

Python Training: Beginners

by Florian Dahlitz

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About Me

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First of All

- 2 hours session
- ask questions at any time
- feedback welcomed
- resources on GitHub

Outline

1. Installation

2. What is Python?

3. REPL Session

4. IDLE Session

Outline

5. Wrap-Up

6. Exercises

1. Installation

- generally: python.org
- Windows 10: Microsoft Store

2. What is Python?

Excursion: Programming Languages

Compiled Languages

- compiled into machine-readable language
- faster on linear execution
- overall better performance

Interpreted Languages

- directly executed
- faster on branched execution

2. What is Python?

Python consists of ...

... the language (interpreter)

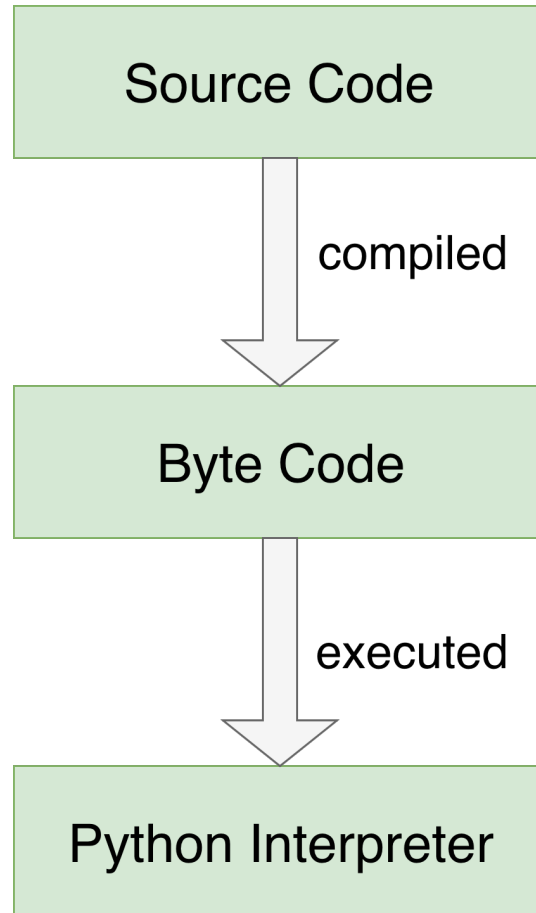
... the compiler

... the standard library

Language

- interpreted
- object-oriented
- high-level
- dynamic semantics

Compiler



Standard Library

- very extensive
- *Swiss Army Knife*
 - *email* module → everything for managing emails
 - *json* module → everything for managing json

3. REPL Session

REPL

- Read-Eval-Print Loop
- immediate feedback/results
- enter the REPL using “python” command

Data Types and Structures

- numbers (**int**, **float**, **complex**)
- strings (**str**)
- booleans (**bool**)

Data Types and Structures

- lists (**list**)
- tuples (**tuple**)
- sets (**set**)
- dictionaries (**dict**)

