



## **General Sir John Kotelawala Defence University**

Faculty of Management, Social Sciences & Humanities,  
Department of Languages,  
BSc. In Applied Data Science & Communication

1<sup>st</sup> Year: 2<sup>nd</sup> Semester

SQL for Data Science – LB 1224

Assignment 03

Lecturer: Dr. Charith De Silva

## Task 02

# **How to find a Job in Canada as an Immigrant**

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# Introduction

As a way of solving short-term labor deficit problems as well as addressing broader economic or socio-cultural goals enjoyed within Canada, two important pathways for non-Canadians to work in the country are the Temporary Foreign Worker Program (TFWP) and the International Mobility Program (IMP). Within the context of the employment-based immigration programs, the IMP provides or facilitates employment in areas that are of interest to Canada without sending an LMI or SLMI, while the TFWP does not, the companies employing the program do not have to meet the requirement. Canada has high demand for workers in the technology sector, which offers innovative growth and development opportunities, as these programs allow workers to network, gain global exposure, and possibly settle as permanent residents.

The pupil will be using case with dozens of data in relation to Immigration, Refugees and Citizenship Canada (IRCC) and other programs specific datasets within the Power BI and with the DAX and SQL Server integration (Data Discovery) and will evaluate the labor market demands and immigration trends and its socioeconomic impact. And the goal is for students to have a better understanding of the role foreign workers play in Canada's ever evolving labor market by visualizing those databases and looking at how immigration trends shift with changes in industry demand, legislative changes and world events.



# Exploration of Dataset

## Review of the Dataset

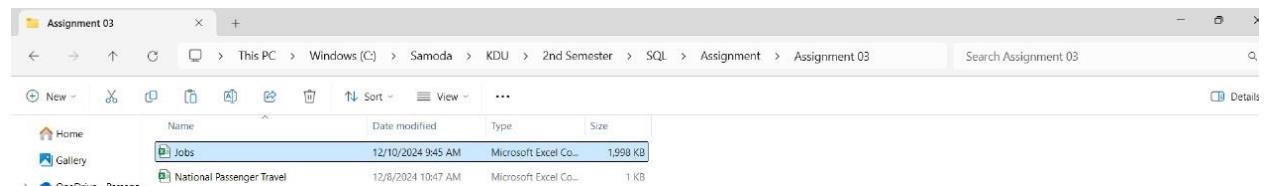
The work permit holders, under Canada's Temporary Foreign Worker Program (TFWP) and International Mobility Program (IMP) are updated on a monthly basis. Some key observations include trends in permit issuance, demographics such as age, gender, or nationality and the sectoral distribution of employment. It gives an idea of demand in the labor market and the patterns of incoming migrants.

In this regard, a thematic sort may target progress over the years, progress by sectors/places of the universe, and aspects on policy. The permit data trend could be shown better in an effective manner by data visualization tools.

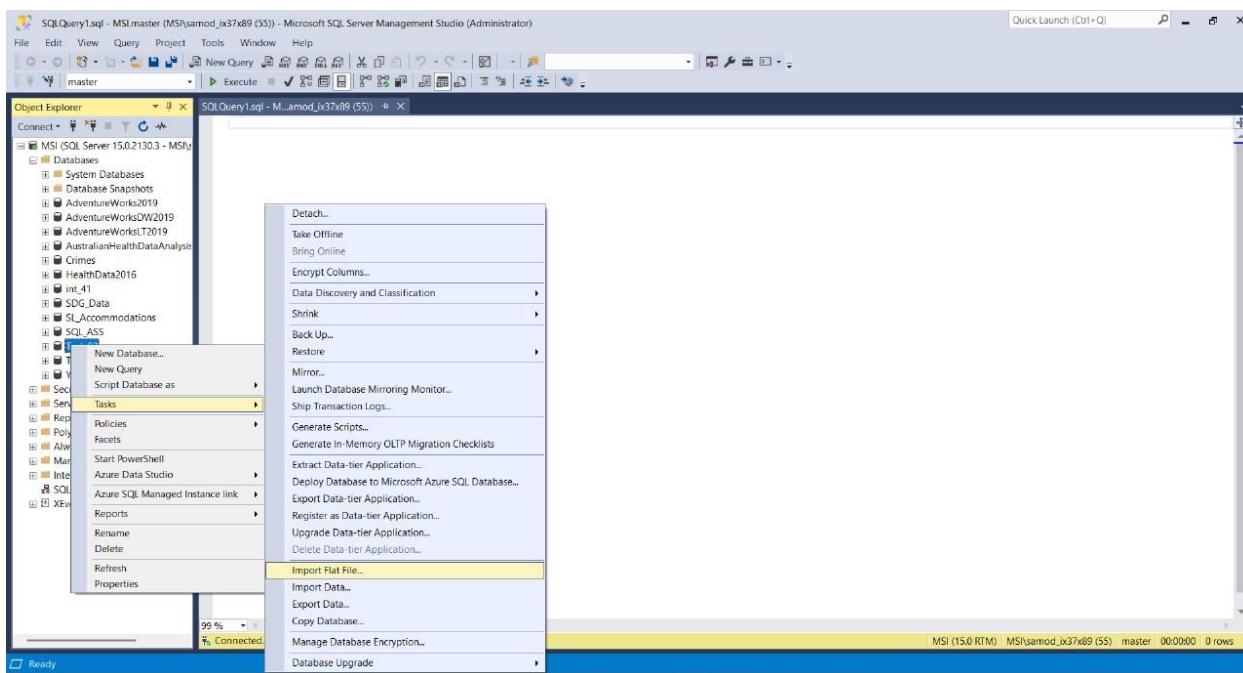
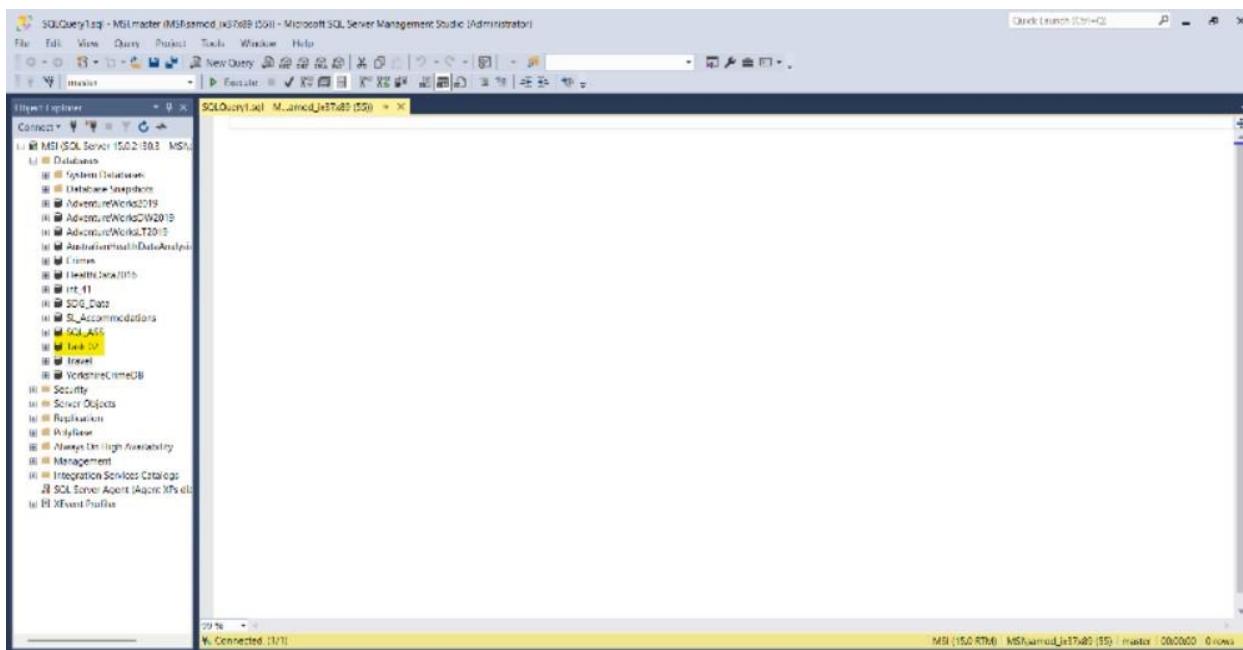
You can find the database/resources

