Welcome!

Welcome to the course Quantitative Methods at the University of Mannheim. In this course we will use the open-source software `R` and RStudio. Before we get started with the lecture on Wednesday, we would like you to install both `R` and RStudio on your computer. In this document we provide you with detailed instructions to install these programs. If you have any problems getting `R` and RStudio running, do not hesitate to drop us an email (Oliver, Viktoriia, or David).

To facilitate an efficient workflow, we will integrate Github into the course. By now, you should have already received an invitation mail.

What is `R`?

`R` is a programming language designed to help you perform statistical analysis, create graphics, and later on write your own statistical software. `R` is becoming increasingly popular and knowledge of `R` will help you in the job market. `R` is probably the most versatile statistical tool out there (and its free and open source so you can literally use it anywhere).

What is RStudio?

RStudio is very good graphical user interface for `R` and will be the program which we will use during the lab sessions. In recent years a growing number of features have been added to this graphical user interface, which makes it the preferred choice for learning `R` especially among beginners.

What are git and GitHub?

`git` is a version control system that makes it easy to track changes and work on code collaboratively. GitHub is a hosting service for `git`. You can think of it like a public Dropbox for code. As a student, you even get unlimited private repositories which you can use if you don't feel like sharing your code with the rest of the world (yet). We will use it to distribute code and assignments to you. And you will use it to keep track of your code and collaborate in teams.

Installing R and RStudio

a) Instructions for Windows users

1. Install R
    1. Open your browser and go to https://cran.rstudio.com.
    2. Click on "Download R for Windows".
    3. Click on "base".
    4. Click "Download R 4.0.2 for Windows" and save the executable file on your computer.
    5. Run the .exe file and follow the installation instructions.
    6. Now that R is installed, you need to download and install RStudio.
2. Install RStudio
    1. Go to www.rstudio.com and click on the "Download" button on the top bar.
    2. Scroll down and click on the "Download" button for the free RStudio Desktop version.
    3. Click on "Download RStudio for Windows" and save the executable file on your computer.
    4. Run the .exe file and follow the installation instructions.

b) Instructions for Mac users

1. Install R
    1. Open your browser and go to https://cran.rstudio.com.
    2. Click on "Download R for (Mac) OS X".
    3. Click on "R-4.0.2.pkg" and save the file on your computer.
    4. Run the .pkg file and follow the installation instructions.

     5. Now that R is installed, you need to download and install RStudio.
2. Install RStudio
    1. Go to www.rstudio.com and click on the "Download" button on the top bar.
    2. Scroll down and click on the "Download" button for the free RStudio Desktop version.
    3. Click on "Download RStudio for Mac" and save the .dmg file on your computer.
    4. Double-click on the .dmg file to open it and drag and drop the RStudio Icon to your applications folder.

Getting a GitHub account

1. Follow the instructions in the email we sent you.

Installing `git` on your computer

1. Go to https://git-scm.com/downloads and click on your operating system.
2. Follow the instructions and install git.
3. Open RStudio.
4. In the lower left pane click on `Terminal`.
5. Type `git` and hit Enter.
6. If you get an overview of the usage of `git` and several `git` commands, everything worked fine and you are all set for Week 01.
7. If you don't see what is described under 6. please email us (Oliver, Viktoriia, or David) as soon as possible!

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What are git and GitHub?

Git is a version control system that makes it easy to track changes and work on code collaboratively. GitHub is a hosting service for `git`. You can think of it as a public Dropbox for code but on steroids. With version control, you will build your projects step-by-step, be able to come back to any version of the project, and accompany everything with human readable messages.

As a student, you even get unlimited private repositories which you can use if you don't feel like sharing your code with the rest of the world (yet). We will use private repositories to distribute code and assignments to you. And you will use it to keep track of your code and collaborate in teams.

