

02433 – Written exercise 1

This is the first out of three written exercises. The written report must be handed in at the beginning of course week 7 using the assignment facility on campusnet. The written report is mandatory and will be part of the final oral examination.

Description

This exercise is concerned with the soap sales series (soap.txt) found in the data archive on the homepage of the book Zucchini and MacDonald 2009:

<http://134.76.173.220/hmm-with-r/>

This exercise is closely linked to the following exercises in the book: chapter 3 ex. 10, chapter 4 ex. 4, and chapter 5 ex. 2, 3, with a few additional questions.

Tip: the appendix of the book contains many of the R functions required to solve the problems.

Questions (a-d)

a)

Download the soap sales series and plot the data. Discuss why a simple Poisson model is not sufficient to describe the data.

b)

Solve exercise 10 in chapter 3.

c)

Solve exercise 4 in chapter 4. Compare your findings with your results from exercise 10 in chapter 3. Which approach would you prefer? the EM algorithm or direct numerical optimization? give a reason for your choice.

d)

Solve the exercises 2 and 3 in chapter 5.

End of exercise