Welcome

Concepts of Programming Languages - TH Rosenheim - WS 2020/2021
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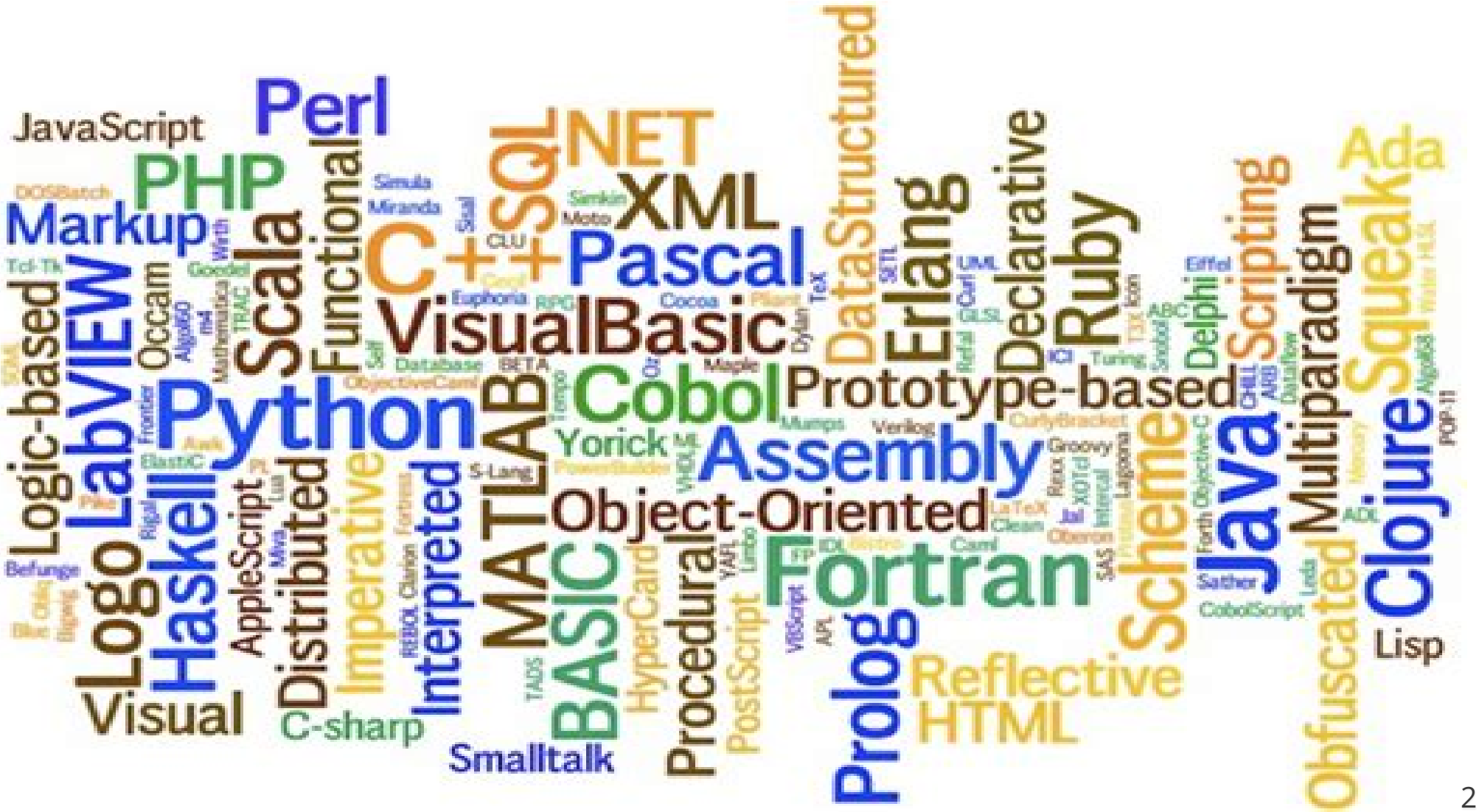
There are so many Languages ...



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Course Requirements

- The course is designed as a master course.
- Solid programming skills in Java/C/C++ are required.
- It is assumed that students have some skills in Scala, Python or Ruby.
- For all code examples, we will use Go (Golang) as language.

Goal of the Course

- Learn how Go differs from other languages conceptually
- Gain skills to pick the right language for a given problem
- Knowledge about the concepts of existing programming languages
- Learn how to write professional code with Golang

Lectures

Lecture 1 - **About Overview Introduction**

Lecture 2 - **Introduction to Golang**

Lecture 3 - **OOP with Go** - Part I

Lecture 4 - **OOP with Go** - Part II

Lecture 5 - **Functional Programming**

Lecture 6 - **Concurrent Programming**

Lecture 7 - **Distributed Programming**

Lecture 8 - **Systems Programming**

Lecture 9 - **Enterprise Programming and Modules**

Lecture 10 - **Microservices**

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Lectures

Lecture 11 - **Plugins**

Lecture 12 - **Summary**

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Structure of this course

- Recap - 15 min
- Lecture - 30 min
- Online Tutorials (Video) - 45 min
- Student Discussions - 30 min
- Introduction to Exercises - 15 min
- Exercises - 45 min (+ Homework)

Material

Learning Campus: PDFs only

Github: PDFs, Sources, Slides (Go Present Tool)

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Semester Work

15 Minutes presentation + 5-10 pages Asciidoc document (written in English)

Examples:

- Compare Go **OOP** (Object Oriented Programming) with: Smalltalk C++ Eiffel Objective C Modula Lua
- Compare Go **FP** (Functional Programming) with: Haskell Clojure F#
- Compare Go **SP** (Systems Programming) with: C C++ Rust Ada D Swift
- Compare Go **Concurrency** with: Erlang Scala Actors D Occam
- Compare Go **Distributed Programming** with: JavaScript / NodeJS C++ Java / Quarkus Python
- Compare **Go** with: Typescript Ruby Python Kotlin Elm Elixir Crystal

Books

Donovan, Kernigham: The Go Programming Language

Sebesta: Concepts of Programming Languages

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Thank you

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