Toronto Apartment Evaluations*

Subtitle Here

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Abstract

First sentence. Second sentence. Third sentence. Fourth sentence.

1 Introduction

The city of Toronto introcued a new bylaw enformenent program in July 2017 that is used to ensure that the apartment building owners and operators comply with the neccesary building maintanence standards, known as RentSafeTO. These standards are applied to all apartment buildings with 10 or more units or with 3 or more stories.

Owners of such apartments are required to register with RentSafeTO as well as mainitan the standards defined by this program. Tentants need to conatct their respective landlord incase they face an issue. These issues could either be vital, such as heat or hydro fault, or service requests, such as window flaws or common area cleaning. If the landlord does not comply to these requests, then according to the bylaws of RentSafeTO program, legal action can be taken against them.

Each property that falls under the program gets insepected by an officer and receives an evaluation score, which is made available to not only the landlord and tenant, but also to the potential tenants. If the score of a building is 86 or above, it will be evaluated again in the next three years. If it is between 66 and 85, it will be evaluated again within two years. If it is between 51 and 65, it will be evaluated again within a year. If a building gets a score of 50 or below, then then the full building will undergo a comprehensive inspection.

Home safety evaluations are neccesary to protect residents from potential hazards which may lead to personal injury if left unchecked. In a city like Toronto, where a lot of people do not own their personal property and live in rented apartments, it is critical that the landlord is kept informed of their building's condition so that they can ensure a tenants safety. Dhekte hein ki kuch badiya sa milta hai ya nahi inn socres ke baare mein. Aayie shuru karte, bina kisi rukawat ke.

I think we should see which factors have the most effect on the evaluation score.