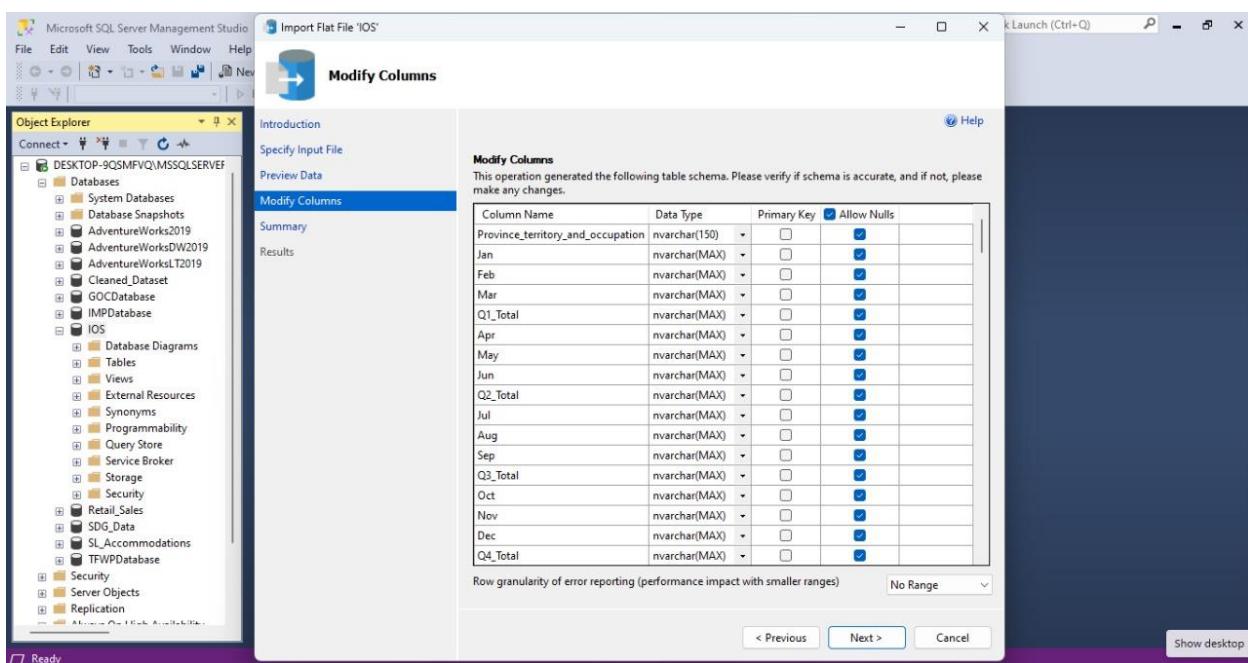
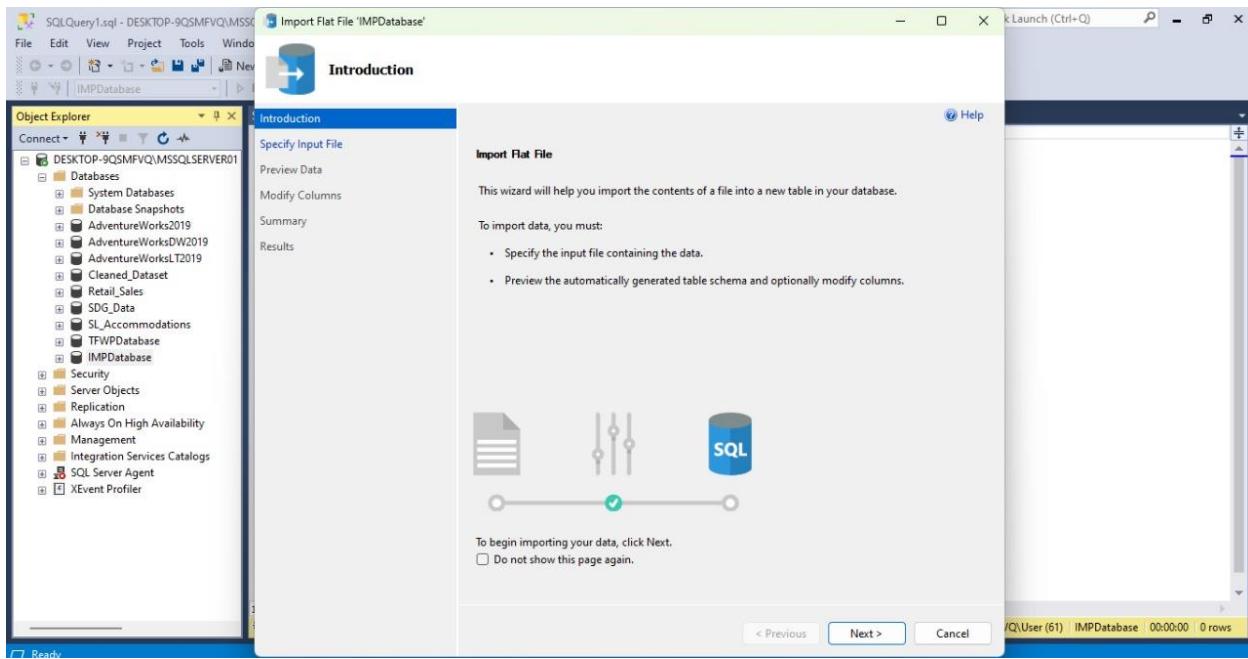
<https://open.canada.ca/data/en/dataset/360024f2-17e9-4558-bfc1-3616485d65b9>

