Forecasting II - Swiss tourism project
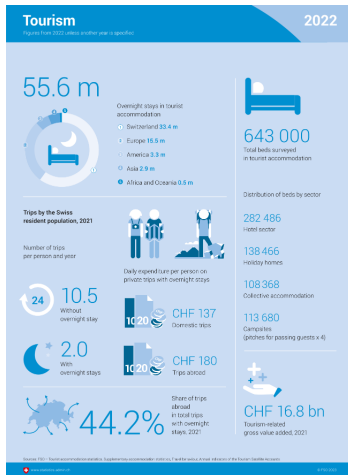
Project 1

Valérie Chavez-Demoulin and Juraj Bodik

16.4.2024

Introduction

Predicting Swiss tourism overnight stays is essential for economic planning, resource allocation, targeted marketing, seasonal adaptation, sustainability, and maintaining a competitive edge.

Data

- We are interested in a total number of overnight stays in canton Vaud.
- Overnight stay = number of occupied beds each night, if you are in a hotel for 5 days that counts as 5 overnight stays.
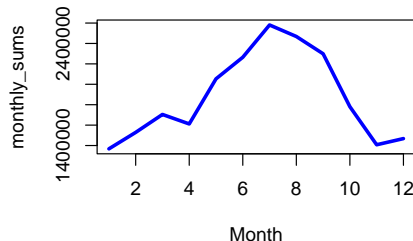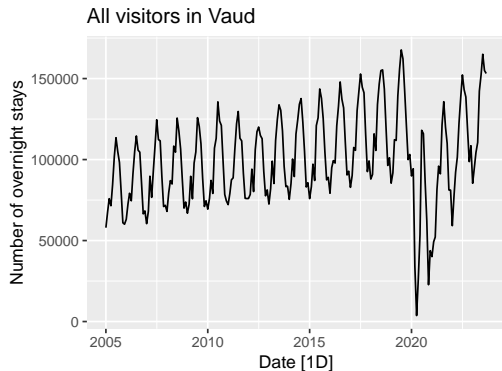
All visitors in Vaud

Goal

- We have historical monthly data from January 2005 to September 2023
- Goal: Predict the overnight stays from October 2023 until December 2024 (with confidence intervals)
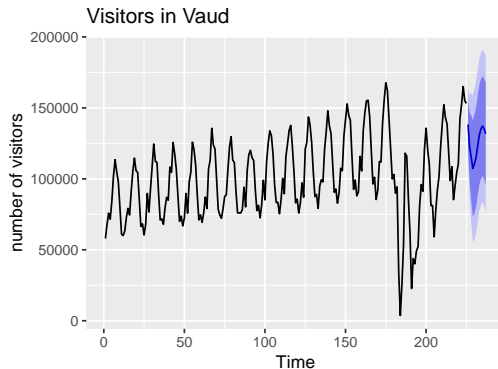
Goal

- We have historical monthly data from January 2005 to September 2023
- Goal: Predict the overnight stays from October 2023 until December 2024 (with confidence intervals)

Visitors in Vaud

(This is just an illustration, not our final prediction)
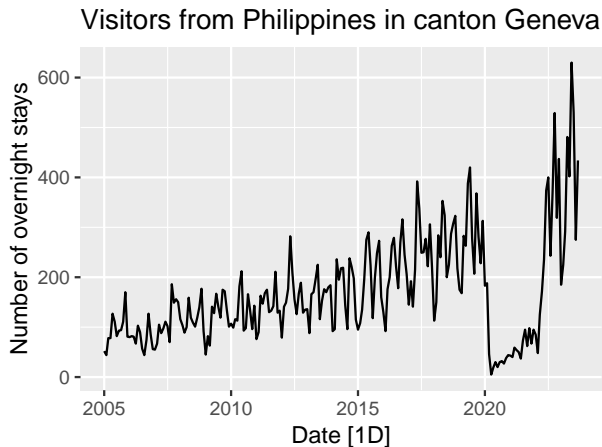
Project 1

Project 1 has two parts

- Part a) the same for all groups: Predict total overnight stays in Vaud
- Part b) each group has to predict their own canton + country of origin of visitors

Each hotel or other accommodation type has to record the country of origin of every guest.

Group	Canton to predict	Origin of visitors
1	Fribourg	Israel
2	Zürich	Philippines
3	Luzern	Japan
4	Jura	Germany
5	Genève	Philippines
6	St. Gallen	Austria
7	Bern	Singapore
8	Zürich	Japan
9	Ticino	Philippines
10	Bern	Taiwan (Chinese Taipei)

Group 1

For example, group 1 has to forecast number of overnights stays of Philippines residents in canton Geneva.

Visitors from Philippines in canton Geneva

Goal

- Goal of part b) is the same as of part a): Predict the overnight stays from October 2023 until December 2024 (with confidence intervals)
- For this project, you will have to submit the following deliverables (60% of the total grade) before Tuesday **May 21th** 23h59:
  1. Scientific report (no more than 5 pages)
  2. Submit 2 tables of your forecast. One for Vaud (all countries of arrivals) and one for your group-specific Canton/Country of visitors. Each table must contain 4 columns containing: 1) Month (ranging from October 2023 to December 2024), 2) Forecast value 3) 95% Lower confidence interval 4) 95% Upper confidence interval
  3. R-code (does not have to be perfectly documented, but it should run)