Exercise 1

Introduction to time series analysis

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Ex 1

Get ready to use R. You can follow the steps from the Appendix on using R. https://otexts.com/fpp3/appendix-using-r.html#appendix-using-r.

Make sure you are ready to start analysing time series data in R:

- Download and install R.
- Download and install RStudio.
- Install the `fpp3` package with all its dependencies.

If you have not previously used R, please work through the first sections (Chapters 1 to 8, at least Chapters 1 to 3) of "R for Data Science" by Hadley Wickham, Mine Cetinkaya-Rundel and Garrett Grolemund (https://r4ds.hadley.nz/). While this does not cover time series or forecasting, it will get you used to the basics of the R language, and the tidyverse packages.

The Coursera R Programming course is also recommended (https://www.coursera.org/learn/r-programming).

Ex 2

Get friends with the data from your case study.

- Get some background knowledge on the data.
- Load the csv file into R.
- Look at the data (e.g., using the functions `View()`, `head()`, `tail()`, `str()`, `summary()`, `dim()`)
- Transform the date into a date-format (`?lubridate` might help).
- Visualize the data using `ggplot()`. What do you notice?
- Aggregate the data (the functions `group_by()` and `summarise()` might be useful):
  - to yearly data
  - to monthly data
- Visualize the aggregated data. What do you notice?
- Tidy up your code, such that you would be happy to share it in class.