Foundations of Programming in Python

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About me

Education

- 2012 – Bachelor of Science UZH in Physics
- 2016 – Master of Science UZH in Computational Science

Work

- 2012 – 2016 Software engineer CERN (remote)
- 2016 – now PDF Tools AG

Programming experience

C++, C#, Java, JavaScript, Python

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Round of introduction

- Name
- Occupation
- Programming experience? What language?
- Expectations

Learning targets

After this course...

- ... you will know what programming is
- ... you will know how to write a basic computer program
- ... you will know the fundamental components of programming
- ... you are able to run Python code
- ... you are able to write a Python program based on a written out problem statement
- ... you know where you can find more information to improve your programming skills

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Modular System

- **Input**: Data input from keyboard, files, internet, etc…
- **Output**: Processed data is displayed or saved to a file
- **Assignment**: Values are assigned to variables
- **Conditional execution**: Statements are executed only if certain conditions are fulfilled
- **Loops**: Repeating statement or group of statements
- **Libraries**: Using existing implementations

Examples: Hello World

Java

```
public class HelloWorld {
    public static void main(String args[]) {
        System.out.println("Hello World");
    }
}
```

C++

```
#include <iostream>
int main() {
    std::cout << "Hello World" << std::endl;
    return 0;
}
```

Python

```
print("Hello World")
```

- "Simple" syntax
- High-level programming language
- Cross-platform
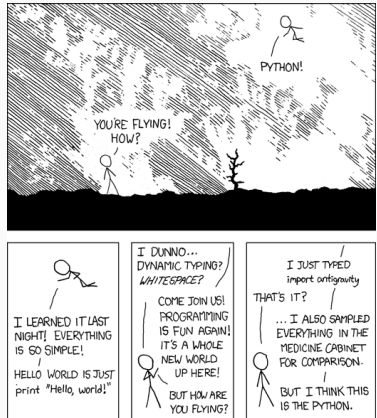- Interpreted
- Object-oriented
- Many libraries available

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