DATA INSIGHTERS
HACKATHON REPORT

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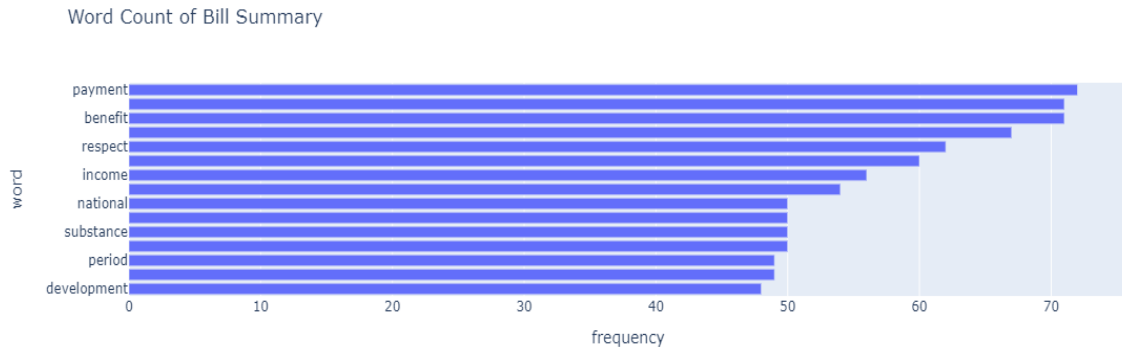## Table of contents

What do people care about?

1. Bill summary for federal legislation using NLP text analysis (Tree Plot)
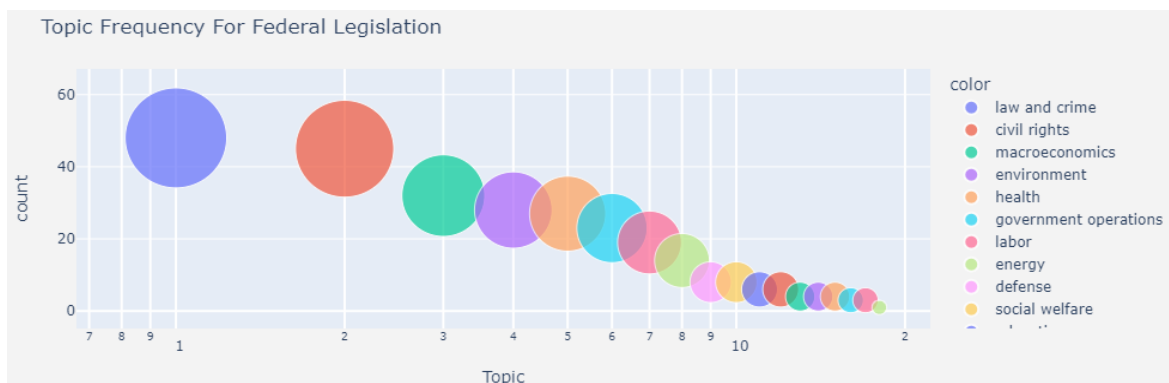
Word Treemap of Bill Summary

Word Count of Bill Summary

- **Description:** The above tree map shows the leading bill topics in the federal legislation, basically the bill summary. Each of the squares represents the frequency of that bill topic in the whole dataset. Each of the bill topics is represented using different colours in the tree map.
- We have also used a bill summary's horizontal bar chart, that is representing the frequency of each bill topic raised during the federal legislation. Here, x-axis represents the frequency and y-axis represents the bill topic.
- **Inference:** Since there is a high frequency of payment, benefit, income in the data, we can say that the Canadian government is focusing more to improve its financial status and economy.
- Also, by looking at the treemap, we can surely say that the legislators are not giving much importance to security and defense of the country. The reason can be because of strong defence which has been developed over the past couple of years as far the canadian defence equipments are concerned
- There has also not been much talk about foreign affairs,trade relations with the other neighbouring countries, educational and technology sector which can be because of the main focus on bringing the economy back on the track post covid, as we can see from the treemap, health's square has a notably big size.