## Importing Data into SQL Server



## Create the database





## Create view table

SQLQuery1.sql - MSI.Task 02 (MSI\simod\_je37x89 (53)) - Microsoft SQL Server Management Studio (Administrator)

File Edit View Query Project Tools Window Help

New Query Save All Open All Close All Refresh

Object Explorer Task 02

SQLQuery1.sql - M...\_simod\_je37x89 (53) - x

USE [Task 02]

```
UPDATE Jobs
SET "Jan" = NULLIF("Jan", '-..'),
    "Feb" = NULLIF("Feb", '-..'),
    "Mar" = NULLIF("Mar", '-..'),
    "Q1_Total" = NULLIF("Q1_Total", '-..'),
    "Apr" = NULLIF("Apr", '-..'),
    "May" = NULLIF("May", '-..'),
    "Jun" = NULLIF("Jun", '-..'),
    "Q2_Total" = NULLIF("Q2_Total", '-..'),
    "Jul" = NULLIF("Jul", '-..'),
    "2024_Total" = NULLIF("2024_Total", '-..');

99 % 99 %
# Messages
(0 rows affected)
Completion time: 2024-12-12 10:50:09.01:08.3622914+05:00

# Object Explorer
# Task 02
# SQLQuery1.sql - M..._simod_je37x89 (53)
# Query executed successfully.
```

- Trim & convert text columns to lowercase

The screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface. The title bar indicates the connection is to 'MSI\Task 02 (MSI\usermod\_ix37x89 (53)) - Microsoft SQL Server Management Studio (Administrator)'. The main window has two tabs open: 'SQLQuery2.sql - M...amod\_ix37x89 (67)' and 'SQLQuery1.sql - M...amod\_ix37x89 (53)\*'. The left pane is the Object Explorer, showing the database structure for 'MSI Server 15.0.21303-M'. The right pane displays the results of an UPDATE query:

```
UPDATE Jobs
SET "Province_territory_and_occupation" = TRIM(LOWER("Province_territory_and_occupation" ));
```

The status bar at the bottom shows '99 %' completion, '0 rows affected', and 'Completion time: 2024-12-10T09:47:87.181Z|109+08:00'. A message box in the center says 'Query executed successfully.'

- Filling missing values with default

```

--UPDATE Jobs
SET "Jan" = REPLACE("Jan", ',', '') ,
"Feb" = REPLACE("Feb", ',', '') ,
"Mar" = REPLACE("Mar", ',', '') ,
"_2024_Total" = REPLACE("_2024_Total", ',', '');

--UPDATE Jobs
SET "Apr9" = TRY_CAST(REPLACE("Jan", ',', '') AS INT),
"Feb" = TRY_CAST(REPLACE("Feb", ',', '') AS INT),
"Mar" = TRY_CAST(REPLACE("Mar", ',', '') AS INT),
"_2024_Total" = TRY_CAST(REPLACE("_2024_Total", ',', '') AS INT);

--UPDATE Jobs
SET "Jan" = COALESCE(TRY_CAST(REPLACE("Jan", ',', '') AS INT), 0),
"Feb" = COALESCE(TRY_CAST(REPLACE("Feb", ',', '') AS INT), 0),
"Mar" = COALESCE(TRY_CAST(REPLACE("Mar", ',', '') AS INT), 0),
"_2024_Total" = COALESCE(TRY_CAST(REPLACE("_2024_Total", ',', '') AS INT), 0);

```

Results grid Messages

	Jan	Feb	Mar	_2024_Total
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	5
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	5	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0

Query executed successfully.

```

--UPDATE Jobs
SET "Jan" = TRY_CAST(REPLACE("Jan", ',', '') AS INT),
"Feb" = TRY_CAST(REPLACE("Feb", ',', '') AS INT),
"Mar" = TRY_CAST(REPLACE("Mar", ',', '') AS INT),
"_2024_Total" = TRY_CAST(REPLACE("_2024_Total", ',', '') AS INT);

--UPDATE Jobs
SET "Jan" = COALESCE(TRY_CAST(REPLACE("Jan", ',', '') AS INT), 0),
"Feb" = COALESCE(TRY_CAST(REPLACE("Feb", ',', '') AS INT), 0),
"Mar" = COALESCE(TRY_CAST(REPLACE("Mar", ',', '') AS INT), 0),
"_2024_Total" = COALESCE(TRY_CAST(REPLACE("_2024_Total", ',', '') AS INT), 0);

--SELECT "Jan", "Feb", "Mar", "_2024_Total"
FROM Jobs;

```

Results grid Messages

	Jan	Feb	Mar	_2024_Total
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	5
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	5	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0

Query executed successfully.

The screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface. The title bar indicates the connection is to 'MSI.Task 02 (MSIfsamod\_ix37v89 (53))' as 'Administrator'. The main window has two tabs open: 'SQLQuery1.sql - M...amod\_ix37v89 (67)' and 'SQLQuery1.sql - M...amod\_ix37v89 (53)\*'. The left pane is the Object Explorer, showing a tree structure of database objects. The right pane displays the following T-SQL code:

```
UPDATE Jobs
SET "Jan" = COALESCE(TRY_CAST(REPLACE("Jan", ',', '') AS INT), 0),
    "Feb" = COALESCE(TRY_CAST(REPLACE("Feb", ',', '') AS INT), 0),
    "Mar" = COALESCE(TRY_CAST(REPLACE("Mar", ',', '') AS INT), 0),
    "_2024_Total" = COALESCE(TRY_CAST(REPLACE("_2024_Total", ',', '') AS INT), 0);

SELECT "Jan", "Feb", "Mar", "_2024_Total"
FROM Jobs;

UPDATE Jobs
SET "Jan" = COALESCE("Jan", 0),
    "Feb" = COALESCE("Feb", 0),
    "Mar" = COALESCE("Mar", 0),
    "_2024_Total" = COALESCE("_2024_Total", 0);

ALTER TABLE Jobs
ADD Jan10 nvarchar(max);
ADD Feb10 nvarchar(max);
ADD Mar10 nvarchar(max);
ADD Q1_Total10 nvarchar(max);
ADD Apr10 nvarchar(max);
ADD May10 nvarchar(max);
ADD Jun10 nvarchar(max);
ADD Q2_Total10 nvarchar(max);
ADD Jul10 nvarchar(max);
ADD Aug10 nvarchar(max);
ADD Sep10 nvarchar(max);
ADD Q3_Total10 nvarchar(max);
ADD Oct10 nvarchar(max);
ADD Nov10 nvarchar(max);
ADD Dec10 nvarchar(max);
ALTER TABLE Jobs
ADD Q4_Total10 nvarchar(max);
ADD _2023_Total nvarchar(max);
ADD Jen10 nvarchar(max);
ADD Feb10 nvarchar(max);
ADD Mar10 nvarchar(max);
ADD Q1_Total10 nvarchar(max);
ADD Apr10 nvarchar(max);
ADD May10 nvarchar(max);
ADD Jun10 nvarchar(max);
ADD Q2_Total10 nvarchar(max);
ADD Jul10 nvarchar(max);
ADD Aug10 nvarchar(max);
ADD Sep10 nvarchar(max);
ADD Q3_Total10 nvarchar(max);
ADD _2024_Total nvarchar(max);
```

The status bar at the bottom shows '99 %' completion, '99 rows affected', and 'Completion time: 2024-12-10T10:07:27.4429348+08:00'. A message bar at the bottom right says 'Query executed successfully.'

- Rename confusing columns

The screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface. The title bar reads "SQLQuery1.sql - MSI\_Task\_02 (MSI\sammod\_ix37x89 (53)) - Microsoft SQL Server Management Studio (Administrator)". The left pane is the Object Explorer, displaying a tree view of database objects including tables like Sep7, Q3\_Total7, Qc7, Nov7, Dec7, Q4\_Total7, and various monthly total tables from Jan8 to Aug8. The right pane contains two query windows. The top window, titled "SQLQuery2.sql - M...ammod\_ix37x89 (67)", shows the command: "EXEC sp\_rename 'dbo.Jobs[\_2024\_Total1]', 'Total\_2024', 'COLUMN';". The bottom window, titled "SQLQuery1.sql - M...ammod\_ix37x89 (53)\*", shows the message: "Caution: Changing any part of an object name could break scripts and stored procedures." Below this message is the completion time: "Completion time: 2024-12-10T10:13:84.9678014+09:00". At the bottom of the screen, a status bar indicates "99 %", "Query executed successfully.", and performance metrics: "MSI (15.0 RTM) MSI\ammod\_ix37x89 (53) Task 02 00:00:00 0 rows".

- Remove Unnecessary Column

```

SQLQuery1.sql - MSI.Task 02 (MSI\samod_ix37x89 (53)) - Microsoft SQL Server Management Studio (Administrator)
File Edit View Query Project Tools Window Help
Task 02 Execute New Query Object Explorer Task 02
Object Explorer
Connect SQLQuery2.sql - M...amod_ix37x89 (67) SQLQuery1.sql - M...amod_ix37x89 (53) X
SELECT "Jan", "Feb", "Mar", "_2024_Total"
FROM Jobs;

UPDATE Jobs
SET "Jan" = COALESCE(TRY_CAST(REPLACE("_2024_Total", ',', '') AS INT), 0),
    "Feb" = COALESCE("Feb", 0),
    "Mar" = COALESCE("Mar", 0),
    "_2024_Total" = COALESCE("_2024_Total", 0);

ALTER TABLE Jobs DROP COLUMN "Q1_Total10";
ALTER TABLE Jobs DROP COLUMN "Q2_Total10";
ALTER TABLE Jobs DROP COLUMN "Jul10";
ALTER TABLE Jobs DROP COLUMN "_2024_Total";

EXEC sp_rename 'dbo.Jobs._2024_Total11', '_Total_2024', 'COLUMN';