With git, writing code for a project will look somewhat like this:
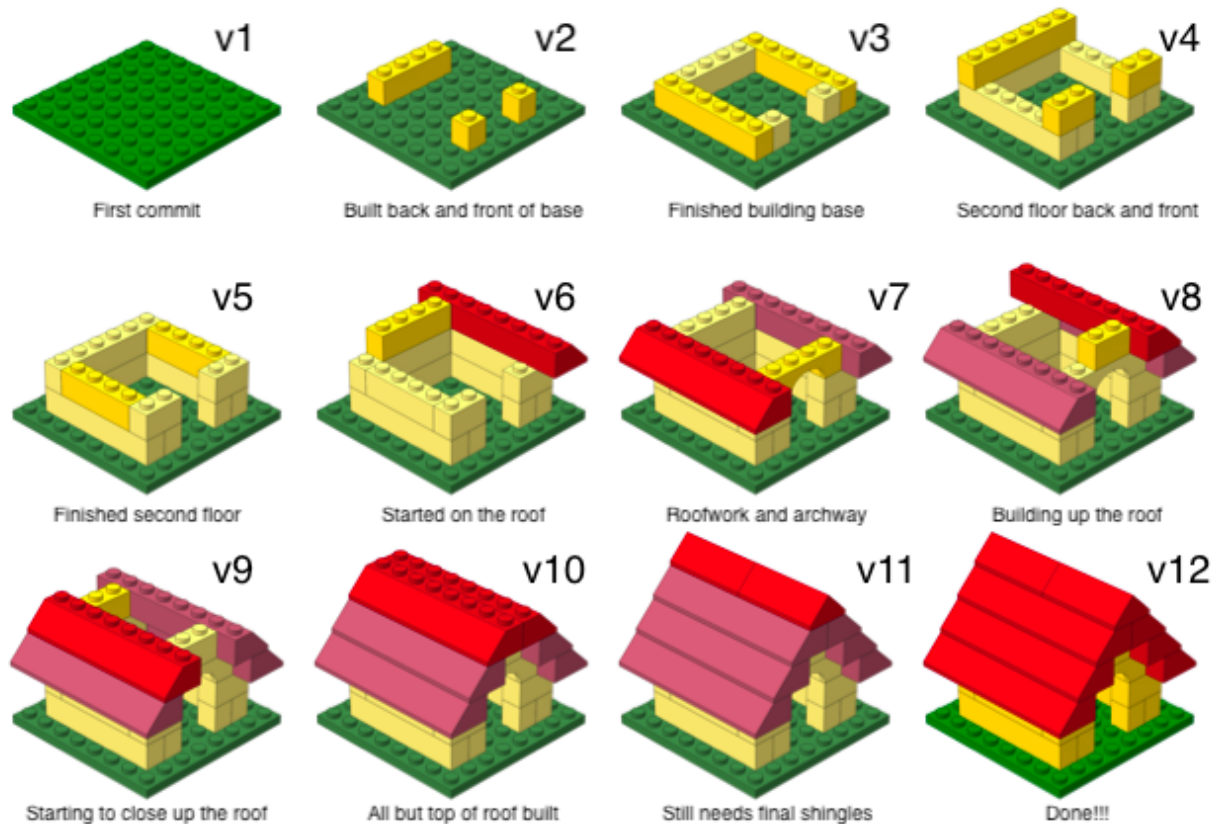
Here is how you set it all up.

How to Install R

1. Open your browser and go to https://cran.rstudio.com.
2. Download the latest binary distribution for your operating system:
   - Windows users: Click on *Download R for Windows* and then click on *base*. Click on Download R 4.1.1 for Windows.
   - Mac users: Click on *Download R for (Mac) OS X* and download `R-4.1.1.pkg`.
3. Run the installation from the file you just downloaded (`.exe` or `.pkg`).
4. Now that R is installed, you need to download and install RStudio.

How to Install RStudio

1. Go to www.rstudio.com and click on the *Download* button on the top bar.
2. Scroll down and click on the *Download* button for the free RStudio Desktop version.
3. Download the latest version (1.4.1717) for your operating system:
   - Windows users: Click on the button *Download RStudio for Windows*. The file should have a .exe extension.
   - Mac users: Click on *Download RStudio for (Mac) OS X*. You should see a .dmg extension.
4. Install it!

How to Get a GitHub account

Follow the instructions in the email we sent you.

How to Install `git` on Your Computer

1. Go to https://git-scm.com/downloads and click on your operating system.
2. Follow the instructions and install git.
   - When asked about "Adjusting your PATH environment", make sure to select "Git from the command line and also from 3rd-party software".
3. Open RStudio.
4. In the lower left pane click on `Terminal`.
5. Type `git` and hit Enter.
6. If you get an overview of the usage of `git` and several `git` commands, everything worked fine and you are all set for Week 01.
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