2. Count of times each topic is mentioned in federal legislation (Scatter Plot)

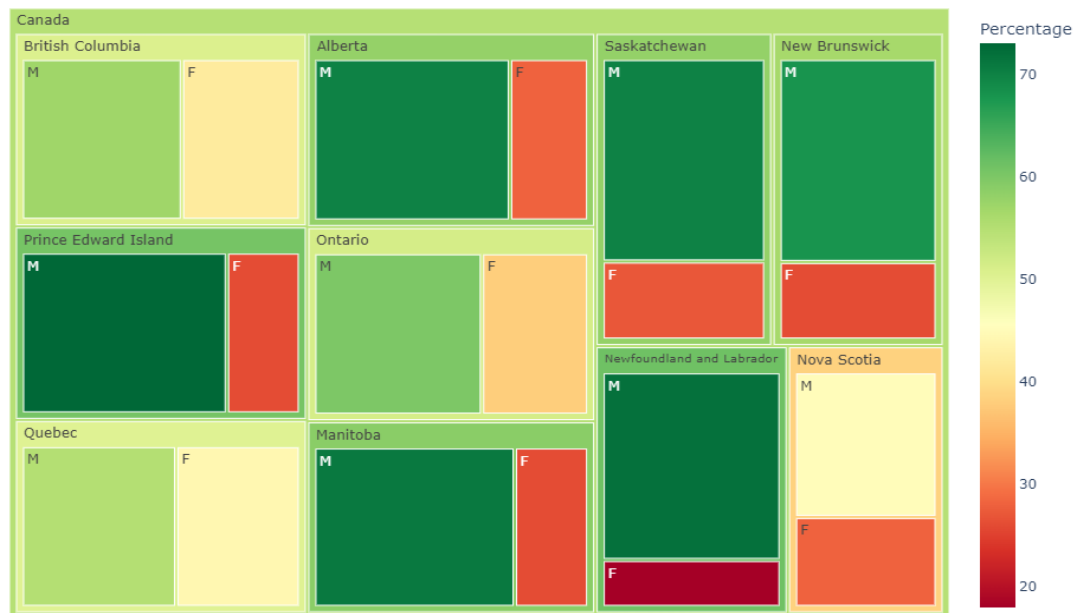Topic Frequency For Federal Legislation

- **Description:** The scatter plot shows the trend in bill topics by representing each of them with scattered circles, with each circle having different size and colour depending on its frequency. There is also a legend that tells which color is associated with which bill topic.
- **Inference:** We can see from the visualization that the much talked topic was related to law and order and crime. This is highly possible as due to covid era, many people have lost jobs or their income has reduced drastically which could have increased the crime rates and could be a cause of concern for many people. That is why, they would have brought some bills related to uplifting the economy which will benefit the common citizen.
- We can also see that among the least related topics were related to government operations, labour strategies, energy and social welfare as that were least on the radar seeing the times the whole country and the world is experiencing.

Gender Equality

3. Percentage of Each province's male & female Legislators in Canada (Tree Plot)

Percentage of Males & Females participating in Division Legislation for all provinces of Canada

- **Description:** The above plot represents the percentage of males and females participation in all provinces of Canada, namely Alberta, British Columbia, Ontario, Quebec, Saskatchewan, New Brunswick, Nova Scotia, Manitoba, Prince Edward Island, and Newfoundland and Labrador.
- The color legend on the right side describes the number of participation where green means more participation and red means less participation.
- **Inference:** We can infer that there is a balanced participation among males and females in British Columbia and Quebec. Whereas, there is a huge difference of around 54% between the percentages in Newfoundland and Labrador. There is
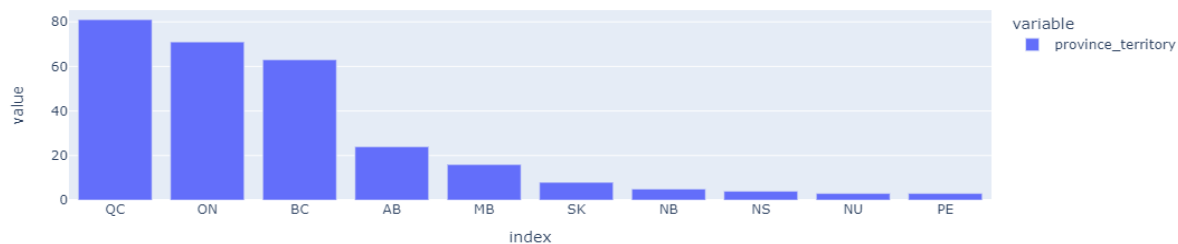
also a little need for improvement in female participation in all other provinces. However, overall, it can be seen that males have more dominance (mostly green color) in participation in most of the provinces above as compared to females (mostly red color).

- This suggests a recommendation to be made to increase the number of female participation in these provinces.

