프로그래밍언어 HW #1 20191629 이주헌

7. LISP began as a pure functional language but gradually cacquired more and more imperative teatures. why?

Functional programming paradigm, by its definition, forbids the use of mutable states. Although mathematically appealing, it is particularly hard to optimize as functional codes need to satisfy a strict requirement to be "optimizable."
To improve efficiency, imperative structures such as (loop ...) for Common Lisp, (progn ...) for Emacs Lisp, and (do ...) for Scheme are introduced.

12. Describe, in your own words, the concept of orthogonality in PL design.

The word "orthogonality" refers to a property where a change in one component does not affect other systemr. In PL design, this may refer to a design where a programmer can change a construct in his/her code and it would Still correctly interpreted and executed by a hardware.

14. What are the arguments both for and against the idea of typeless language?

For Typeless languages allow very flexible development strategy. One can change how variables are used without affecting the type integrity of the entire project.

Against Types ensure the correct behavior of a program. Some data types are inherently incompatible, and mistaking one type from another can have serious consequences ~~to~~ the integrity of a software.