

Project 1

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Research questions:

For the top 15 cities in Canada by population:

- Does the weather in each city affect the median income?
- Which cities are the most affordable to live in?
- Which city has the highest employment rate?
- Which city is most rich in cultural activities?
- Which cities have the lowest crime?
- Which cities have the most ideal weather conditions?

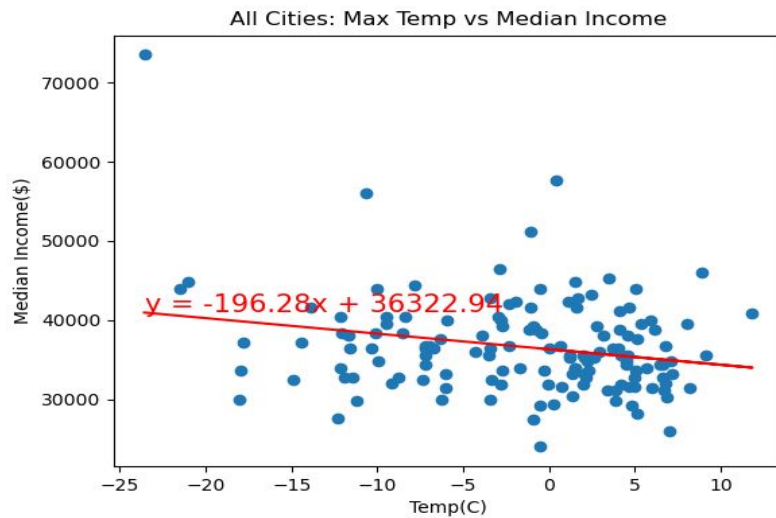
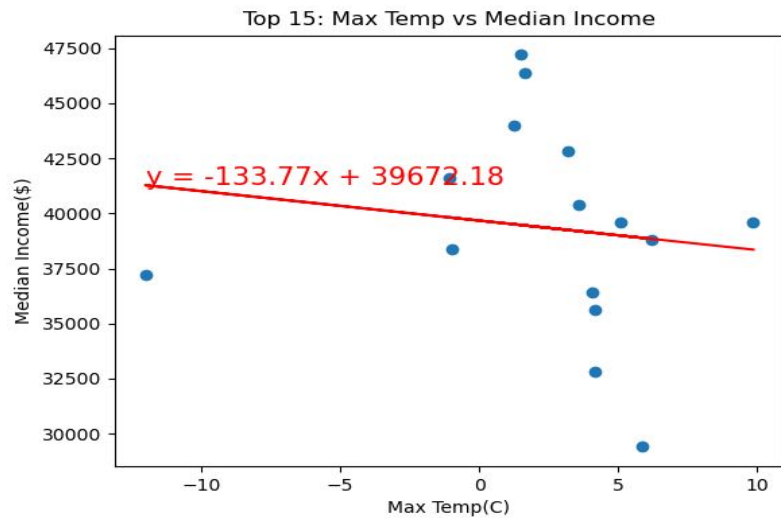
1. Does Weather Affect Median Income?



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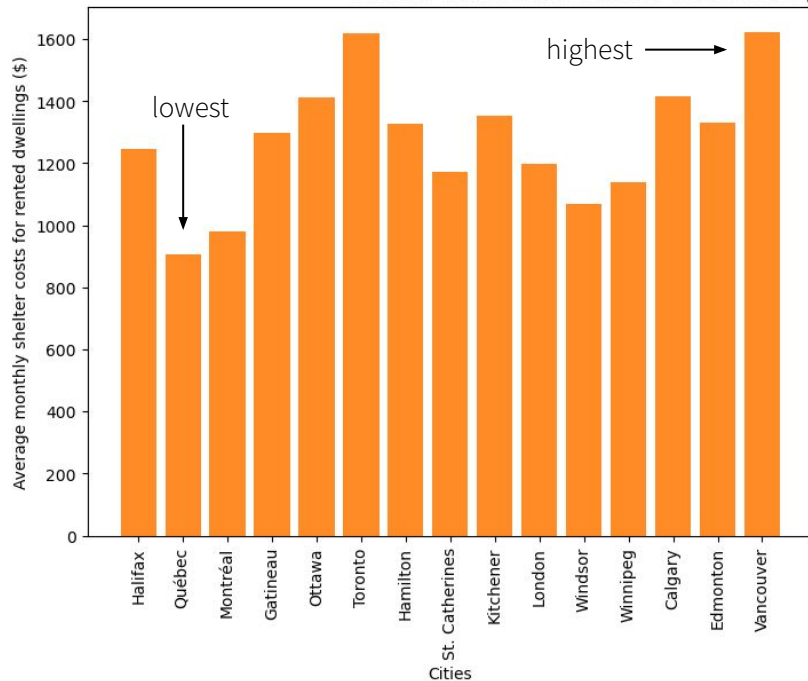