Variables

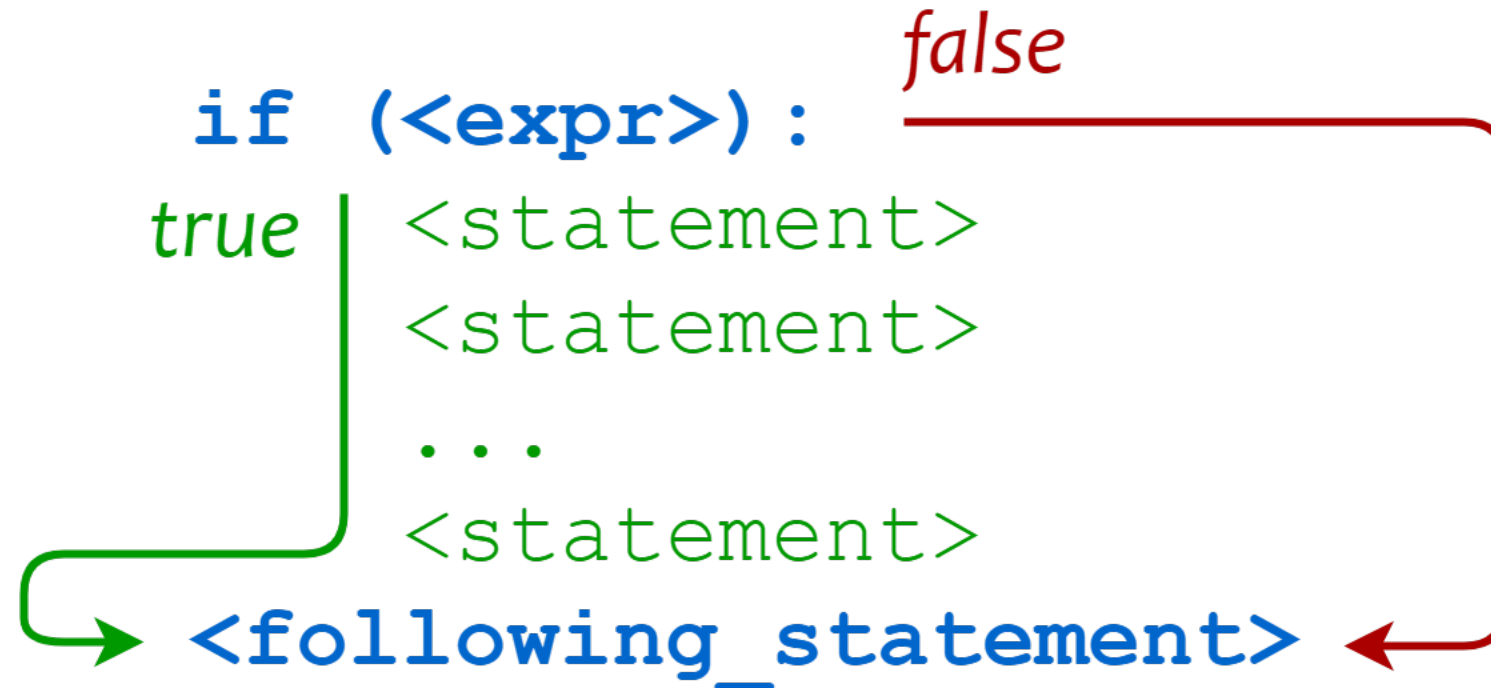
- without type specification
- overwritable type

```
>>> x = 5
>>> x
5
>>> type(x)
<class 'int'>
>>> x = "Hello World"
>>> x
'Hello World'
>>> type(x)
<class 'str'>
```

Operators

- Arithmetic operators
- Assignment operators
- Comparison operators
- Logical operators
- Identity operators
- Membership operators
- (Bitwise operators)

