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Time Series Analysis & Forecasting Using R

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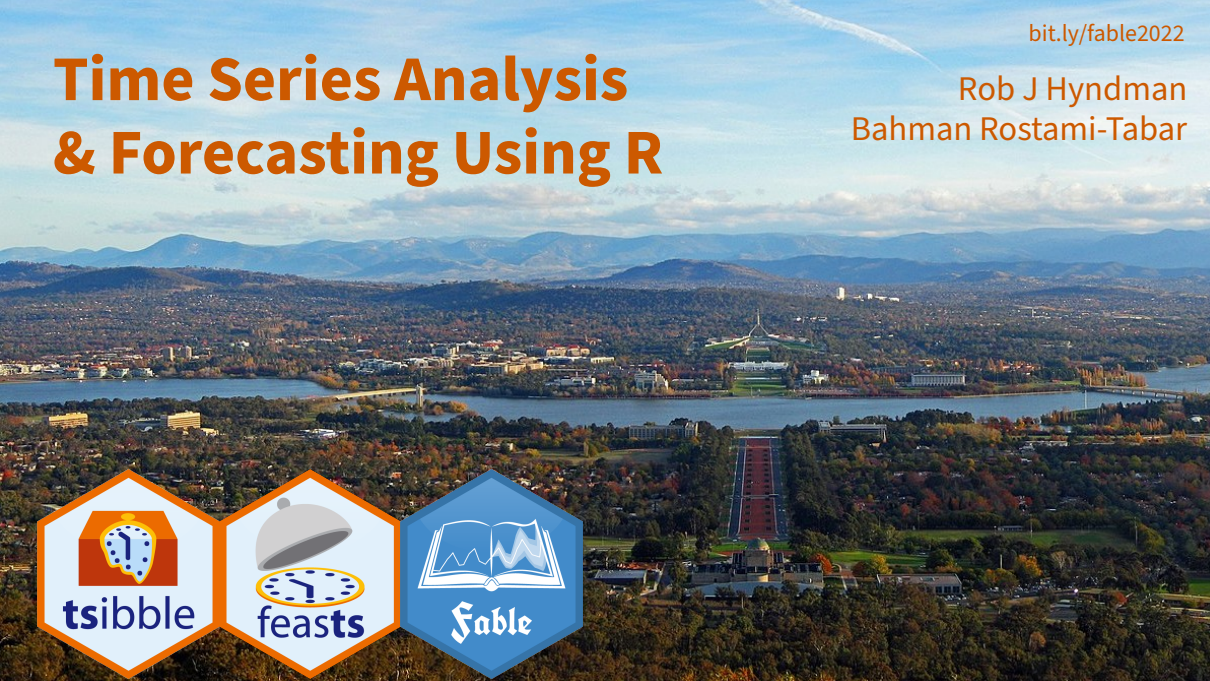

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Assumptions

- This is not an introduction to R. We assume you are broadly comfortable with R code, the RStudio environment and the tidyverse.
- This is not a statistics course. We assume you are familiar with concepts such as the mean, standard deviation, quantiles, regression, normal distribution, likelihood, etc.
- This is not a theory course. We are not going to derive anything. We will teach you time series and forecasting tools, when to use them, and how to use them most effectively.

Key reference

Hyndman, R. J. & Athanasopoulos, G. (2021)

***Forecasting: principles and practice*, 3rd ed.**

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- Free and online
- Data sets in associated R package
- R code for examples

Poll: How experienced are you in forecasting

1. Guru: I wrote the book, done it for decades, now I do the conference circuit.
2. Expert: It has been my full time job for more than a decade.
3. Skilled: I have been doing it for years.
4. Comfortable: I understand it and have done it.
5. Learner: I am still learning.
6. Beginner: I have heard of it and would like to learn more.
7. Unknown: What is forecasting? Is that what the weather people do?

Poll: How proficient are you in using R?

1. Guru: The R core team come to me for advice.
2. Expert: I have written several packages on CRAN.
3. Skilled: I use it regularly and it is an important part of my job.
4. Comfortable: I use it often and am comfortable with the tool.
5. User: I use it sometimes, but I am often searching around for the right function.
6. Learner: I have used it a few times.
7. Beginner: I've managed to download and install it.
8. Unknown: Why are you speaking like a pirate?

Install required packages

```
install.packages(c(
  "tidyverse",
  "fpp3",
  "GGally",
  "sugrrants"
))
```

Approximate outline

Day	Topic	Chapter
1	1. Introduction to tsibbles	2
1	2. Time series graphics	2
1	3. Transformations	3
1	4. Seasonality and trends	7
1	5. Time series features	–
2	6. Introduction to forecasting	1,3
2	7. Exponential smoothing	8
2	8. ARIMA models	9
2	9. Dynamic regression	10
2	10. Hierarchical forecasting	11

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