How to Study Programming Languages

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Who am I

https://kstreee.github.io/cv.pdf

What to study?

Unique characteristics of programming languages

Advanced programming language types & concepts

Calculus: mathematical backgrounds of programming languages

How to abstract & compose modules

What to study?

Unique characteristics of programming languages

i.e.

Module System of OCaml
Ownership System of Rust
for-comprehension of Scala
implicit of Scala
underscore methods of Python
prototype chain of Javascript
Channels of Go
...

What to study?

Advanced programming language types & concepts

i.e.

Algebraic data type
Existential type & Universal type
Generalized algebraic data type
Dependent type
Higher kinded type
Phantom type
Parametric polymorphism & Subtype polymorphism
Asynchronous programming
Reactive programming
Monadic programming

What to study?

Calculus: mathematical backgrounds of programming languages

i.e.

Lambda Calculus
Pi Calculus
Calculus of Inductive Construction

What to study?

How to abstract & compose modules

i.e.

Interface, Abstract Class, Class, ... of Java
Currying, Combining functions, ... of Functional Programming Patterns
Module, let Module, Functor, ... of OCaml
Mix-in of Scala (triat) vs Mix-in of Rust (triat) vs Mix-in of Python

How to write better code

use more generic, and abstracted ways
(DON NOT USE if-else, for-loop, temporal variable, ...)

write cleaner code

use (almost) free resources

How to write better code

use more generic, and abstracted ways
(DON NOT USE if-else, for-loop, temporal variable, ...)

i.e.

remove if-else conditional branch
remove for-loop
remove temporal variable
remove edge case handling logic

How to write better code

https://www.youtube.com/watch?v=o8NPllzkFhE&t=966s

How to write better code

write cleaner code

i.e.

clean & straightforward if-else conditional branch
clean & straightforward for loop
clean & straightforward recursion
clean & straightforward function signature
clean & straightforward variable name
clean & straightforward class design
...

How to write better code

use (almost) free resources

i.e.

geeks for geeks : https://www.geeksforgeeks.org
leet code : https://leetcode.com
career cup : https://www.careercup.com
kakao : https://www.welcomekakao.com
...

Q & A