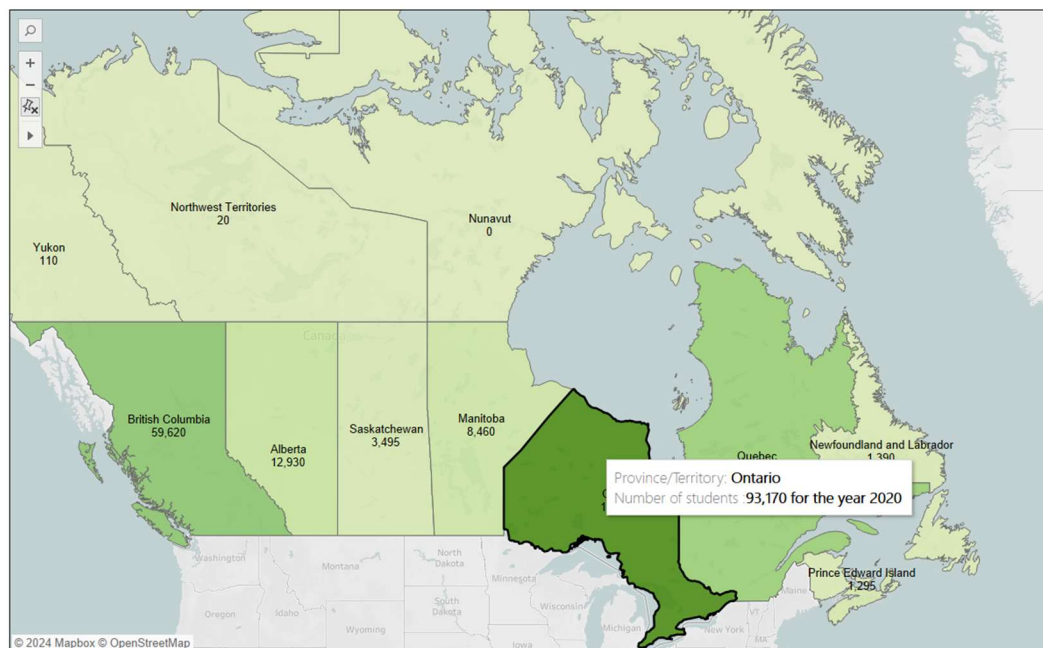
How much difference is there in the gender ratio among the immigrants? Does it remain consistent?

The findings from this analysis are intriguing and revealing. At the outset of the investigation, I had anticipated a noticeable disparity in the male-to-female ratio.

However, the data unveiled a striking consistency over the eight-year period, with merely a 0.86% variance between male and female immigrants.

Conclusion

Engaging in this project was both enjoyable and personally relevant, as I delved into topics that resonate with me and offer practical benefits to myself and others. While the project provided enjoyment, it also presented significant challenges. I navigated a steep learning curve, acquiring new skills in Tableau, dashboard embedding, dynamic visuality, parameter usage, and visualization principles. Despite the challenges, this project served as a source of motivation, empowering me to undertake future endeavors aimed at benefiting a broader audience. Moving forward, I am committed to maintaining the dashboard's relevance by regularly updating it with the latest dataset, ensuring that users have access to the most current visualizations of the data.