

# Overview

Concepts of Programming Languages  
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# Types of Programming Languages

**Imperative:** Assembler as root (Operations and Control Structures)

**Declarative:**

Domain Specific Languages (HTML, XML, YAML, ...) => Limited in scope. Some are not Turing Complete.

**Procedural** (Control Structures and Procedures)

Fortran / Algol / Pascal / C

**Object Oriented** (Classes and Objects)

Smalltalk / Objective C / C++ / Eifel / **Java** / C#

**Functional** (Lambdas + Closures): Haskell, Erlang, F#

**Logic:** Prolog

**Best of Breed:** Kotlin, Scala, Rust, JS, Go

[More Languages](https://en.wikipedia.org/wiki/List_of_programming_languages_by_type) (https://en.wikipedia.org/wiki/List\_of\_programming\_languages\_by\_type)

# Areas for Programming Languages

- Application Programming (small / large scale, web, central, cloud)
- Systems Programming
- Network Programming
- Realtime Systems
- User Interface Programming
- Embedded Systems

# Orthogonal Classifications

- Static vs. Dynamic Typed
- Compiled vs. Interpreted
- Sequential vs. Parallel
- Static Linked vs. Dynamic Linked
- Safe vs. Unsafe (Crash a process or even the system)
- Simple vs. Complex
- Platform Independent Bytecode vs. Platform Dependent Assemblercode
- Plattform Dependent Compiler vs. Cross Compiler

# Some Thoughts

- There are many solutions for a given problem
- The "best" language is nothing without a proper ecosystem (Libraries, Examples, Community)
- There are straight forward choices for a given platform (Mac: Swift + Objectiv-C, Linux: C + Python, Android: Java)
- Dont expect "Magic" from programming Languages
- Clean code and good programming is orthogonal to the language
- Learn more than one programming language at a professional level

# Thank you

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