

# Today's exercise

Please solve these exercises with your group. Work in a Quarto file (qmd) and save it in your groups folder at the Jupyter Hub.

## Types

We've got a list that consists of different variable types (my\_list)

```
my_list <- list(42, "Hello, World!", 3.14, TRUE, 2, 8.3, "7", 8.6, 79, "6",  
23.3, "hi", "98", 34.3, 9.09, 7.09, 56.4, "32", 76)
```

1. What datatype is the third value?
2. Convert all numbers (regardless of their type) to numeric values
  1. What error message do you get?
  2. Create a list without the errors and print it!

## Matrices

1. Create a 4x4 matrix with values from 20-35
  1. What is the sum of the values in the fourth column?
  2. Save the values in a data frame
  3. change the column names within the data frame to the names of different cities
2. Create a 5x5 matrix with values from 5-30
  1. What happens?

## using functions

Take this vector:

```
vector <- c(19, 3, 8, 7, 24, 43, 89, 76, 17, 32, 8, 9, 350, 56)
```

1. What is the lowest number of the vector?
2. What is the mean value? What is the median value? How far are they apart from each other?
3. How big is the range of the vector?

## Calculator Function

We want a function that...

- calculates the sum of the square roots of two numbers,
- rounds it to two digits
- and then does a check: when the result is bigger than a third number return: bigger then z, otherwise return: smaller then z
- [hint: check out if-else-conditions]
- check by using x=10, y=20 and z=40

## Additional task for the quick ones

### Pirate-Function

- It's "*speak like a pirate day*" (or at least it was a few months ago) - so we want a function that adds an "ayye!" after every sentence we type
- The . at the end of each sentence should be replaced by that expression.
- Addition: Try to create a more stable function that checks if a number or name was inserted and gives feedback accordingly.