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Institute of Computational Linguistics

# Programmiertechniken in der Computerlinguistik I

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## First steps in the Python interpreter

1. Start the Python interpreter with ‘python’
2. Test Python commands
3. Quit the Python interpreter with ‘Ctrl+d’

```
Martin-Volks-MacBook-Pro:Lektion_3 volk$ python
Python 2.7.5 (default, Mar  9 2014, 22:15:05)
[GCC 4.2.1 Compatible Apple LLVM 5.0 (clang-500.0.68)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>> print ('Hello World')
Hello World
>>>
```

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## Write programs in Python

1. Write your Python program in an editor.
2. Save the file to e.g. 'my_program_1.py'
3. Execute the program with 'python my_program_1.py'

Note: Interrupt an 'endless' program with 'Ctrl+c'.

```
Martin-Volks-MacBook-Pro:Lektion_3 volk$ python my_program_01.py
Hello world
Martin-Volks-MacBook-Pro:Lektion_3 volk$
```

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## First Python commands

| | Examples |
|---|---|
| Numbers and Arithmetic | 2 + 4<br>21 / 3 * 4**7 |
| Variables and Assignments | counter = 21<br>counter = 21 / 7 * 5<br>counter += 2<br>x = y = z = 15 |
| Strings<br>- concatenation<br>- length function | word1 = 'der'<br>word2 = word1 + ' Computer'<br>x = len(word2) |
| Strings with Indexes<br>- from the beginning to position 4<br>- two characters from the end | letter = word[0]<br>part = word[0:5]<br>suffix = word[-2:] |

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## Loops and conditions in Python

| | Examples |
|---|---|
| while Loops and Indentation | while counter < 10:<br>  print "Hello"<br>  counter += 1 |
| Comparisons | counter < 50<br>counter == 13<br>word == 'Linguist' |
| if – elif – else Conditions | if x < 10:<br>  print "Hello"<br>else:<br>  print "Hi" |
| Comments | # This is a comment |

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## Variables

When a variable is used for the first time, it must get a **value**.

The first value assignment determines the variable's **type** (integer, floating point number, string, Boolean).

The variable's type restricts the possible **operations**. Examples:

- Integer: +, -, *, /
- String: +, len()

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## Indentation in Python

Indentation in Python is semantically significant.

A block of commands in e.g. loops or conditions must be indented.

Note: The output of a Python program (often) changes with indentation. ☺ Be careful!