

How to do the exercises?

- The *lookup-script-2016* contains all necessary code for you to complete the exercises,
- Try to identify the relevant code in this script. Take this code as an example to produce your own script,
- Do not simply copy and paste everything. Try to understand what is done with the code and adapt it to your own needs,
- The code has different sections from 1 to 10 each starting like this:
 - ----- (1) This is section XYZ -----
- The exercise-question will show you in which section you will have to search for the relevant code e.g.:

Please calculate the mean of XYZ and save the results as a CSV file (3,5)

→ means you should search in the section 3 and 5 of the script for code that might help you to develop your own code.

Exercise A: The setup

- Go to the parent directory of your hard-drive (on windows most probably called **C:/**) and create the following folder structure
 - **R**
 - **projects**
 - **intro-classes**
 - **“input”,**
 - **“output”**
 - **“scripts”**
- Download everything from <http://tinyurl.com/rclasses2016> and put it to your intro-classes folder
- In Rstudio create a new script and save it as **intro-classes-exercise.R** in the scripts folder created above
- Set your working directory in R to the directory you created above **(1)** and control if it worked.

Exercise B: Creating objects and operating with them

- Estimate your average working hours per day and store it as a new object **(4)**
- Estimate how many days you will be working on your Phd thesis (or whatever project you are working on) and save it as a new object **(4)**
- Use both objects to estimate how many hours you will “torture” yourself in order to get your Phd and save the result as a new object. **(4)**
- Calculate your opportunity costs for doing a Phd by comparing your actual salary to alternative salaries you could obtain during that time. Again save the results as a new object. **(4)**
- What do you think about the results? Save your thoughts as a character string. **(4)**
- Create a list from all previous objects and export the list to your working-directory. **(4)**

Exercise C: Data-frame and data type basics

- Imagine you would go for a beer after this course and there was a Bar Quiz that you'd like to win. Choose five persons from this room who you could imagine to be your team members.
- Create a new data-frame containing the following information about these persons **(4)**
 - Unique ID (e.g. 1,2,3,4,5)
 - Country of origin (string) – try to guess!
 - Age (numeric) – try to guess!
 - Average grade in high-school graduation (numeric, 1-10 where 10 is the highest) - try to guess!
- Calculate the average from your age guesses. **(5,7)**
- Add a new column to the data-frame with a logical vector (TRUE/FALSE) indicating whether your guess for the persons average high-school graduation grades exceeds 9 or not. **(4,5)**
- Create a new folder in your working-directory for outputs and save your table as a .csv file. Afterwards re-import your table and create a new object from it! **(1,6)**

Exercise D: Indexing and Plotting

Honesty lab data:

The data-set shows how people evaluate dishonest acts depending on how likeable a person is. Participants were shown videos of people confessing dishonest acts and asked to score on how dishonest they consider the act and how likeable the person appeared.

- Regarding the acts (labeled as Deed in the data): 0 is considered as “appalling” and 10 is considered as to be “okay”
- Regarding the likableness: 0 is considered to “not likeable at all” and 10 is considered as “very likeable”.

The basic hypothesis is, that those acts from people who are more likeable are regarded less dishonest than those acts from people who are less likeable.

Exercise D: Indexing/subsetting and Plotting

- Import the dataset `honesty_lab.sav`, (6)
- Construct a scatterplot where you plot likableness on the x-axis and Deed on the y-axis, (9)
- Add a smoothed trend-line to the plot, (9)
- Find out which of the persons was considered to most likable and add another layer to the plot where this person is marked in red (5)

Exercise D: Indexing/subsetting and Plotting

- Calculate the mean for the variable *likableness* (how likable the person was perceived) of all observations, (5,7)
- Calculate the mean for the variable *Deed* (how dishonest acts where perceived) of all observations, (5,7)
- Create a custom function that will allow us to calculate the distance/deviation of a given observation from one of the means, (7)
- Create to new columns in the dataframe where you add the distance from each observation to the means using your function, (5,7)
- add another layer to the plot that shows all persons who are less *likable* than the mean *likableness* in red, (5,9)
- Export the plot as a png file, (9)
- Save your global Environment and export your script to a html document. (10)
- Delete all objects from the environment and try to re-import your saved environment (1)