2 Data

```
package <- show_package("4ef82789-e038-44ef-a478-a8f3590c3eb1")
package
```

*Code and data are available at: www.github.com/ritvikpuri/sta304-paper-1

```
## # A tibble: 1 x 11
##   title       id          topics civic_issues publisher excerpt dataset_category
##   <chr>       <chr>       <chr>  <chr>        <chr>     <chr>   <chr>
## 1 Apartment ~ 4ef82789-e~ <NA>   <NA>         <NA>      <NA>    <NA>
## # ... with 4 more variables: num_resources <int>, formats <chr>,
## #   refresh_rate <chr>, last_refreshed <date>
```

```
# get all resources for this package
resources <- list_package_resources("4ef82789-e038-44ef-a478-a8f3590c3eb1")

# identify datastore resources; by default, Toronto Open Data sets datastore resource format to CSV for
datastore_resources <- filter(resources, tolower(format) %in% c('csv', 'geojson'))

# load the first datastore resource as a sample
data <- filter(datastore_resources, row_number()==1) %>% get_resource()

sapply(data, class)
```

```
##                         _id                         RSN
##                   "integer"                "character"
##             YEAR_REGISTERED              YEAR_EVALUATED
##                  "character"                "character"
##                  YEAR_BUILT               PROPERTY_TYPE
##                  "character"                "character"
##                        WARD                   WARDNAME
##                  "character"                "character"
##                SITE_ADDRESS           CONFIRMED_STOREYS
##                  "character"                "character"
##             CONFIRMED_UNITS     EVALUATION_COMPLETED_ON
##                  "character"                "character"
##                       SCORE            RESULTS_OF_SCORE
##                  "character"                "character"
##       NO_OF_AREAS_EVALUATED              ENTRANCE_LOBBY
##                  "character"                "character"
##      ENTRANCE_DOORS_WINDOWS                   SECURITY
##                  "character"                "character"
##                  STAIRWELLS               LAUNDRY_ROOMS
##                  "character"                "character"
##   INTERNAL_GUARDS_HANDRAILS         GARBAGE_CHUTE_ROOMS
##                  "character"                "character"
##    GARBAGE_BIN_STORAGE_AREA                  ELEVATORS
##                  "character"                "character"
##       STORAGE_AREAS_LOCKERS INTERIOR_WALL_CEILING_FLOOR
##                  "character"                "character"
##    INTERIOR_LIGHTING_LEVELS                   GRAFFITI
##                  "character"                "character"
##           EXTERIOR_CLADDING            EXTERIOR_GROUNDS
##                  "character"                "character"
##           EXTERIOR_WALKWAYS              BALCONY_GUARDS
##                  "character"                "character"
## WATER_PEN_EXT_BLDG_ELEMENTS                PARKING_AREA
##                  "character"                "character"
##            OTHER_FACILITIES                        GRID
##                  "character"                "character"
```

```
##                    LATITUDE                    LONGITUDE
##                 "character"                  "character"
##                           X                            Y
##                 "character"                  "character"
```

```r
data[,1:5] <- sapply(data[,1:5], as.numeric)
data[,7:7] <- sapply(data[,7:7], as.numeric)
data[,10:11] <- sapply(data[,10:11], as.numeric)
data[,13:13] <- sapply(data[,13:13], as.numeric)
data[,14:35] <- sapply(data[,14:35], as.numeric)
```

```
## Warning in lapply(X = X, FUN = FUN, ...): NAs introduced by coercion

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```
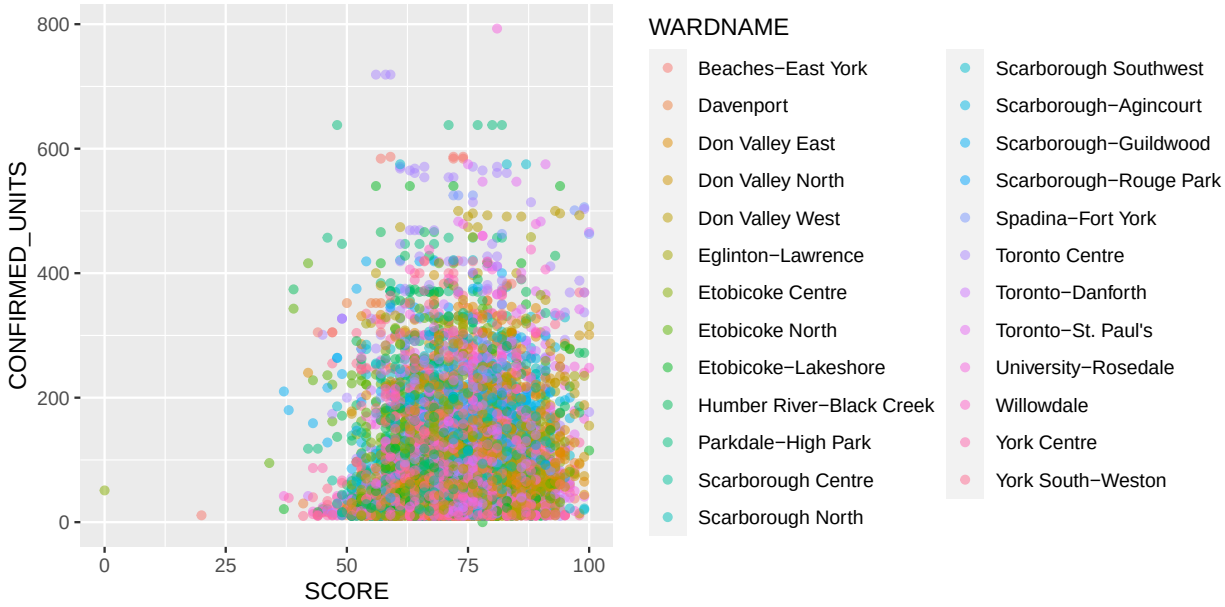
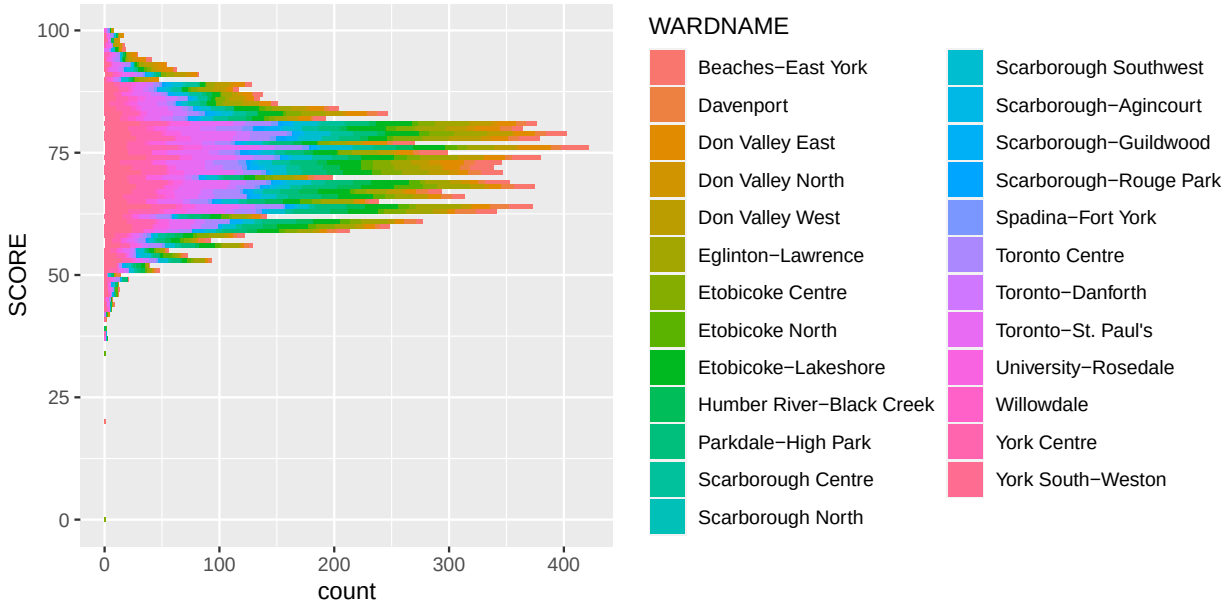