Analysis



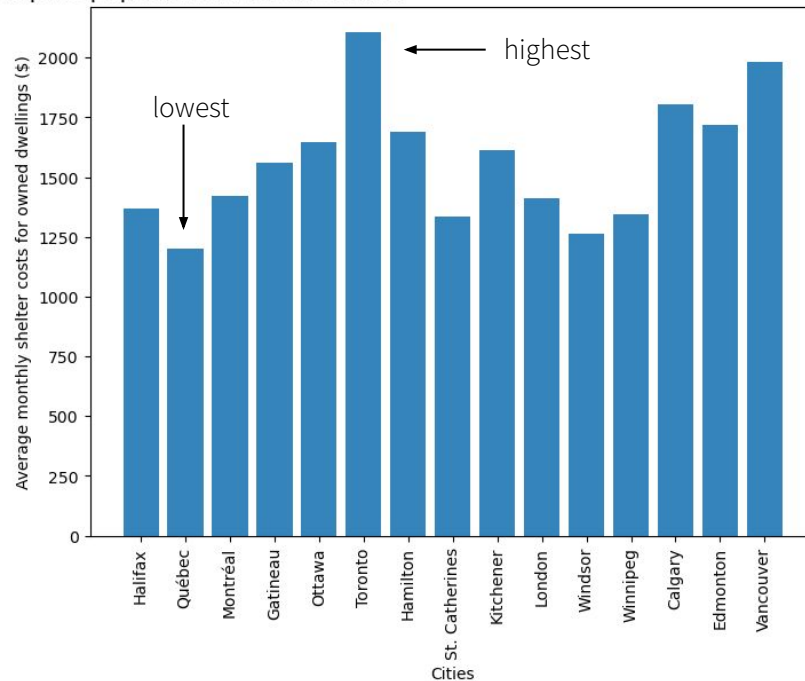
2. Affordability in terms of shelter costs

