

Technical Test

Data source:

You have been provided with a snippet of the Statistics Canada 2021 census data in the file Census_data.csv.

Task details:

- 1. Population analysis: For Canada and each province/territory:
 - a. Calculate the population growth percentage for 2021 compared to 2016
 - b. Derive the distribution of the population across the following age groups:
 - 0 to 14 years
 - 15 to 19 years
 - 20 to 64 years
 - 65 years and over
- 2. Summarizing results:
 - a. Populate the table in Population_summary.xlsx for Canada
 - b. Replicate the summary table for each province and territory. Create a separate tab in the file for each province/territory
- 3. Automation: Ensure the above process (step 2) is automated as much as possible:
 - Avoid manual copy-pasting of data
 - Use programming or analytical tools that allow for reproducibility
- 4. Innovation: Implement a better tool or workflow to deliver the data for each geographic region. Consider user-friendliness, scalability, and flexibility

Deliverables:

- 1. An updated Population_summary.xlsx file containing a tab for Canada and for each province/territory
- 2. A script or codebase that automates the process of generating these summaries
- 3. Your improved tool (step 4) and a brief write-up explaining:
 - The workflow and its key features
 - Rationale for selecting this approach
 - Instructions or documentation for using the tool effectively

Tools and programming:

You may use any combination of tools and programming languages such as Python, R, Excel (with macros), or visualization tools like Power BI or Tableau

Evaluation criteria:

- Accuracy of calculations (population growth percentage and age group distribution)
- Level of automation and reproducibility
- Quality of code and documentation
- Innovation and feasibility of the proposed tool or workflow
- Clarity and professionalism of the final deliverables

