REPORT

Project: **"Alberta Housing Price Analysis"**

Course name: **Data Analysis Application**

Context:

To offer an overview of housing prices in Canada and Alberta, we gathered data from reputable sources such as open.canada.ca and www150.statcan.gc.ca. Data processing was conducted using Excel and PowerBI, with GitHub serving as the data source for storage.

Project Summary:

In this project, we have finished our key objectives which are:

- Provide a comprehensive overview of housing prices in all provinces of Canada.
- Identify the trends in housing prices in Alberta and understand the reasons behind these trends.

And also made the prediction of housing price trend in the year 2024.

1. **Getting the data (3 marks)**

   Identifying essential data and search for the data on the internet was taking time. We not only collected data at the beginning of the project but also tried to expand the dataset during the process. Finally, we got nine tables:

   - Canada monthly housing price index: open.canada.ca
   - Canda monthly housing stock: www150.statcan.gc.ca
   - Alberta CPI index: www150.statcan.gc.ca
   - Interprovincial migrants: open.canada.ca
   - Study permit holders: open.canada.ca
   - Work permit holders: open.canda.ca
   - Canada population: www150.statcan.gc.ca
   - 5-year fixed term mortgage rate: www150.statcan.gc.ca
   - Average weekly Earnings: open.alberta.ca

2. **Data cleaning and processing (3 marks)**

   Since the dataset was collected from different sources, it is needed to clean and create the relationship between the tables. Data was preliminarily cleaned before being uploaded to Github repository. Then, data was mainly processed in PowerBI. We handled missing data, data transformation, column selection and created 2 new dimension tables which are Province table and Date table. The final data schema is star schema in which multiple fact tables share dimension table.
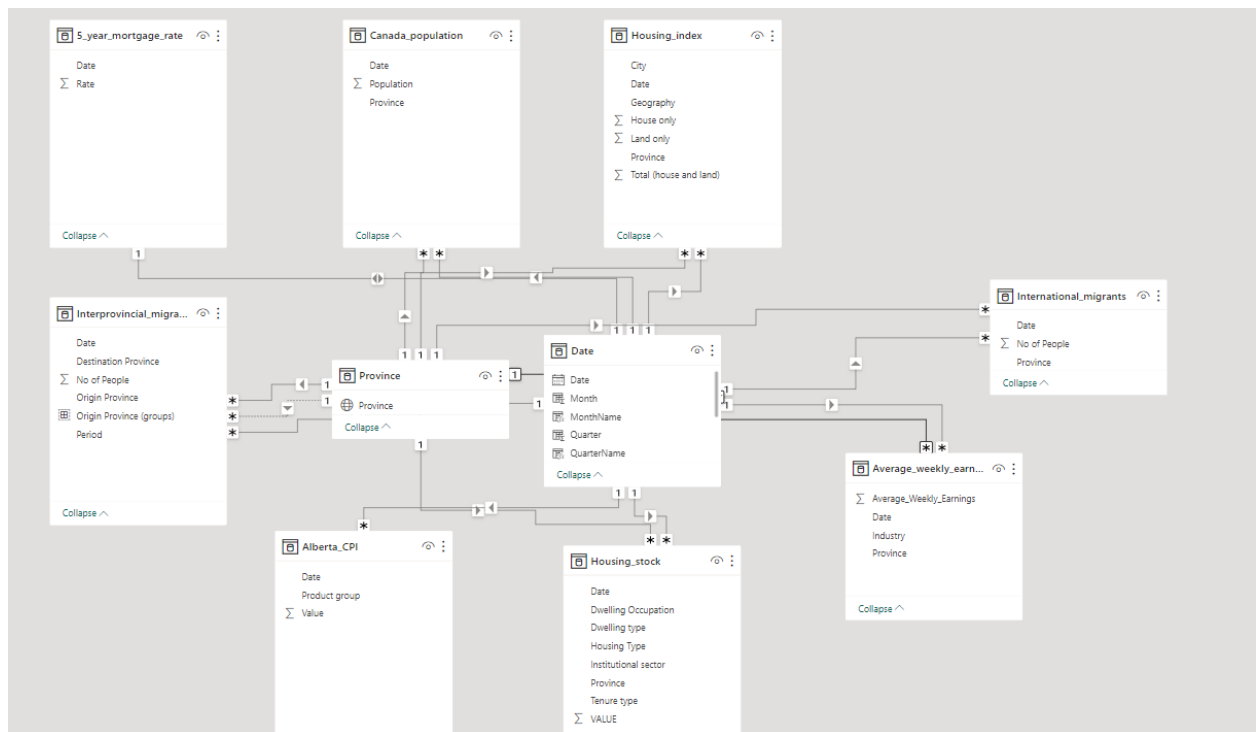
3. Data visualization (5 marks)

We have created a huge number of visuals to explore the dataset and understand the patterns. Choosing the suitable visuals, set of colors which can help to deliver our idea to audiences is the biggest challenge. We were planning to use Python for advanced analysis techniques; however, the dataset is aggregated data and all about the time series data, Python is not necessary.

The final dashboard can be found here: app.powerbi.com

Key findings:

1. Housing price in Canda increased sharply from 2019 to 2022 and then decreased in 2023.
2. Due to the exorbitant cost of housing in major cities, there has been a noticeable shift of people relocating to smaller cities. This trend has impacted the housing market in 2023. While, in previous years, the highest rate of housing price changes was observed in the largest provinces, the current year has seen the highest rate recorded in smaller provinces, including Newfoundland and Labrador, Quebec, Alberta, Prince Edward Island.
3. The housing prices in Alberta experienced a decline from 2015 to 2020 but saw a significant rise starting in 2021. In 2023, despite the overall downward trend in Canada, housing prices continued to increase in Alberta, indicating a seller's market.

4. The primary factor contributing to this upswing is the influx of individuals from other provinces into Alberta, creating a heightened demand for housing. The low interest rates in 2021 facilitated home-buying activities, whereas the higher interest rates in 2022 and 2023 posed obstacles to the further escalation of housing prices.

5. Housing price in Alberta is predicted to recover and experience growth again in the fourth quarter of 2023 and in the year 2024. This projection follows a downturn observed in the fourth quarter of 2022, and the current period is characterized by a high housing affordability.

Citations:

- open.canada.ca
- www150.statcan.gc.ca