

Introduction to Programming in Python

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**HOCHSCHULE
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A few odds and ends

More on strings

String interpolation

- String interpolation is used to "paste" values (often numbers) into strings, e.g., for printing.
- In principle, the same result can be achieved using string concatenation. String interpolation just makes this easier.
- There are different methods in Python for doing this; the most common is `str.format`.

Examples:

In []:

```
mystr = "{} is {} years old.".format("Simon", 45)  
print(mystr)
```

In []:

```
mystr = "{0} is {1} years old.".format("Simon", 45)  
print(mystr)
```

In []:

```
mystr = "{name} is {age} years old.".format(name="Simon", age=45)  
print(mystr)
```

In []:

```
mystr = "{name:} is {age:2.2f} years old.".format(name="Simon", age=45)  
print(mystr)
```

str.join

- This is used for composing a single string out of several, given as, e.g., a list.
- Example:

In []:

```
city_list = ["Zurich", "Lucerne", "Bern"]  
" and ".join(city_list)
```

This may be a bit counterintuitive as first: the separator goes into the string, and the list into the `join` method.

Dictionaries

- Dictionaries, or `dict`s, are another built-in data type.
- They consist of key-value pairs, and are constructed with curly braces:

In []:

```
population= {"Germany": 83, "Switzerland": 8, "Netherlands": 16}  
print(population)
```

Indexing:

In []:

```
population["Germany"]
```

- In a way, you can think of them as a poor man's dataframe.
- The keys have to be of immutable type (`string` as above, `int` , etc), and unique.
- The values can be anything.

Deleting elements:

In []:

```
del[population["Germany"]]
```

Methods:

In []:

```
print(', '.join(filter(lambda m: callable(getattr(population, m)) and not m.startswith("_"), dir(population))))
```

Exercise

The following dictionaries are given:

In []:

```
en_de = {"red" : "rot", "green" : "grün", "blue" : "blau", "yellow": "gelb"}  
de_fr = {"rot" : "rouge", "grün" : "vert", "blau" : "bleu", "gelb": "jaune"}
```

(example taken from <https://python-course.eu/python-tutorial/dictionaries.php>).

How can you translate "red" from English to French?

In []:

Recommended reading

- https://www.w3schools.com/python/ref_string_format.asp
- <https://python-course.eu/python-tutorial/dictionaries.php>

Homework

- <https://holypython.com/intermediate-python-exercises/exercise-1-python-format-method/>
- <https://holypython.com/intermediate-python-exercises/exercise-2-join-method/>