

FINE 3300 (Winter 2025): Assignment #2

Important

- Assignment is due on February 24, 2025 by 8:30 am (Toronto – Eastern Standard Time)
- Upload your Python files (.py) and any write-up (.pdf) on Canvas.
- You may make multiple submissions online, but only the most recent submission will be graded.
- Late submissions will automatically receive a grade of *zero*.
- Your code should be commented appropriately. Specify the question number in the comments followed by your code that generates the results.
- Cite any material or source you have referenced.

Introduction

For this assignment you will work with files and Pandas data frames. You will transform the data and extract key pieces of information.

Consumer Price Index

The Consumer Price Index (CPI) represents the price level of a basket of goods and services experienced by the household. In Canada, Statistics Canada tracks the changes to CPI on a monthly basis. We can use the changes to the CPI levels to estimate inflation. Additional information about the CPI and its constituents is available at https://www.statcan.gc.ca/en/subjects-start/prices_and_price_indexes/consumer_price_indexes.

For this assignment, you are provided with 11 data files, consisting of monthly CPI levels for 2024 for 10 provinces and Canada overall. These files have CPI data obtained from Statistics Canada (data obtained from <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>). Read the 11 files into Python and form a data frame.

Python Implementation

1. Combine the 11 data frames into one data frame with column headings: **Item, Month, Jurisdiction, CPI**. For example, if you print the first few entries within the new data frame, they should appear as:

| Item | Month | Jurisdiction | CPI |
|-----------|--------|--------------|-------|
| All-items | Jan-24 | Canada | 158.3 |
| Food | Jan-24 | Canada | 188.1 |
| Shelter | Jan-24 | Canada | 178.4 |

2. Print the first 12 lines of your new data frame
3. For Canada and each of the provinces, report the average month-to-month change in food, shelter, All-items excluding food and energy. Report your numbers as a percent up to one decimal place.
4. Which province experienced the highest average change in the above categories?
5. Compute the annual change in CPI for services across Canada and all provinces. Report your numbers as a percent up to one decimal place.
6. Which region experienced the highest inflation in services?
7. In your write-up, answer the above question and paste the output of your Python code.
8. Submit your write-up and coding files on Canvas.