```

- Standardized Data Types

```

SQLQuery1.sql - MSI.Task 02 (MSI\samod_ix37x89 (53)) - Microsoft SQL Server Management Studio (Administrator)
File Edit View Query Project Tools Window Help
Task 02 Execute New Query Object Explorer Task 02
Object Explorer
Connect SQLQuery1.sql - M...amod_ix37x89 (53) X
-- ALTER TABLE Jobs
-- ALTER COLUMN [Jan] INT;
-- ALTER TABLE Jobs
-- ALTER COLUMN [Feb] INT;
-- ALTER TABLE Jobs
-- ALTER COLUMN [Mar] INT;
-- ALTER TABLE Jobs
-- ALTER COLUMN [Total_2024] INT;

WHERE TABLE_NAME = 'Jobs';

99 %
1 Messages
Commands completed successfully.
Completion time: 2024-11-10T10:32:44.6849912+08:00

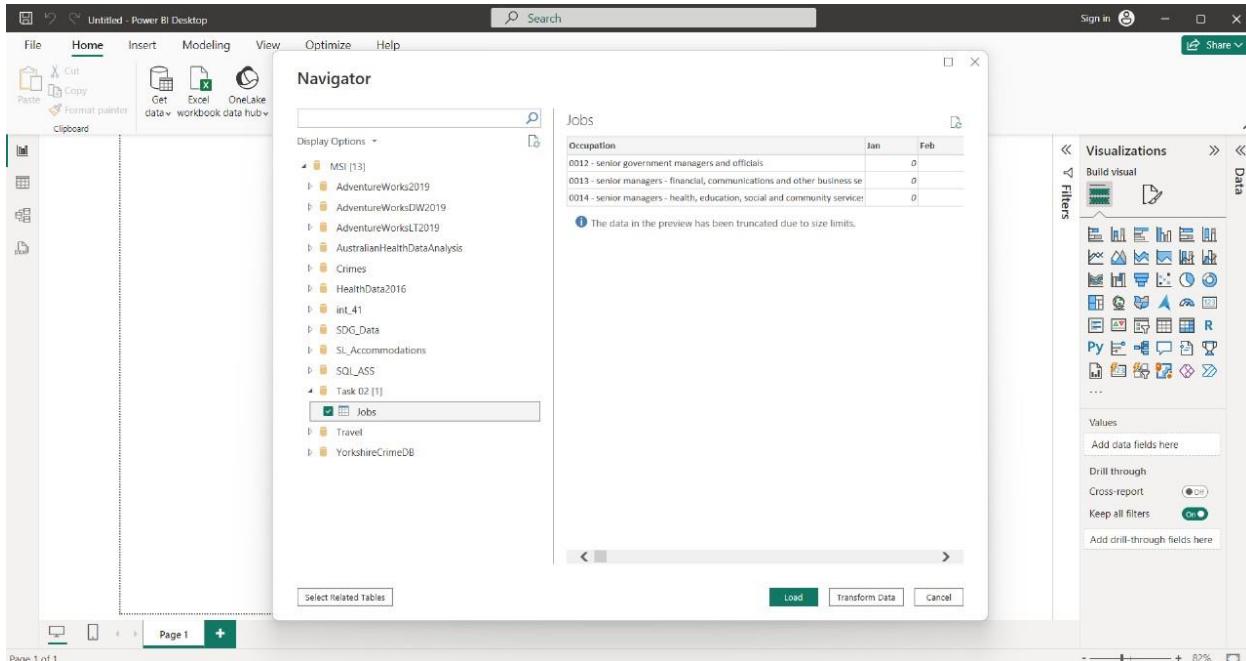
99 %
0 Rows
Query executed successfully.

Ln 73 Col 1 Ch 1 INS
MSI (15.0 RTM) | MSI\samod_ix37x89 (53) | Task 02 | 00:00:00 | 0 rows
Ready

```

# Dashboard Design & Implementation

- Transform data to Power BI



# Advanced DAX measures to Power BI

## Employment Level

The screenshot shows the Power BI Data Editor interface with the following details:

- Title:** Task 02 New - Last saved: Today at 9:47 PM
- Table:** Home table (Jobs)
- Measure:** Employment Level
- DAX Formula:**

```

= SWITCH(
    TRUE(),
    SUM(Jobs[Total_2024]) > 10000, "High",
    SUM(Jobs[Total_2024]) > 5400, "Medium",
    "Low"
)

```
- Data View:** A table showing employment data by occupation and month (Jan to Aug).
- Filter:** Employment Level (High, Medium, Low) and Feb Employment.

## February Employment

The screenshot shows the Power BI Data Editor interface with the following details:

- Title:** Task 02 New - Last saved: Today at 9:47 PM
- Table:** Home table (Jobs)
- Measure:** Feb Employment
- DAX Formula:**

```

= SUMX(
    *Jobs,
    VALUE(*Jobs[Feb])
)

```
- Data View:** A table showing employment data by occupation and month (Jan to Aug).
- Filter:** Employment Level (High, Medium, Low) and Feb Employment.

## Q1 Employment

The screenshot shows the Power BI Editor interface with the following details:

- Measure tools tab:** Active tab.
- Measure Name:** Q1 Employment
- Home table:** Jobs
- Format:** Whole number
- Data category:** Uncategorized
- Structure:** Shows the measure definition: `Q1 Employment = SUMX('Jobs', VALUE('Jobs'[Q1_Total]))`
- Properties:** Buttons for New measure, Quick measure, and Calculations.
- Data pane:** Shows a table of data with columns for Occupation and months Jan through Q3 Total. The data includes various occupation codes and their counts across the period.
- Bottom status bar:** Table: Jobs (4,813 rows) Column: Q1 Employment (0 distinct values)

## Q1 Total

The screenshot shows the Power BI Editor interface with the following details:

- Measure tools tab:** Active tab.
- Measure Name:** Q1 Total
- Home table:** Jobs
- Format:** Whole number
- Data category:** Uncategorized
- Structure:** Shows the measure definition: `Q1 Total = SUM(Jobs[Jan]) + SUM(Jobs[Feb]) + SUM(Jobs[Mar]) + SUM(Jobs[Apr]) + SUM(Jobs[May]) + SUM(Jobs[Jun]) + SUM(Jobs[Jul]) + SUM(Jobs[Aug]) + SUM(Jobs[Sep]) + SUM(Jobs[Oct]) + SUM(Jobs[Nov]) + SUM(Jobs[Dec])`
- Properties:** Buttons for New measure, Quick measure, and Calculations.
- Data pane:** Shows a table of data with columns for Occupation and months Jan through Q3 Total. The data includes various occupation codes and their counts across the period.
- Bottom status bar:** Table: Jobs (4,813 rows) Column: Q1 Total (0 distinct values)

