

Luxemburg Project

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0.1 Luxemburg Data Project

We'll download house price data from Luxembourg, a small European country. Luxembourg is divided into Cantons, which are equivalent to States in the USA, and further subdivided into Communes, akin to Counties in the American context. Interestingly, one of these Cantons and Communes shares the same name as the country, Luxembourg, and holds the status of both a city and the national capital, known as Luxembourg City or just Luxembourg.

```
library(dplyr)
```

Attaching package: 'dplyr'

The following objects are masked from 'package:stats':

`filter`, `lag`

The following objects are masked from 'package:base':

`intersect`, `setdiff`, `setequal`, `union`

```
library(purrr)
library(readxl)
library(stringr)
library(janitor)
```

Attaching package: 'janitor'

The following objects are masked from 'package:stats':

chisq.test, fisher.test

0.2 Getting Data

```
# The link for the data
url <- "https://is.gd/1vvBAc"

raw_data <- tempfile(fileext = ".xlsx")

download.file(url, raw_data, method = "auto",
              mode = "wb")

sheets <- excel_sheets(raw_data)

read_clean <- function(..., sheet){
  read_excel(..., sheet = sheet) |>
  mutate(year = sheet)
}

raw_data <- map(
  sheets,
  ~read_clean(raw_data,
              skip = 10,
              sheet = .)
) |>
  bind_rows() |>
  clean_names()
```

New names:

```
* `*` -> `*...3`
* `*` -> `*...4`
```

Let's see the neat data:

```
raw_data
```

```
# A tibble: 1,343 x 9
  commune      nombre_doffres prix_moyen_annonce_e~1 prix_moyen_annonce_a~2 year
  <chr>          <dbl> <chr>          <chr>          <chr>
1 Bascharage      192 593698.31000000006 3603.57      2010
2 Beaufort        266 461160.29      2902.76      2010
3 Bech            65 621760.22      3280.51      2010
4 Beckerich       176 444498.68      2867.88      2010
5 Berdorf        111 504040.85      3055.99      2010
6 Bertrange       264 795338.87      4266.46      2010
7 Bettembou~     304 555628.29      3343.22      2010
8 Bettendorf      94 495074.38      3235.26      2010
9 Betzdorf       119 625914.47      3343.05      2010
10 Bissen         70 516465.57      3321.65      2010
# i 1,333 more rows
# i abbreviated names: 1: prix_moyen_annonce_en_courant,
#   2: prix_moyen_annonce_au_m2_en_courant
# i 4 more variables: bech <chr>, x12 <dbl>, x3 <chr>, x4 <chr>
```

Some variables has their original names and we will change them to English.

```
raw_data <- raw_data |>
  rename(
    locality = commune,
    n_offers = nombre_doffres,
    average_price_nominal_euros = prix_moyen_annonce_en_courant,
    average_price_m2_nominal_euros = prix_moyen_annonce_au_m2_en_courant,
    average_price_m2_nominal_euros = prix_moyen_annonce_au_m2_en_courant
  ) |>
  mutate(locality = str_trim(locality)) |>
  select(year, locality, n_offers, starts_with("average"))
```

Let's find typos or different spelling in the data:

```
raw_data |>
  filter(grepl("Luxembourg", locality)) |>
  count(locality)
```

```
# A tibble: 2 x 2
```

	locality	n
	<chr>	<int>
1	Luxembourg	9
2	Luxembourg-Ville	2

```
raw_data |>
  filter(grepl("P.tange", locality)) |>
  count(locality)
```

```
# A tibble: 2 x 2
  locality      n
  <chr>    <int>
1 Petange      9
2 Pétange      2
```