CSDA 1050 Sprint 1

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Nickolas Lal

Overview: This project looks at trying to identify the marginal difference in rent price between tenured renters and new renters in Toronto. After the completion of Sprint 1 the scope has been narrowed further by focusing specifically on years 2013-2017 as this is where the data was available. Sprint 1 is the first phase of acting on the proposal and represents data collection and exploration phase. Here preliminary insights are drawn while deeper analysis takes place in the future sprints.

Data collection and cleaning:

Toronto Income data from 2013-2017- The below Statistics Canada link includes income of individuals in 2017 constant dollars from 2013-2017. There are options to filter the data by age group, sex, income source and by geographic location including Canada and provinces and selected census metropolitan areas. It was filtered for total income of all residents ages 16 and over in Toronto. The dataset was then further cleaned to only include the necessary information which is the average and median income per year.

https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110023901&pickMembers%5B0%5D=1.17&pickMembers%5B1%5D=2.1&pickMembers%5B2%5D=3.1&pickMembers%5B3%5D=4.1

Annual Inflation: The annual inflation rate in Canada, comparing year over year, December to December, from 1984-2018 was taken from the below. It was then input into a CSV file so it could be used for analysis.

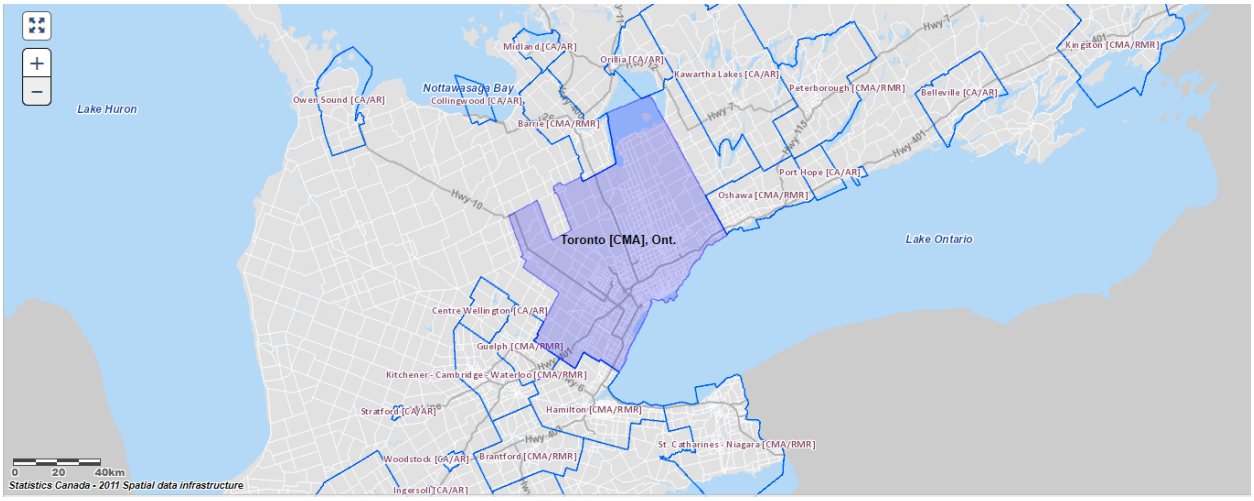
https://www.inflation.eu/inflation-rates/canada/historic-inflation/cpi-inflation-canada.aspx

Ontario rent increase guidelines- The full details on how the law and calculation works along with the historical numbers dating back to 1991 was available on the below government of Ontario website. It was then combined with the inflation numbers, starting from 1991, and then input into a CSV file so it could be used for analysis.

https://www.ontario.ca/page/rent-increase-guideline

Preliminary Exploration:

City of Toronto boundaries



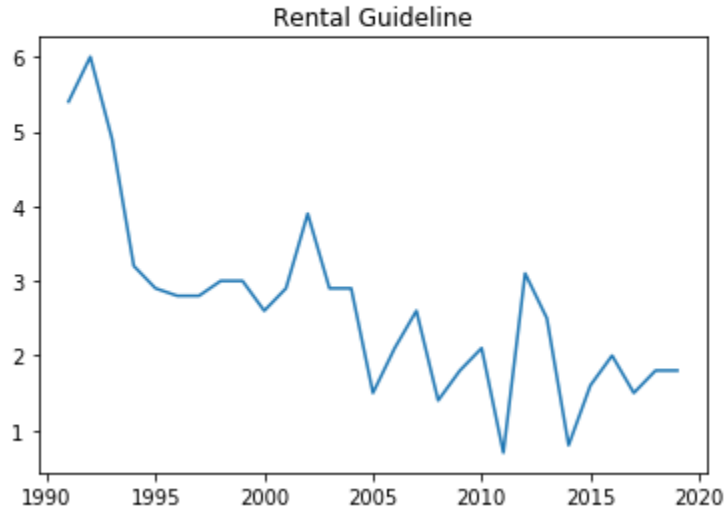
Looking at mean and median income for everyone over 16 in Toronto.

```
Income = pd.read_csv("Toronto Income.csv")
print(Income)
```

	Year	Age group	UOM	Average Income	Median Income
0	2013	16 years and over	2017 constant dollars	$44,900.00	$30,900.00
1	2014	16 years and over	2017 constant dollars	$45,700.00	$31,600.00
2	2015	16 years and over	2017 constant dollars	$46,100.00	$30,500.00
3	2016	16 years and over	2017 constant dollars	$47,600.00	$31,500.00
4	2017	16 years and over	2017 constant dollars	$48,500.00	$33,600.00

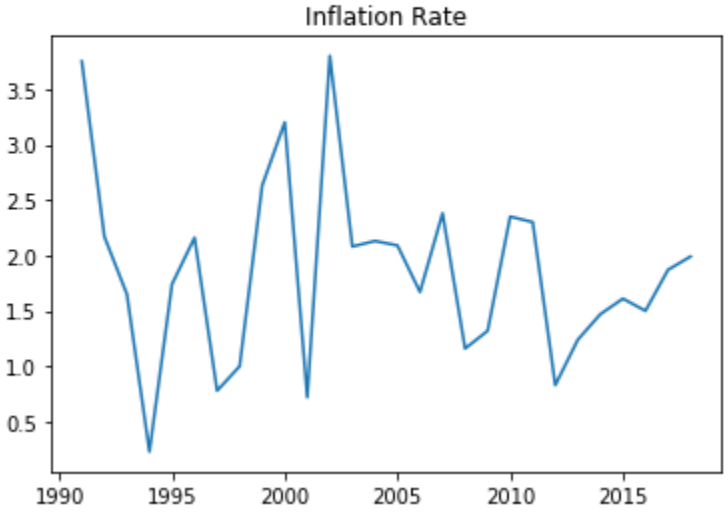
Plotting Rental Guideline

```
In [191]: plt.plot(Guidelines.Year,Guidelines.Guideline)
          plt.title("Rental Guideline")
          plt.show()
```



Plotting Inflation Rate

```
In [192]: plt.plot(Guidelines.Year,Guidelines.InflationRate)
          plt.title("Inflation Rate")
          plt.show()
```



Next steps:

- Locate and splice rich historical Toronto rental data
- Further research and deeper analysis