Conditional Statements



Source: <https://realpython.com/python-conditional-statements/>

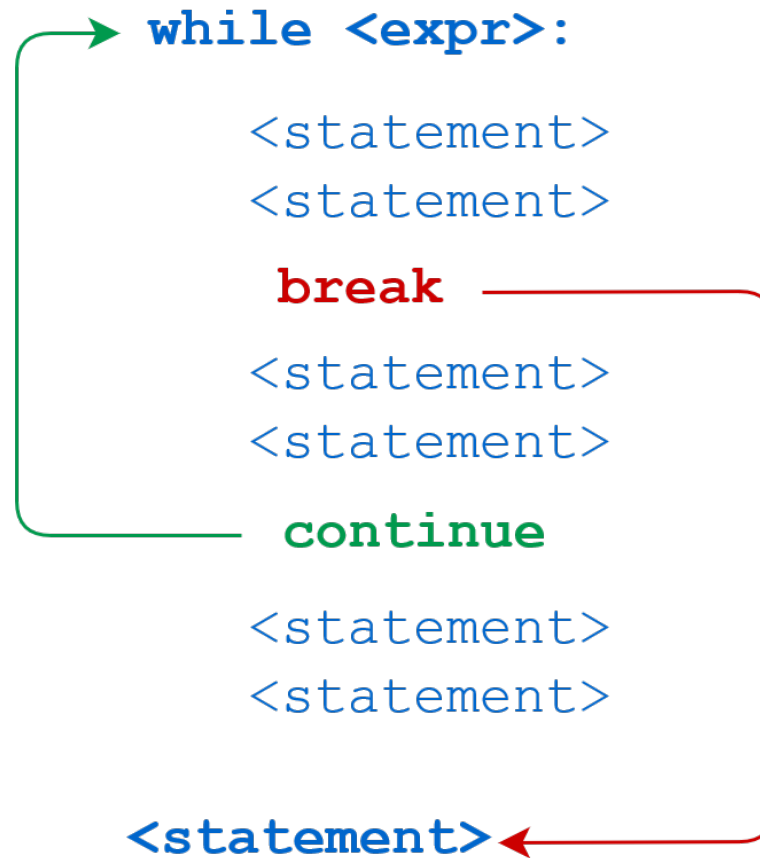
Conditional Expression

```
<expr1> if <conditional_expr> else <expr2>
```

Loops

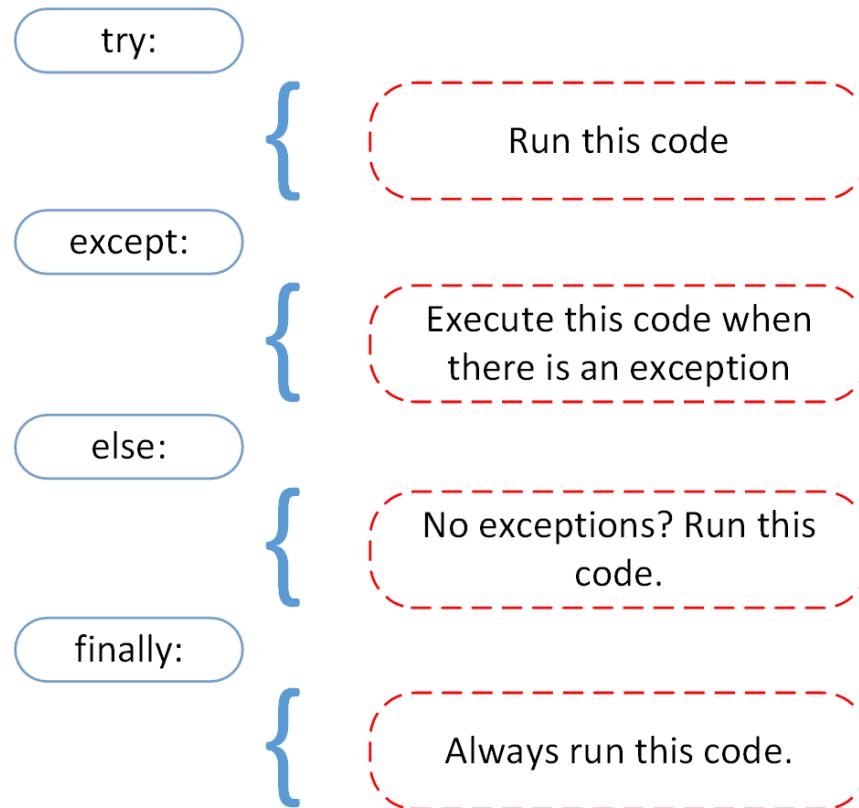
- definite iteration (for-loop)
- indefinite iteration (while-loop)

Loops: continue and break



Source: <https://realpython.com/python-while-loop/>

Exception Handling



Source: <https://realpython.com/python-exceptions/>

Functions

Object-Oriented Programming

4. IDLE Introduction

5. Wrap-Up

5. Wrap-Up

- What is Python?
- data types and structures
- variables
- operators

5. Wrap-Up

- conditional statements (expressions)
- for-loop and while-loop
- exception handling
- functions and object-oriented programming

Any questions left?

6. Exercises