## Q2 Employment

The screenshot shows the Power BI Data Editor interface with the 'Table tools' tab selected. The table is named 'Q2 Employment' and is based on the 'Jobs' table. The structure pane shows the following DAX query:

```

1 Q2_Employment =
2     SELECT(
3         "Jobs",
4         VALUE('Jobs'[Q2_Total])
5     )

```

The main data grid displays employment data by occupation for Q2. The columns include Occupation, Jan, Feb, Mar, Q1 Total, Apr, May, Jun, Q2 Total, Jul, Aug, Sep, and Q3 Total. The data shows various occupation codes and their corresponding employment counts across the months.

The Data pane on the right lists measures such as Q2\_Employment, Q2\_Total, Q2\_Total10, etc.

## Total Employment

The screenshot shows the Power BI Data Editor interface with the 'Table tools' tab selected. The table is named 'Total Employment' and is based on the 'Jobs' table. The structure pane shows the following DAX query:

```

1 Total_Employment =
2     SELECT(
3         "Jobs",
4         VALUE('Jobs'[Total_2024])
5     )

```

The main data grid displays total employment data by occupation for the year 2024. The columns include Occupation, Jan, Feb, Mar, Q1 Total, Apr, May, Jun, Q2 Total, Jul, Aug, Sep, and Q3 Total. The data shows various occupation codes and their corresponding employment counts across the months.

The Data pane on the right lists measures such as Total\_Employment, Total\_Employment(2023), Total\_Employment(2024), Total\_2024, and YoY Change.

## Q3 Employment

Task 02 New • Last saved: Today at 9:47 PM

File Home Help Table tools Measure tools

Search

Name Q3 Employment Format General Data category Uncategorized New measure measure Calculations

Home table Jobs \$ % Auto

Properties

Structure

Formatting

Q3 Employment =  
SUMX(  
'Jobs',  
VALUE('Jobs'[Q3\_Total]))

Occupation Jan Feb Mar Q1 Total Apr May Jun Q2 Total Jul Aug Sep Q3 Total

0012 - senior government managers and officials	0	0	0 0	0	0	0	0	0	0	0	0
0013 - senior managers - financial, communications and other business services	0	0	0	0	0	0	0	0	0	0	0
0014 - senior managers - health, education, social and community services and membership organizations	0	0	0 0	0	0	0	0	0	0	0	0
0015 - senior managers - trade, broadcasting and other services, n.e.c.	0	0	0 0	0	0	0	0	0	0	0	0
0114 - other administrative services managers	0	0	0 0	0	0	0	0	0	0	0	0
0122 - banking, credit and other investment managers	0	0	0 0	0	0	0	0	0	0	0	0
0124 - advertising, marketing and public relations managers	0	0	0 0	0	0	0	0	0	0	0	0
0131 - telecommunication carriers managers	0	0	0 0	0	0	0	0	0	0	0	0
0212 - architecture and science managers	0	0	0 0	0	0	0	0	0	0	0	0
0311 - managers in health care	0	0	0 0	0	0	0	0	0	0	0	0
0421 - administrators - post-secondary education and vocational training	0	0	0 0	0	0	0	0	0	0	0	0
0422 - school principals and administrators of elementary and secondary education	0	0	0 0	0	0	0	0	0	0	0	0
0423 - managers in social, community and correctional services	0	0	0 0	0	0	0	0	0	0	0	0
0512 - managers - publishing, motion pictures, broadcasting and performing arts	0	0	0 0	0	0	0	0	0	0	0	0
0621 - retail and wholesale trade managers	0	0	0 0	0	0	0	0	0	0	0	0
0632 - accommodation service managers	0	0	0 0	0	0	0	0	0	0	0	0
0651 - managers in customer and personal services, n.e.c.	0	0	0 0	0	0	0	0	0	0	0	0
0712 - home building and renovation managers	0	0	0 0	0	0	0	0	0	0	0	0
0714 - facility operation and maintenance managers	0	0	0 0	0	0	0	0	0	0	0	0
0731 - managers in transportation	0	0	0 0	0	0	0	0	0	0	0	0
0732 - managers in warehousing	0	0	0 0	0	0	0	0	0	0	0	0

Table: jobs (4,912 rows) Column: Q3\_Employment (0 distinct values)

## Employment Total 2023

## Total Employment 2024

Task 02 New - Last saved: Today at 9:47 PM ASK De Silva

**Table: Jobs (4,813 rows) Column: Total Employment (2024) (0 distinct values)**

The screenshot shows a Power BI report titled "Total Employment 2024". The table contains data for 4,813 rows and 13 columns. The columns are: Occupation, Jan, Feb, Mar, Q1 Total, Apr, May, Jun, Q2 Total, Jul, Aug, Sep, Q3 Total. The data is categorized by occupation, such as "0012 - senior government managers and officials", "0013 - senior managers - financial, communications and other business services", etc. All values in the table are zero.

