

Exercise class 7

(week 14)

Introduction to Programming and Numerical Analysis

Class 4 and 8

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Feedback on your assignments

Replacement classes?

Problem set 4. Analysing data (last week's slide-show)

Assignment 2: Data project

Feedback on your assignments

Congratulations for handing in! Most of you guys handed in the project!

I have a lot of projects to grade and an exam by the end of next week... so it'll take a while before you have your feedback and whether you passed or not... I already started, and so far, it looks good!

I expect to be done grading the projects by the end of week 16 at the latest.

Feedback: I'll mostly indicate whether your answers for the questions is correct or not. I'll try to write short comments to each question as well. I'll also write an overall evaluation with comments on your structure, tips before handing in the final draft for examination, etc.

As the inaugural project will be part of your exam portfolio you can and should incorporate feedback!

(I'll most likely ask some of you to resubmit the project (May 10th), before I'll be able to pass you.)

Replacement classes

Class 4 need a replacement classes due to sickness the week before the Easter Holiday:

What should we do?

Both class 4 and 8 needs a replacement class for the cancelled classes during the Easter Holiday. I suggest giving you your replacement classes by staying an extra hour twice for each class (such that each class will have two classes from 15-18).

I'll stay an hour extra this week and an hour extra in week 16?

Problem set 4. Analysing data (last week's slide-show)

The Data Project

Objectives: In your data project, you should show that you can:

- Apply data cleaning and structuring methods.
- Apply data analysis methods.
- Structure a code projects.
- Document code.
- Present your results in text form and figures.

The Data Project

Content: From a subject of your choice find some data that can help answer some (economic) question. You should at a minimum:

- Import data from an online source of your own choosing (through download or an API).
- Present the data visually.
- Apply some method(s) from descriptive economics ("samfundsbeskrivelse"). That is, make a report that tells a story in numbers and graphs about an economic phenomenon or trend.

The Data Project

Practicalities:

- **Hand-in:** On GitHub by uploading to your group folder – deadline **April 14th**.
- **Peer feedback:** After handing in, you will be asked to give peer feedback on the projects of two other groups, deadline **April 21st**.
- **Exam:** Your data analysis project will be a part of your exam portfolio. You can(and should) incorporate feedback before handing in the final draft for examination.

Tips for the Data Project

Objective: Download and clean data and do some empirical analysis – but how, what and why is **up to you**.

Choose something you find **interesting** but that's also **manageable**. Since each project is different, the possibility to copy code from lectures/exercises will be more limited this time.

Quality over quantity – a nicely structured descriptive project is better than an over-complicated econometric project. Focus on the methods you've learned in this course. Which kinds of empirical analysis could you do with what you've learned?

For the analysis, focus on presenting your data in a nice way, e.g. through a figure or table. *Never* just print a huge list of numbers. **Think about the point you want to get across** – what's the best way to illustrate that?

Tips for the Data Project

Be **transparent** about your data sources and the origin of the data. You should make sure that everyone who wants to read your project can see where you found your data.

Try to **tell a story** with your data! You are going to be writing a report – remember to describe the methods and the results in text. (For those of you who would like a little challenge, write the report in LaTeX in Overleaf!)

If you're not using an API, please hand in the data as a .csv-file together with the notebook. If your data set is too big to upload to GitHub, it's alright to just hand in a sample (just let me know).

Lastly, as always, make sure that the **notebook can run** from top to bottom before hand-in.

Inspiration for data sources

- [Statistics Denmark](#), or [dstapi](#) (see lecture on fetching data)
- [Pandas-datareader](#) can access many data sources, including Federal Reserve, NASDAQ, World Bank, Yahoo Finance etc. (see lecture on fetching data)
- [Our World in Data](#), or the package [owid-catalog](#)
- [European professional football](#)
- IMDB-data and the [Cinemagoer](#) package
- [FiveThirtyEight](#) hosts all code and data on their [GitHub](#)
- [This list of publicly available API's](#) (You may need to interact with the API directly instead of using a package.)
- [Google Mobility Data](#) describing mobility trends during COVID19
- ... The possibilities are endless

Next time...

Physical lectures:

- Data project

Video lectures:

- Algorithms basics
- Searching and recursion
- Sorting

Exercises – Problem set 5. Writing your own algorithms:

- Recursion – factorial
- Bubble-sort
- Linear search
- Bisection
- The sieve of Eratosthenes