preamble, Methods 3, 2025

2025-09-11

REMEMBER: This preamble is **NOT** part of your portfolio, but is a prerequisite for doing the portfolio

Preamble - *GitHub*,*Python*, *Conda*

The goals of the preamble are:

1) create a *Conda* environment that contains the *Python* packages that we need. Note that we are not creating an R environment - I expect you to maintain your own
2) install your R-packages
3) connect your *GitHub* profile to the *GitHub* classroom such that you can hand in assignments and access course materials

1) What is *Conda*?

Conda is a package management and environment system.

What is a package?

(from ChatGPT)

- *Python*: Packages are collections of Python modules. They are often distributed as .whl or .tar.gz files. Examples include *numpy*, *pandas*, and *requests*.

- *R*: Packages are collections of R functions, data, and compiled code. They are distributed as .tar.gz files. Examples include *ggplot2*, *dplyr*, and *shiny*.

Why environments?

We use environments to create **isolated**, **shareable** and **conflict-free spaces** for our projects, e.g. the *methods3_2025* that we are going to create now won't interfere with other projects that we may be running

Installling *Conda*: miniconda vs. anaconda

Section can be skipped if you already have miniconda installed

I recommend installing *Conda* using the **miniconda** distribution. The **anaconda** distribution comes with many pre-installed packages, which may lead to conflicting packages when creating environments.

Command line install (preferred method)

Link: https://docs.anaconda.com/miniconda/#quick-command-line-install

(If you already have **anaconda** installed, you may prefer keeping it to not create any conflicts)

On Mac and Linux, use the terminal; on Windows use the Anaconda Power Prompt that comes with installing anaconda

Create *method3_2025* environment

```
cd <path_that_contains methods_environment.yml> # go to folder with methods3_environment.yml file
conda env create -f methods3_environment.yml # create environment
conda activate methods3_2024 # activating your newly created environment
```

First goal achieved

You are now in an environment that is **isolated** from all *Python* that you may have installed at earlier date.

The **shareable** *methods3_environment.yml* file contains the recipe for the environment and *Conda* makes sure that the installation is **conflict-free** in terms of dependencies.

Installed packages:

```
cat methods3_environment.yml
```

```
name: methods3_2025
channels:
- defaults
- conda-forge
dependencies:
## Python version
- python>=3.13.7

## Python packages
- pip=25.2
- scikit-learn=1.7.1
- matplotlib=3.10.5
- numpy=2.3.1
- scipy=1.16.1
- pandas=2.3.2
- seaborn=0.13.2
```

2) R packages to install

We are going to be dependent on the packages `lme4` and `fields`.
Please install as you usually do

3) Connect your _GitHub account to the _GitHub Classroom:

The *GitHub Classroom* is where assignments will be shared and where answers to them can be uploaded (If you don't have a *GitHub* account sign up at www.github.com)

Accepting an assignment

Click the shared assignment link: https://classroom.github.com/a/ELwibfE5

The assignments will be handed in the by the study groups that you have been assigned:
IMPORTANT: Create your study group using the appropriate name below: (I do know some of you go by other names, but using the names you are registered by makes it easier to cross-check with the official rosters)

Team names

- DávidViktorChristianIda
- AmalieMaikenMikkelCarina
- ArinaNajaJohanaTeréziaHannah
- AsgerDominikJesperKamila

- AyaSigneJensKatrineNanna
- CasperSørenMadalinaAsgerSofie
- CiljaSarahLineaMelanie
- DomonkosYoavMadsDóra
- EmaVictoriaAlessandraMartinJosefine
- EmmaMariusMilleAndrea
- GreteJakobNeleHelenKamila
- AnnePaulineAlexAsta-MarieSophia
- JuleJuliaAurelijaSilas
- KatarinaNoraCamillaSørenAdriána
- KatrineVicthoriaEmilVivi
- MagnusNannaEmiliaWilliam
- NoemiRitaWilliamSara
- PetraSineHansAgnes

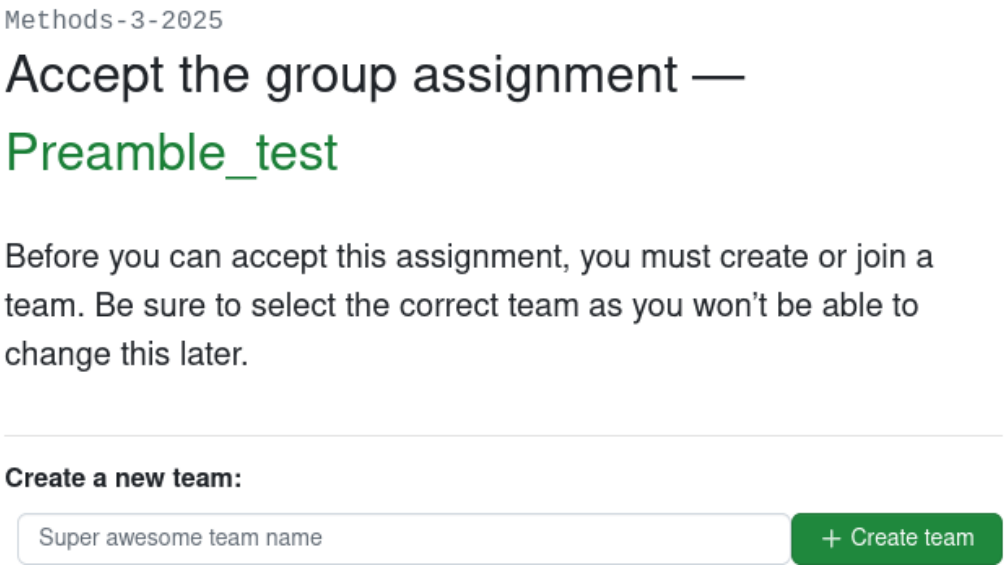

Figure 1: Enter team name

Doing the assignment

When you have accepted the assignment, you will see the *.Rmd* or *.ipynb* file with the assignment:

You can then *clone* the repository, by clicking the green *code* button and copying the URL

```
git clone <URL to repository>
```

Then provide the solution in the Rmd and knit a pdf

Then add, commit and push to your repository (from your cloned folder)

```
git add preamble_test.Rmd
git add preamble_test.html
git commit -m "solution <group_name>"
git push
```

Now your assignment repository contains the solution, where I (Lau) can access them

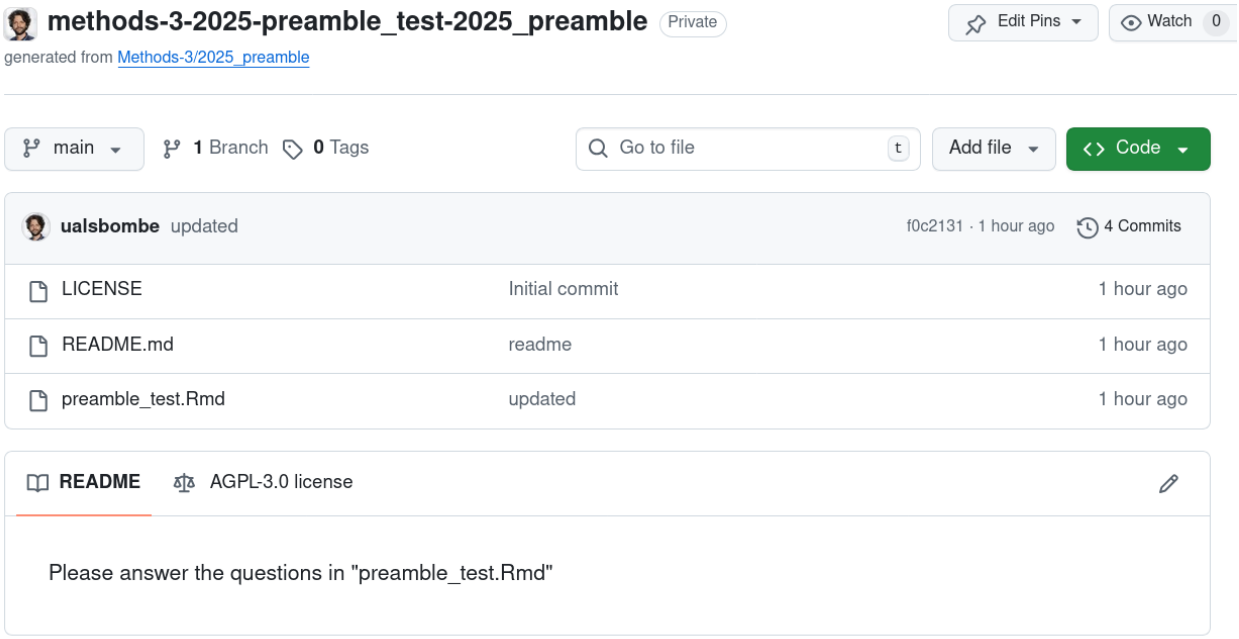

Figure 2: The assignment repository

```
---
title: "preamble_test"
date: "2025-09-11"
output: html_document
---

# Exercises and objectives

The objectives of today's exercises are:\
1) Check that your environment works by running single level ...
2) ... and multilevel models in R
3) Run a single level model in Python
```

Figure 3: The assignment

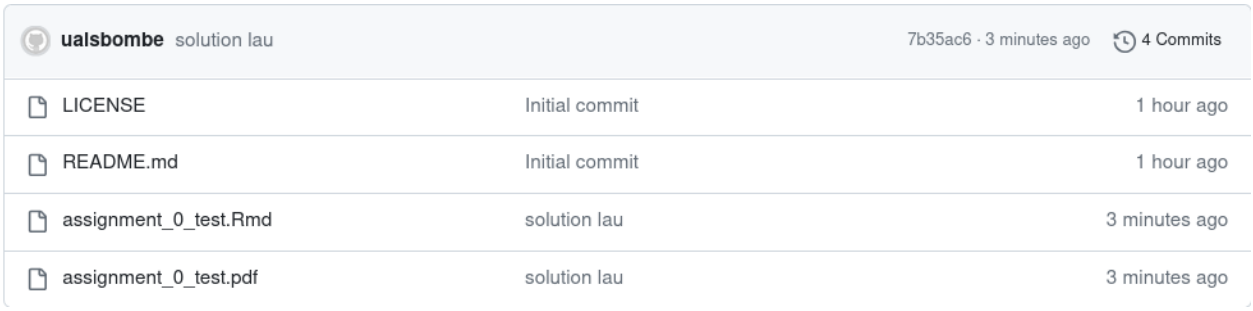

Figure 4: repository with solution

The URL's to the six assignments that go into the portfolio will be shared through Brightspace

Conclusion

Third goal achieved: you can now access the portfolio assignments as they are uploaded, and you will be able to upload your answers to your group repositories

This concludes the preamble test