

# Personal Finance

Students in Data Science and Statistics

## Introduction

Toronto is one of the most expensive cities in Canada to live in, with young professionals and students facing rising tuition, rent, and food costs. At the same time, Canadians across age groups are worried about financial security, whether managing day-to-day expenses, planning for retirement, or making large financial decisions such as purchasing a vehicle. Understanding how individuals and households navigate these challenges is key for policymakers, universities, and financial institutions alike.

This case study challenges participants to step into the role of a consulting firm hired to analyze financial pressures and propose data-driven solutions for improving financial well-being.

## Challenge

Financial stability looks different at every stage of adult life. A 24-year-old renter paying off student loans faces a very different set of pressures than a 45-year-old homeowner with dependents. Yet both are part of the same story of how Canadians under 55 balance income, housing, debt, and savings in an increasingly expensive economy.

Your task is to use the Survey of Financial Security (SFS) microdata to analyze what shapes financial resilience among Canadians aged 18–54. Participants should identify and model the key factors that distinguish those who are thriving, coping, or at risk of financial stress. You may define “resilience” in your own way; for example, through indicators such as debt-to-income ratio, liquidity (savings-to-expenses), or self-reported housing stress, and are encouraged to justify your definition using data and reasoning.

Possible analytical directions include, but are not limited to:

- Quantifying which financial and demographic variables most strongly predict short-term financial stress or long-term stability.

- Building segmentation or clustering models to reveal distinct “financial personas” across life stages or regions.
- Simulating the impact of economic shocks, such as rising interest rates, higher rent, or job loss, etc., on household resilience.
- Designing dashboards or visual narratives that communicate how financial pressures evolve from early adulthood through mid-life.

Ultimately, teams should translate their findings into data-driven recommendations for improving financial well-being, whether through policy ideas, financial literacy initiatives, or targeted support programs.

## Usage

The insights from this project will serve a wide range of stakeholders who are deeply invested in the financial well-being of Toronto residents. For policymakers, the findings can guide the design of more effective programs around student aid, rent support, or retirement planning, ensuring that public resources are directed toward the households that need them most. Universities and student organizations can also benefit from a clearer understanding of the pressures faced by their students, allowing them to tailor campus services, financial literacy initiatives, and advocacy efforts to improve student success. Financial advisors and institutions may apply the models and recommendations to better serve young professionals and families, offering advice and products that are aligned with the realities of Toronto’s cost of living.

## Deliverables

- **Code Submission:** All scripts or notebooks. Must be well-organized, executable, and reproducible. Include a README.md file and a fully executed Jupyter Notebook (.ipynb) or RMarkdown file (.rmd)
- **Presentation Slides (maximum 15 slides):** Focus on problem framing, data insights, model approach, key results, and impact.
- **Video Presentation (maximum 6 minutes):** A narrated walkthrough of presentation slides and/or an optional demo or dashboard. Judges will view this first. Should simulate a live presentation and. All team members are encouraged (but not required) to participate. Must include:

- Problem overview
- Data approach
- Model explanation
- Key results
- Final insights

Submissions may include other materials that support reproducibility.

## Award Categories

- **Best Overall Project**
- **Best Visualizations:** This prize goes to the team that produces the most insightful and compelling visualizations from the personal finance data. Winning submissions should make complex financial trade-offs easy to understand, such as how students balance tuition, rent, and part-time jobs, or how retirement savings evolve under different strategies. Clear, well-designed charts that reveal hidden patterns, whether in spending behaviors, saving habits, or investment outcomes, will be essential. The goal is to make financial challenges and opportunities more tangible and accessible for policymakers, students, and everyday households.
- **Best Insights:** This prize goes to the team that uncovers the most actionable and meaningful insights from the personal finance data.
- **Best Model:** This prize goes to the team that develops the most accurate, reliable, and innovative model for addressing a key financial question. Examples include predicting the likelihood of household debt default, forecasting retirement fund adequacy under different investment strategies, or simulating scenarios of affordability in Toronto. Evaluation will be based on technical rigor, creativity in feature engineering, and the robustness of the model's performance. Bonus recognition will be given to teams that extend their models into interpretable tools that could guide real decision-making for households and advisors.