Owned and rented shelter costs among the top 15 populated cities in Canada



Lowest monthly rent: **Québec (\$905)**

Highest monthly rent: **Vancouver (\$1624)**



Lowest monthly rent: **Québec (\$1201)**

Highest monthly rent: **Toronto (\$2108)**

Independent samples t-test: owned and rented dwellings

Null hypothesis

rented dwelling monthly cost = owned dwelling monthly cost

Alternative hypothesis

rented dwelling monthly cost \neq owned dwelling monthly cost

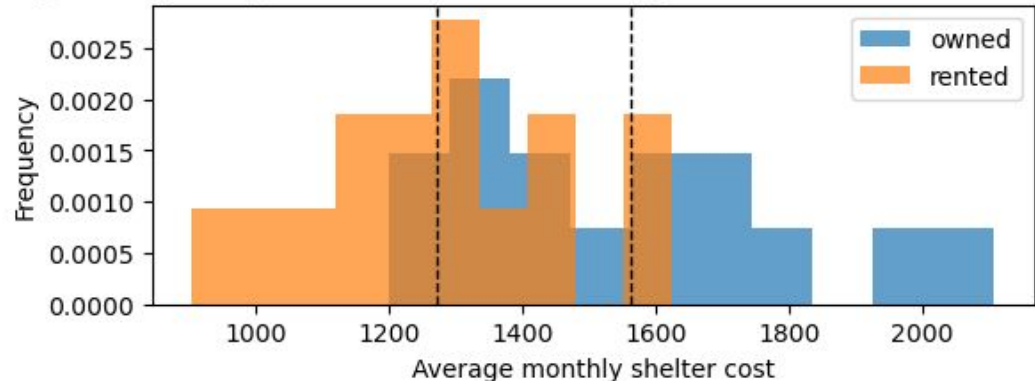
t-statistic: **3.37**

p-value: **0.0023**

Mean monthly cost for
owned dwellings: **1564.33**

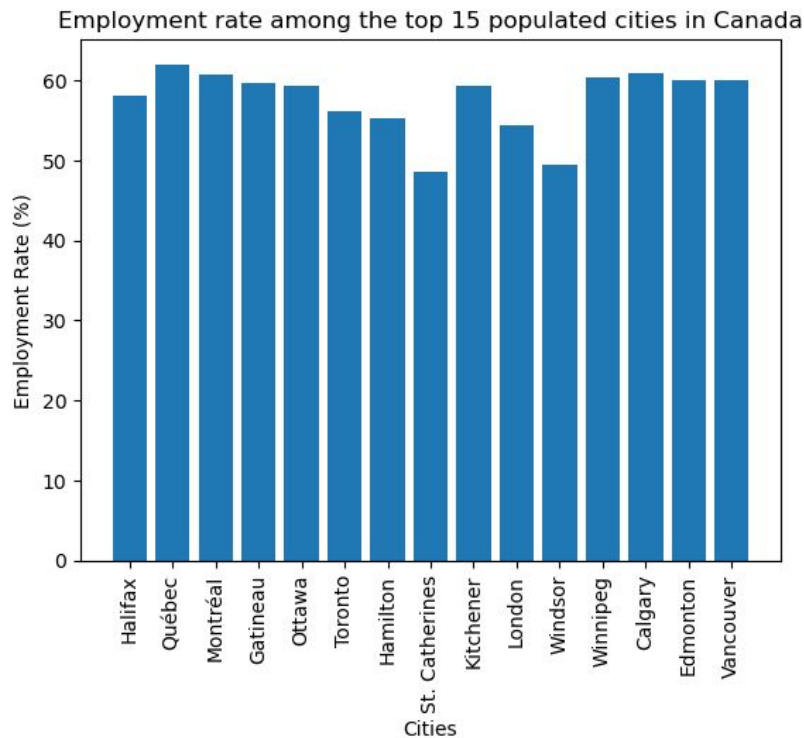
Mean monthly cost for
rented dwellings: **1272.53**

Histogram depicting the distribution of monthly costs for owned vs. rented dwellings

