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

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