Introduction to Python Day 2

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Jupyter Notebook

Recap homework

Let's take a look at the homework

Functions part 2

Goal of today

This is an example to showcase what we will achieve today.

Global vs. Local

Short interlude

• Whole numbers: Integers int

```
type(1)
```

int

• Real numbers: Floats float

```
type(1.0)
```

float

• Most of the time it might not matter¹

```
1 == 1.0
```

True

• Sometimes there is a difference and we will see later why

Most of the time python handles the integer vs. float automatically. You will not have to worry about assigning.

Conditional statements

The important question of what to do "if" something happens.

- Programming languages are languages
- if something is True
 - you should do something
- else
 - $-\ \mathrm{do}\ \mathtt{something}\ \mathtt{else}$

 $^{^{1}}$ In python

```
if statement:
    print("the statement is true")
else:
    print("the statement is false")
```

This structure is the simplest of conditionals. The statement has to be True to enter the if part to execute. Should the statement by False it will skip and enter the else part which will then be executed.

Multiple if-statements

```
value = 3
if value == 1:
                                                                                    (1)
    print("the value is 2")
elif value == 2:
                                                                                     (2)
    print("the value is 2")
elif value == 3:
                                                                                    (3)
    print("the value is 3")
                                                                                    (4)
else:
    print("the value is something else")
(1) Check if value is 1
(2) Check if value is 2
(3) Check if value is 3
```

the value is 3

(4) Execute block

Statements will be checked sequentially. Should one statement be True the corresponding part of the if/elif block will be executed. All other blocks after that will be skipped. This means one True expression is enough.

How to check if everything is true?

For loops

Enumerate

Range

List comprehension

Compare different functions

While loops

- Perform a task while something is True
- Be careful:
 - Some loops never finish (get stuck)
 - Make sure that condition for ending the loop can be fullfilled

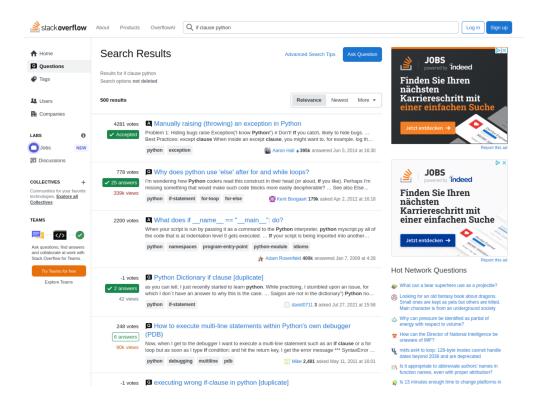
```
while check_condition:
    perform_task()
```

Errors and how to read them

There are useful resources regarding errors

- Simply googling works surprisingly well
- You will often end up on stackoverflow
 - There is no question which was not already as ked 2

²if that is not true open up a question



Types of errors

- 1. SyntaxErrors
- 2. NameError
- 3. TypeError
- 4. IndexError
- 5. AttributeError
- 6. etc.

Fix errors