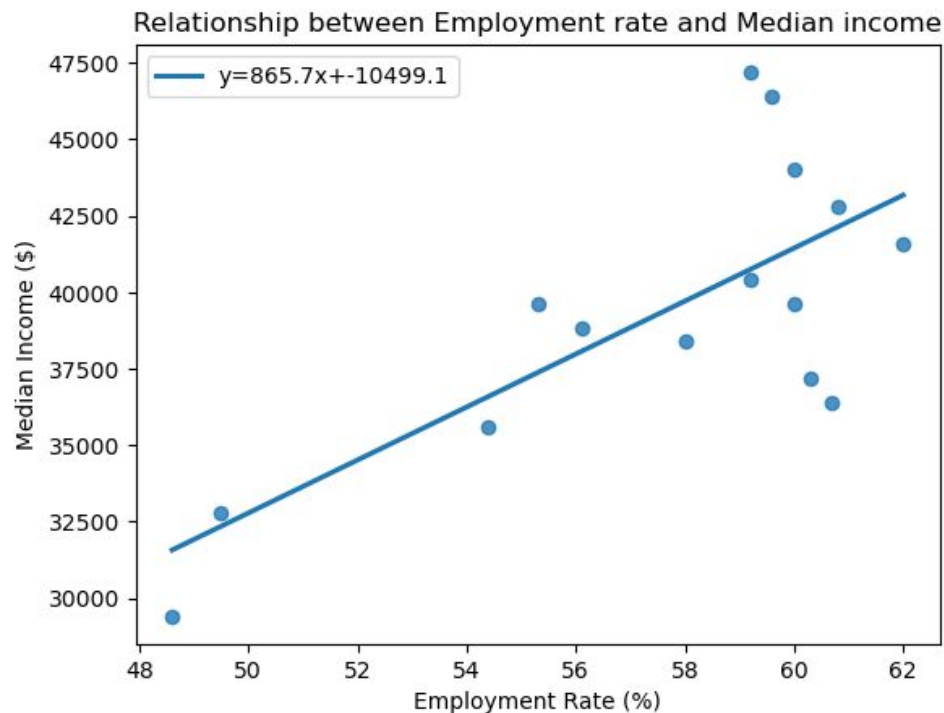


3. Employment rate

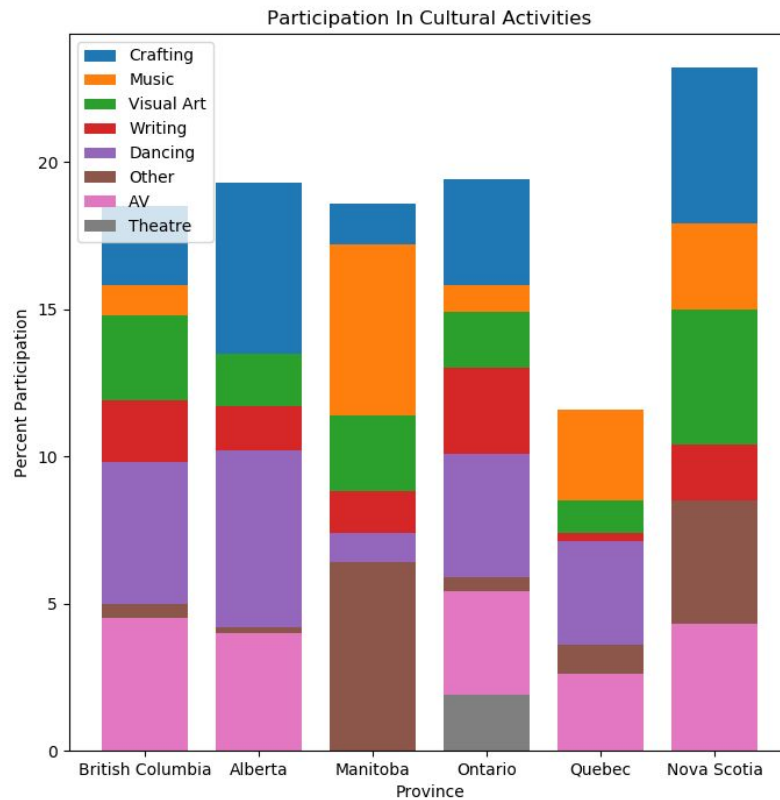
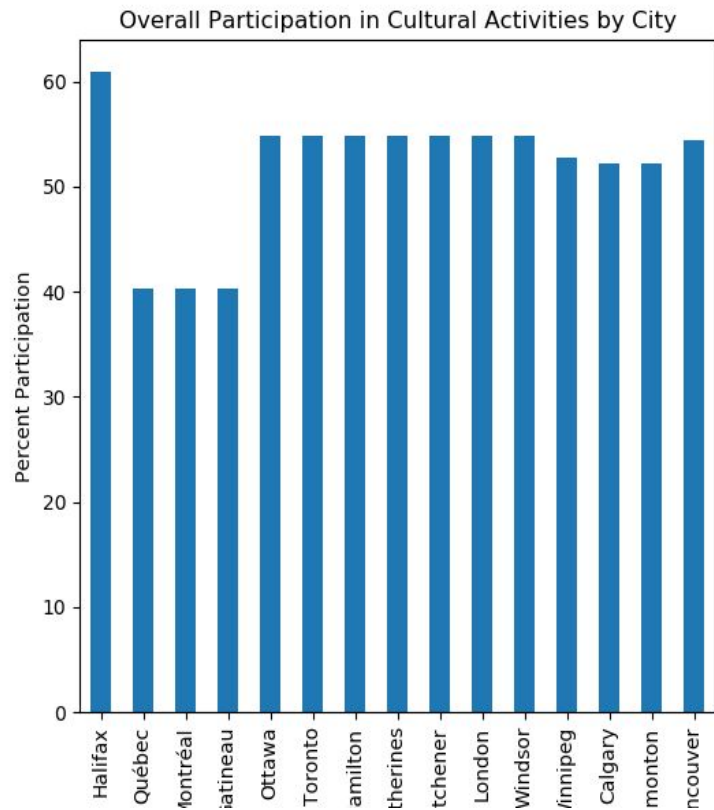
City with the highest employment rate: **Québec**
(62%)