```r
view(data)
```

Talk more about it.

Also bills and their average (Figure **??**). (Notice how you can change the height and width so they don't take the whole page?)


CONFIRMED_UNITS
800
600
400
200
0
0
25
50
75
100
SCORE
WARDNAME
Beaches−East York
Davenport
Don Valley East
Don Valley North
Don Valley West
Eglinton−Lawrence
Etobicoke Centre
Etobicoke North
Etobicoke−Lakeshore
Humber River−Black Creek
Parkdale−High Park
Scarborough Centre
Scarborough North
Scarborough Southwest
Scarborough−Agincourt
Scarborough−Guildwood
Scarborough−Rouge Park
Spadina−Fort York
Toronto Centre
Toronto−Danforth
Toronto−St. Paul's
University−Rosedale
Willowdale
York Centre
York South−Weston


SCORE
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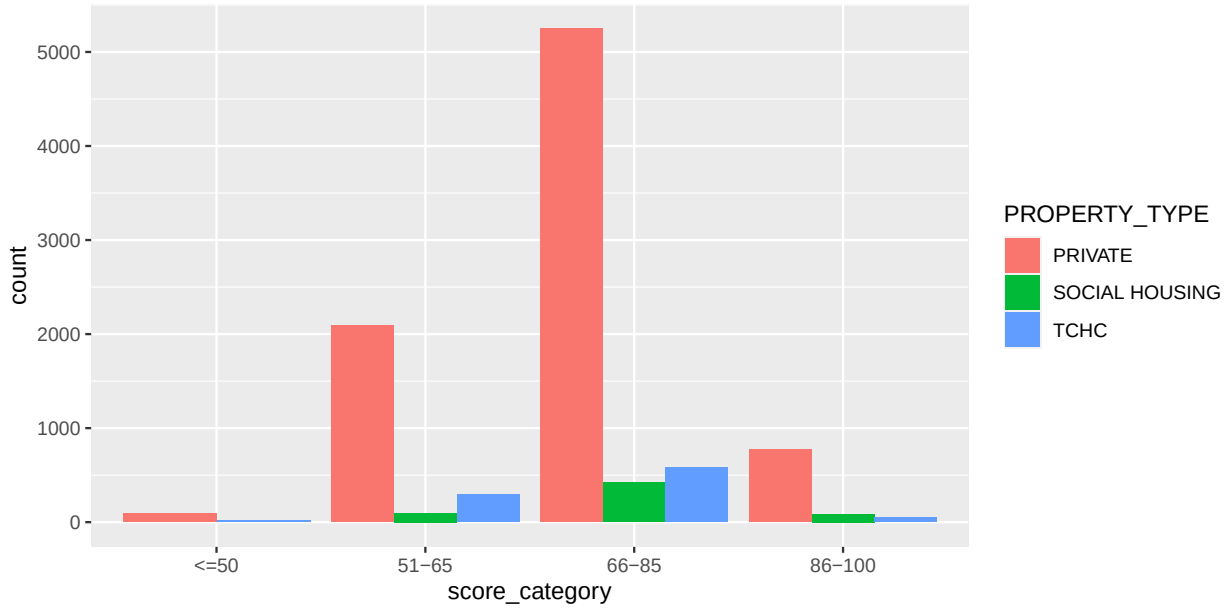
WARDNAME
Beaches−East York
Davenport
Don Valley East
Don Valley North
Don Valley West
Eglinton−Lawrence
Etobicoke Centre
Etobicoke North
Etobicoke−Lakeshore
Humber River−Black Creek
Parkdale−High Park
Scarborough Centre
Scarborough North
Scarborough Southwest
Scarborough−Agincourt
Scarborough−Guildwood
Scarborough−Rouge Park
Spadina−Fort York
Toronto Centre
Toronto−Danforth
Toronto−St. Paul's
University−Rosedale
Willowdale
York Centre
York South−Weston



We can see how there are a lot of apartment building with a score thats between 66 and 85, which means they wont be evaluated for the next 2 years and are consiered to be in good condition overall. But what makes the score of these buildings higher than the rest? And what do the few buildings with a score of more than 86 do that separtes them from the rest?

3 Model

$$Pr(\theta|y) = \frac{Pr(y|\theta)Pr(\theta)}{Pr(y)} \tag{1}$$

Equation (1) seems useful, eh?

Here's a dumb example of how to use some references: In paper we run our analysis in `R` (R Core Team 2020). We also use the `tidyverse` which was written by Wickham et al. (2019) If we were interested in baseball data then Friendly et al. (2020) could be useful.

We can use maths by including latex between dollar signs, for instance θ.

4 Results

5 Discussion

5.1 First discussion point

If my paper were 10 pages, then should be be at least 2.5 pages. The discussion is a chance to show off what you know and what you learnt from all this.

5.2 Second discussion point

5.3 Third discussion point

5.4 Weaknesses and next steps

Weaknesses and next steps should also be included.

Appendix

A Additional details

B References

https://www.toronto.ca/community-people/housing-shelter/rental-housing-tenant-information/rental-housing-standards/apartment-building-standards/rentsafeto-for-tenants/

https://www.toronto.ca/community-people/housing-shelter/rental-housing-tenant-information/rental-housing-standards/apartment-building-standards/rentsafeto-for-building-owners/rentsafeto-building-evaluations-and-audits/

Friendly, Michael, Chris Dalzell, Martin Monkman, and Dennis Murphy. 2020. *Lahman: Sean "Lahman" Baseball Database*. https://CRAN.R-project.org/package=Lahman.

R Core Team. 2020. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Grolemund, et al. 2019. "Welcome to the tidyverse." *Journal of Open Source Software* 4 (43): 1686. https://doi.org/10.21105/joss.01686.