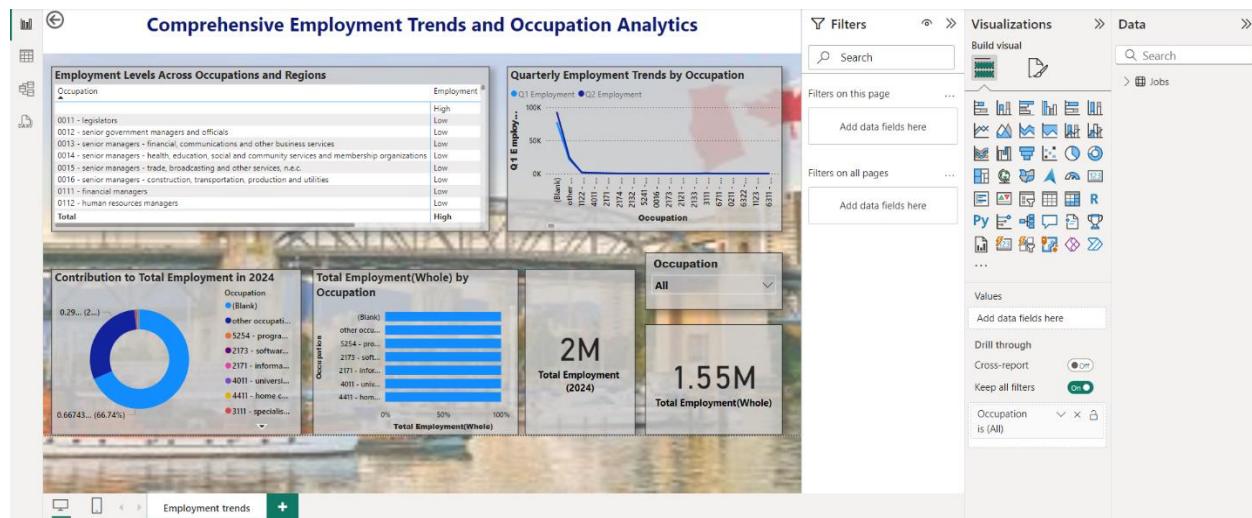
## Year Of Year Change Measure

Task 02 New - Last saved: Today at 9:47 PM ASK De Silva

**Table: Jobs (4,813 rows) Column: YoY Change (0 distinct values)**

The screenshot shows a Power BI report titled "Year Of Year Change Measure". The table contains data for 4,813 rows and 13 columns. The columns are: Occupation, Jan, Feb, Mar, Q1 Total, Apr, May, Jun, Q2 Total, Jul, Aug, Sep, Q3 Total. The data is categorized by occupation, such as "0012 - senior government managers and officials", "0013 - senior managers - financial, communications and other business services", etc. All values in the table are zero.

# Final Dashboard



This Power BI dashboard provides a detailed analysis of "employment trends and occupational dynamics" across various industries and regions in Canada. It distinguishes between high-demand roles, such as lawmakers and HR managers, and those with lower employment levels, presenting employment statistics by occupation. Quarterly trends reveal shifts in workforce needs, with certain professions experiencing significant declines over time.

The bar chart illustrates the distribution of employment by job roles, while the pie chart highlights the share of different occupations, like software engineers and program managers, in the overall employment landscape for 2024. The dashboard's metrics, "total employment (2M)" and "whole employment (1.55M)," offer a snapshot of workforce size, aiding in understanding the impacts of policies, labor demands, and future workforce planning. This tool is designed to effectively analyze socioeconomic trends and facilitate data-driven decision-making.

## The Employment Levels by Occupation and Region chart- [Matrix Box]

Employment Levels Across Occupations and Regions	
Occupation	Employment
0011 - legislators	High
0012 - senior government managers and officials	Low
0013 - senior managers - financial, communications and other business services	Low
0014 - senior managers - health, education, social and community services and membership organizations	Low
0015 - senior managers - trade, broadcasting and other services, n.e.c.	Low
0016 - senior managers - construction, transportation, production and utilities	Low
0111 - financial managers	Low
0112 - human resources managers	Low
Total	High

Rows: Occupation

Columns: Add data fields here

Values: Employment Level

Drill through: Cross-report (Off)

Keep all filters: On

This Power BI table showcases employment levels across various occupations, categorized as "High" or "Low." Jobs such as legislators and finance managers are listed in the rows, with their corresponding employment levels shown as values. The chart highlights the varying demand for workers, revealing that most managerial roles have "Low" employment levels, except for certain positions like lawmakers and human resources managers, which are marked as "High."

**Functionality:** The filters enable a detailed exploration of the employment status for each occupation, ensuring consistency across reports for drill-throughs and enhancing interactivity in the analysis.

## Quarterly Employment Trends by Occupation – [Line Chart]



A line chart is presented here. Typically, line charts are utilized to illustrate trends or changes over time in continuous data or across different categories.

The X-axis (Category) provides the explanation, listing occupations along with categories such as "other," "(Blank)," and specific occupation codes.

The employment figures for the first and second quarters are represented on the Y-axis (Values). These figures indicate the number of individuals employed in each occupational category.

The graph aims to compare the employment trends of various professions from the first quarter to the second quarter. The two lines help identify trends or discrepancies by showing how employment levels for the same group of occupations have evolved over time.

## Contribution to Total Employment in 2024 – [Donut Chart]



The doughnut chart is intended to display the percentage or proportion of each category's contribution to the overall total. It resembles a pie chart but has a central hole that can be utilized for extra information or decorative purposes.

**Data:** Each segment represents the contribution of a specific occupation to overall employment in 2024. The categories, which include "(Blank)," "other occupations," and specific occupation codes like 5254 and 2173, are indicated in the legend.

## Total Employment (Whole) by Occupation – [100% Stacked Bar Chart]



The chart illustrates the distribution of total employment across different occupations. The right axis shows the percentage of total employment for each occupation, while the left lists the occupations themselves. The length of each bar represents the proportion of workers in that field.

The occupation with the highest percentage of total employment is (Blank).

The roles of 4411-home... and 5254-pro... also represent a significant portion of overall employment.

The employment percentages for the occupations 2171-infor..., 2173-soft..., 4011-univ..., and other occur are relatively lower.

**Possible Insights:** This graphic can help identify which professions are more common in a specific area or industry.

It may assist in resource allocation or workforce planning. By comparing this graphic with similar data from previous years, employment trends can be analyzed.

**Limitations:** Without the full names of the occupations, it is difficult to draw specific conclusions about them.

The chart only displays the distribution among jobs and does not provide the total number of employees.

Overall, the graph provides a visual representation of how total employment is spread across various professions. It serves as a valuable resource for understanding the workforce composition and identifying potential areas for further investigation.