Positive and **significant** correlation
(r-value = 0.73, p-value = 0.002)



4. Participation in Cultural Activities

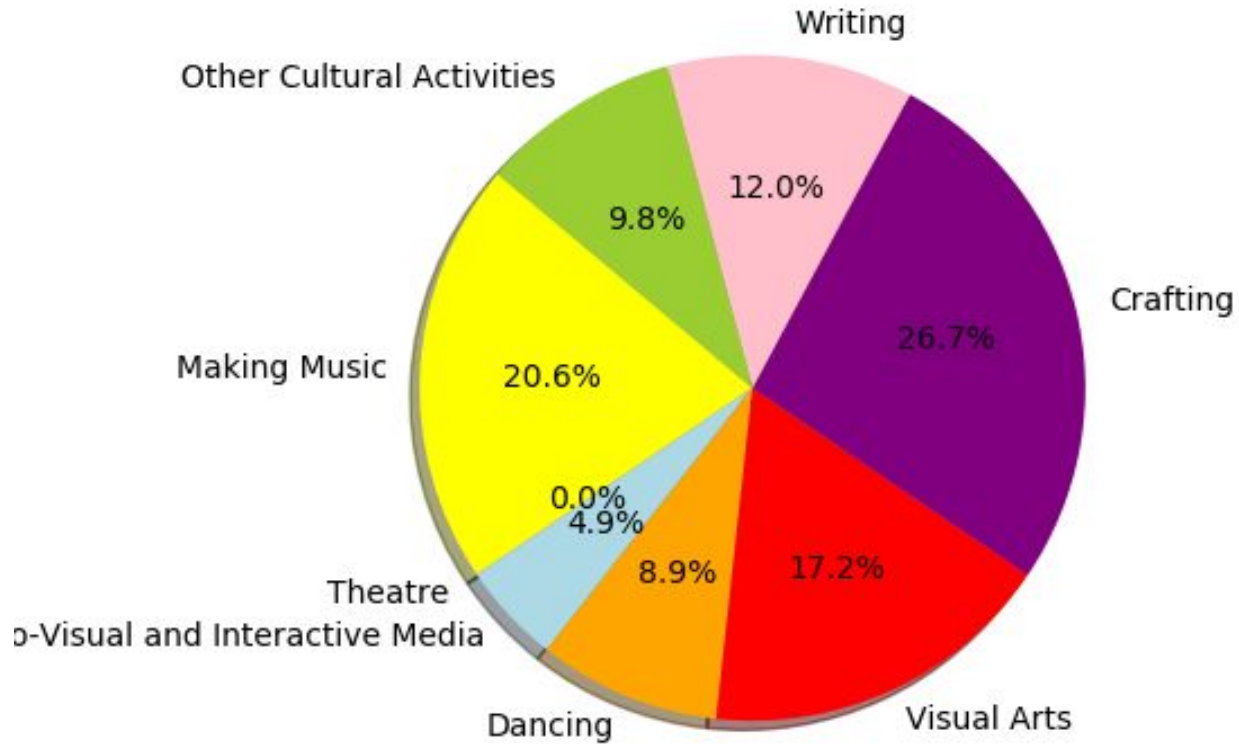


Highest overall participation: Halifax

Top City for Participation in Cultural Activities: Halifax

Top 3 Cultural Activities in Halifax:

1. Crafting
2. Making Music
3. Visual Arts



5. Crime Severity Index

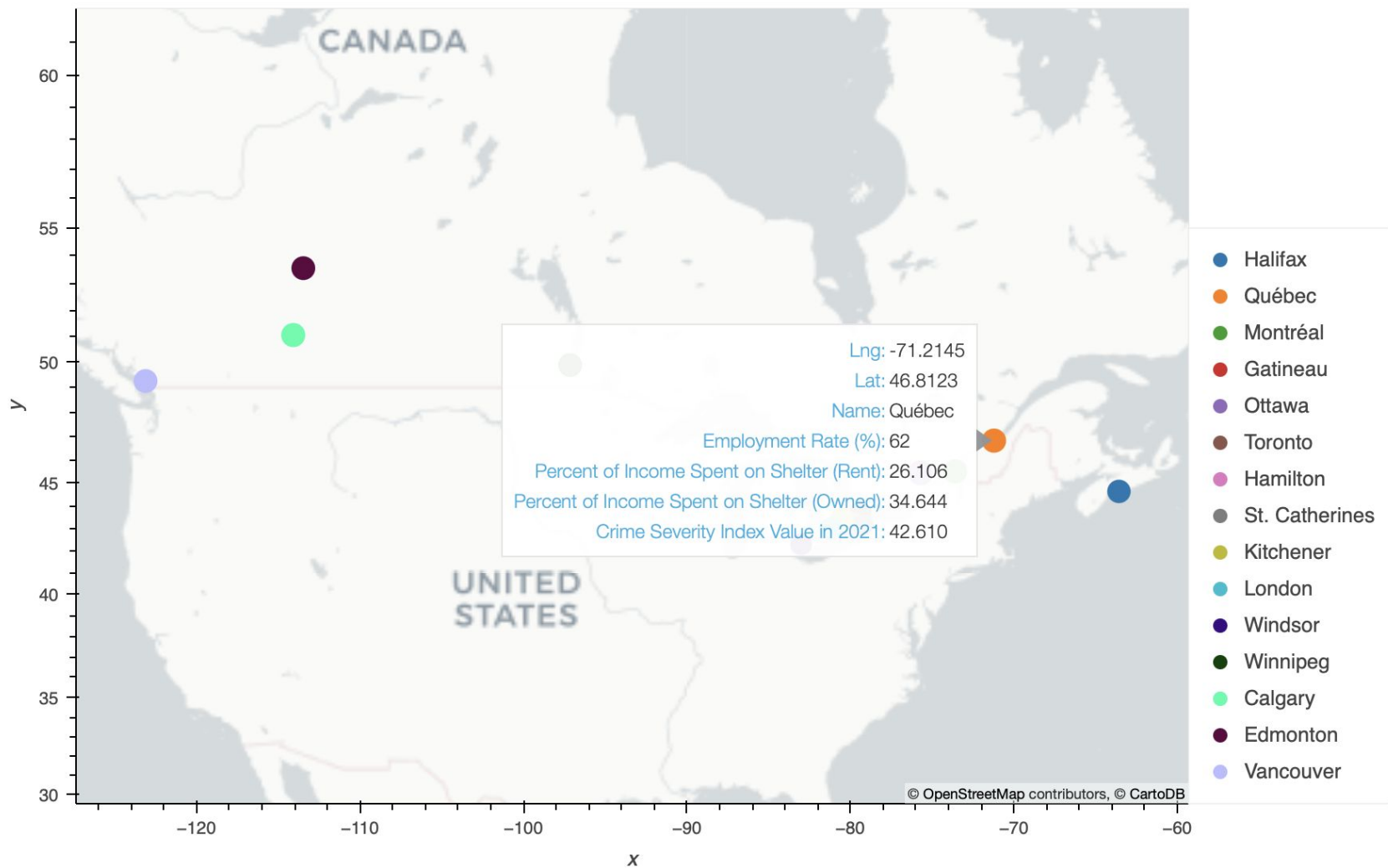
The crime severity index (CSI) value takes into account both volume and seriousness of crime offences reported to police. The more serious offences have a greater impact on changes in the index.

Quebec City has the lowest CSI, followed by Toronto and then Ottawa

6. Weather

Weather conditions as of Feb 11 was used to evaluate the desirability of the 15 cities with the assumption that the highest temperature was most desirable.

The city with the highest temperature on that day was Vancouver, followed by St. Catherine and then Toronto.



Highest employment rate - **Quebec City**

Lowest percentage of income spent on shelter (rent & owned) - **Quebec City**

Lowest crime severity index value - **Quebec City**

Highest max temperature on Feb 11 - **Vancouver**

Highest participation in cultural activities - **Halifax**

Highest median income - **Ottawa**

Resources

- <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E>
- <https://openweathermap.org/api>
- <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3510018901>
- <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310010801>
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