Regional legislative influence

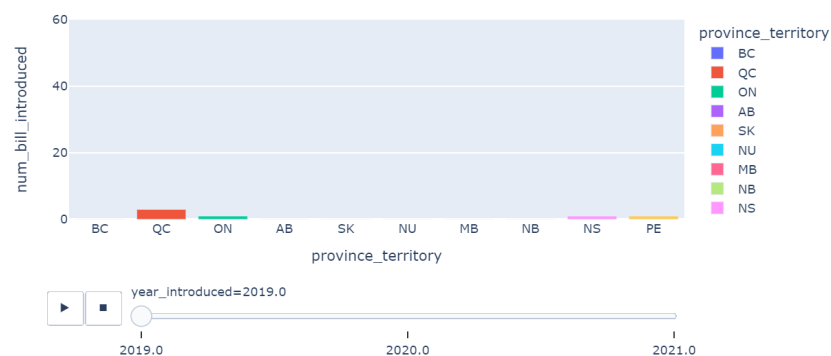## 4. Number of legislators from each province (Bar Plot)

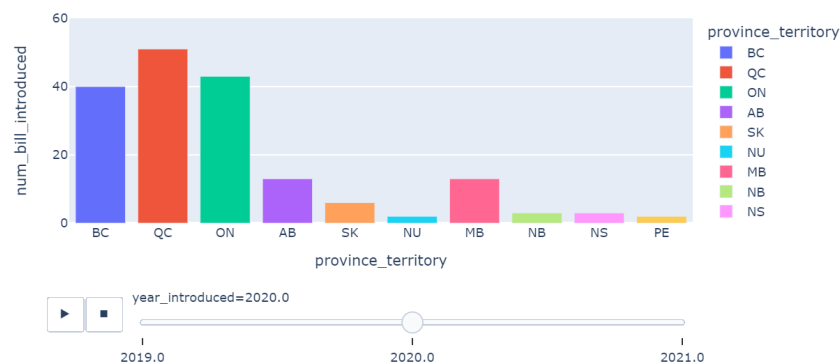Province Participation in Federal Legislation:

- **Description:** Comparison between number of federal legislators participants in each province, where x-axis represents all of the provinces and y-axis represents the number of participants. The height of each bar gives us an idea about the number of participants in each province.
- **Inference:** It is clearly evident that the number of participants is highest in Quebec, and lowest in Prince Edward Island.
- One of the reasons for the low participation in Prince Edward Island could be the low population. Quebec has a good control over legislation in terms of participants.
- We can also say that, despite having more population than Quebec, Ontario still has fewer participants.

- **5. Number of bills introduced by each province over the years 2019-2021 (Bar Plot)**
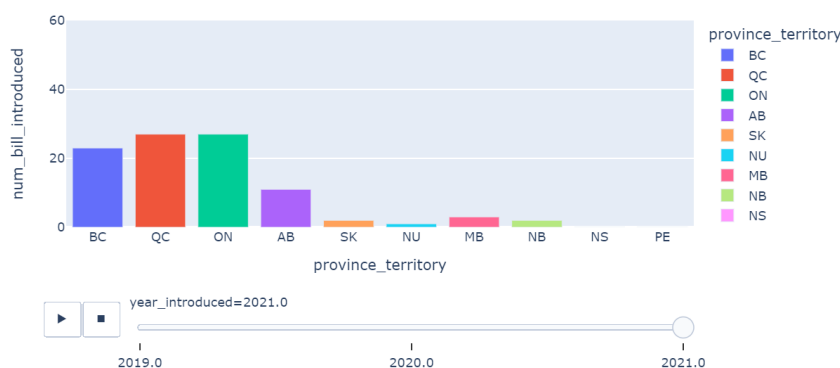

Number of Bill Introduced per Province for 2019-2021

Number of Bill Introduced per Province for 2019-2021

Number of Bill Introduced per Province for 2019-2021

- **Description**: This animated bar plot shows the number of bills introduced by each province. If the play button is pressed, the bar chart will animate the growth in the number of bills introduced from 2019 to 2021. We can also look at the bar plot for each year by selecting it manually.
- **Inference**: There is a dramatic change in the number of bills introduced from 2019 to 2020. This could be because in 2020, because of a lockdown due to a pandemic, many of the bills got piled up.
- Another reason for sudden hike in bills from 2019 to 2020, it can be suspected that the increase in the number of bills introduced was due to the COVID-19 pandemic as one of the most frequently introduced topics (from the previous scatter plot and tree plot) in the bills are related to "health". Then as we move to 2021, the number of bills slightly decreases. Not only the health issues, but other side-effects caused due to pandemic and lockdown such as unemployment, increasing crimes, etc.
- When we slide into 2021, we can see that the number of bills have decreased significantly. One of the reasons could be the second wave of pandemic, which caused another lockdown. Another reason can be that the federal govt was much focussed on vaccination strategy and properly supervising that it is rolled out to people without any hindrance and problems.