### Occupation – [Slicer]

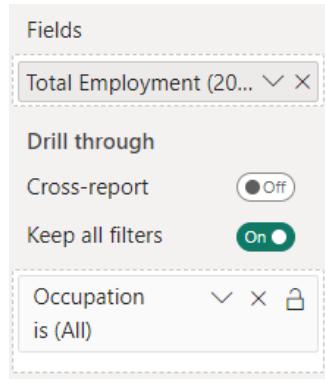


The slice lets you filter the data shown on the dashboard or report based on occupation. You can opt to see data for all occupations (All) or select a specific occupation to narrow your focus.

**Purpose:** This dropdown menu offers a straightforward method to explore and analyze data by occupation. It enables comparisons between different occupations, helps identify trends, and provides insights into particular groups of workers.

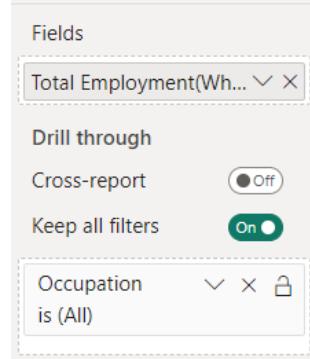
## Total Employment – [Cards]

In Power BI, this kind of visualization is usually referred to as a 'Card' or 'Single Number' visual. It's meant to showcase a single, significant data point, like a total, average, or another important metric.



This image shows a single metric: '2M', which represents the 'Total Employment' for the year '2024'.

The "2M" signifies that there are 2 million people employed.



This image shows a single metric: '1.55M', which represents the 'Total Employment (Whole)'!

The "1.55M" indicates 1.55 million people employed.

# Key Findings

## 1. Employment levels by occupation: -

There are some positions which are occupied in abundance, e.g.: lawmakers and human resources managers. This shows a strong or persistent interest in these industries. On the opposite end, Other executive positions such as banking, media and healthcare.

To be overrepresented in some industries could indicate sectorial or disproportionate channeling of workers in these industries.

**Consequences:** A further investigation into the reasons for these discrepancies should be of concern for employers and policy formulators. Seek to remove barriers where possible or provide more funding towards the professional development of these neglected groups.

## 2. Trends Over Time: -

Employment patterns per quarter for each type of job vary greatly. Notably, between Q1 and Q2, jobs in some roles drop off perhaps sharply, explained by industry-specific downturns or seasonal factors or a change in labor demand. For example, the following are roles that might be at risk of this change: administrative or technical positions.

**Consequences:** Stakeholders can reduce the declines in the future by learning the underlying factors of such declines through workforce planning strategies, industry incentives, or regulatory changes.

## 3. Labor force participation: -

In the year 2024, jobs like software engineers and program managers will comprise a significant share of the labor force. This means management and technological skills are taking the front row in employment opportunities. As a matter of fact, employment estimates produced herein seem to incorporate these occupations at an exceptionally high rate compared to other occupations.

**Consequences:** High performance in these occupations indicates a need for recurring knowledge. In these areas Therefore, it underlines the need for education and training programs focused on nurturing these skill sets.

#### 4.Full and All Employment: -

According to the dashboard, there is a projection of 2 million jobs in 2024, out of which 1.55 million would fall under "full employment." The difference shows the remaining percentage might be temporary employees, seasonal, or part-time workers. This segmentation indicates the need for distinguishing full-time and permanent jobs from other kinds.

**Consequences:** The policymakers and workforce planners will use this information to reduce the disparity in job quality, create more stable employment opportunities, and ensure the workforce is in step with demand from the economy.

# Challenges

## The challenges associated with the IMP and TFWP

### **International Mobility Program (IMP):**

The IMP allows employers to hire foreign workers without requiring a Labor Market Impact Assessment (LMIA) while addressing Canada's distinct cultural, economic and trade strategies.

#### Purpose:

To allow free movement of trades, cultural exchanges, and agreements such as NAFTA/USMCA.

#### Advantages:

- No LMIA needed, thus streamlining hiring procedures.
- Brings in much needed highly skilled and specialized professionals.
- Fortifies Canada's overseas obligations.

### **Temporary Foreign Worker Program (TFWP):**

The TFWP addresses some of the employment gaps in labor markets of Canadian Provinces by letting employer recruit foreign workers if local ones are not available. However, the employers have to satisfy the criteria of LMIA to prove their case.

#### Purpose:

Used to meet temporary gaps in workforce in agriculture, caregiving, etc.

#### Advantages:

- Helps to fulfil manpower requisition in crucial sectors.
- Provides safeguards to Canadian workers on the basis of LMIA compliance.

## Challenges:

### *1. Labor Market Gaps and Dependency:*

Although TFWP helps deal with the importation of labor deficit, being too dependent on foreign labor will likely cripple the growth of a local workforce. The LMIA process creates additional barriers for employers which may hinder them from recruiting in a timely manner.

### *2. Economic Displacement:*

The IMP application, which does not require LMIA, can result in competition between Canadian citizens trying to fill jobs in industries with high unemployment.

### *3. Industry-Specific Challenges:*

It is still the case that IT is an exception, other sectors may struggle to attract qualified foreign workers because of their more subtle advantages, or the need for LMIA.

### *4. Impact of Global Events:*

Employers relying on migrant talent can experience challenges because of economic slumps, the emergence of new laws or rules, or global plagues that change patterns of immigration and movement of labor.

# Conclusion

Analyses of the International Mobility Program and Temporary Foreign Worker Program datasets yield a treasure of insights into the evolving immigration landscape in Canada. Both programs have proven instrumental in dealing with labor shortages, especially in the fields of high demand like technology. The added value of these programs extends beyond economic benefits to the social innovation and cultural diversity they bring.

These results indicate that while the programs have been instrumental in providing foreign skilled labor, the associated ongoing issues with labor market dynamics, policy changes, and world events create a complex context. Policymakers, employers, and workers alike must consider these trends in decision-making processes and adapt to the constantly changing landscape.

In today's intricate international landscape, this will be crucial for fostering social unity and enhancing economic competitiveness. Utilizing data-driven insights and making evidence-based policy choices can enable Canada to leverage immigration for prosperity and sustainable development.



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