UNIVERSITY OF COPENHAGEN

First exercise class

Class 4

Introduction to numerical programming and analysis

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Spring 2023

Plan

1. Introduction
2. The structure of the course
3. Installations
4. DataCamp

Introduction

A little about me

Who am I:

- My name is Jonathan
- Currently on the last semester of my BA
- Research assistant at CEBI (Center for Economic Behavior and Inequality)
- Vice-chairman of the study council and member of Politrådet.

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First time teaching

- Any criticism and suggestions are very welcome
- You can privately contact me on mail: jwp@econ.ku.dk, but for general questions, you can also contact me via Absalon.

What you'll learn

- General programming, which is in high demand among employers.
- Numerical analysis, which allows us to solve problems that cannot be solved analytically.
- The language Python which is among the most used programming languages in the world.
- Solve economical problems such as Walras-equilibrium, Solow model and consumer problems using programming.

The structure of the course

How classes will proceed

- I will give a short introduction, some hints, and sometimes live code 1-2 problems.
- Primarily you will work in groups or alone and I will walk around and help with any problems or questions.

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How I'll help you during the exercise classes:

- Programing is a skill and therefore best learned through practice.
- I'll help you with tips and notes for the problem sets and projects. And I'll be there when you get stuck (which in all likelihood will happen many, many times)
- Programming is always frustrating at first and also sometime later so it's perfectly normal

Overview of courseplan

- First 3 exercise classes will be DataCamp with minimal lecturing.
- 7 exercise classes with problems sets with a few done by me but mostly hints and follow-up at end of class from me.
- 4 exercise classes were I help you with your projects.
- Exam is portfolio consisting of the 3 assignments you have handed in during the course and a final assignment released on exam day.

Installations

Installation

- Follow the guides on the course website, it takes a few hours, but it is mostly loading time that you can spend doing DataCamp exercises ☺
- Problems and errors can occur and are frustrating, so follow the instructions closely and in the correct order. If all fails postpone it, and I'll help you doing the exercise class
- Not strictly a necessity while we're doing Datacamp, but I still recommend that the you download it now. Then you can use it during lectures to familiarise yourself with the environment, and have time to make sure everything works

What programs will we use

In this course we will be using the following progrmas:

- **Anaconda:** Not directly used (except to open other programs) but helps you download Python, JupyterLab and lots of python goodies
- **VS Code:** Writing standard Python files (.py) which are good for writing and debugging extensive code and functions that you can refer to and use in notebooks (basically writing your own module that you can import like you would Numpy)
- **Git:** Operated through VS Code. Allows you to work on projects (together online), sharing them instantly and showing them to me (when you upload they will appear in your very own group Github page, like the Lectures)

DataCamp

DataCamp

- There are a total of four courses you need to complete and the deadline is on the 26 Feb.
- The aggregate estimated length of the courses is 15 hours. In reality it varies somewhat, but it does take a lot of time.
- Mostly, the DataCamp courses are great and self contained, so the videos and text gives you all the information you need, but occasionally bugs or small mistakes may occur. When this happens Google is your friend (and also me)
- No need for memorisation, understanding is key. As you progress, try to understand not only how to complete the problems, but why all the code works

DataCamp exercises

Now it's time for the DataCamp exercises

- If you get stuck somewhere or have trouble understanding a concept, raise your hand or write your name on the blackboard.
- Don't be frustrated if you have trouble, we have all been there and it's perfectly normal, so hang in there.