Lecture 1 - May 6

Syllabus & Overview of Compilation

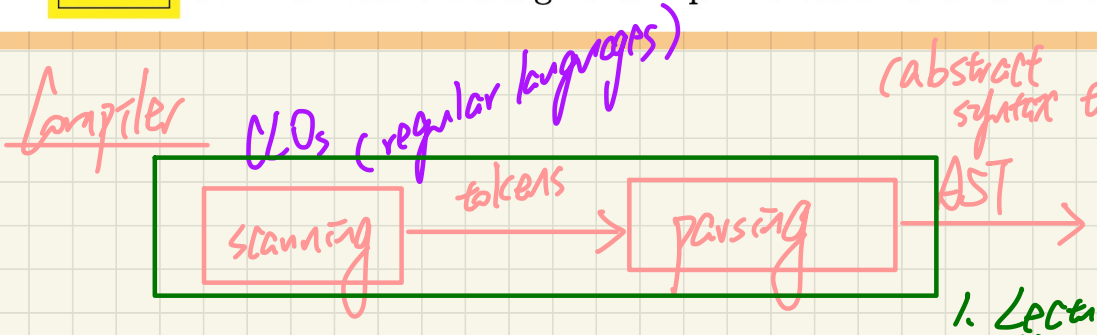
Syllabus
Semantic Domain

Course Learning Outcomes (CLOs)

C, Java, Python

Upon completion of the course, students are expected to be able to:

- **CLO1** Compare and contrast General-Purpose Languages (GPLs) and Domain-Specific Languages (DSLs). → SQL (mass storage & queries).
- **CLO2** Apply the theoretical understanding of, and use the relevant tools to generate, a lexical scanner.
- **CLO3** Apply the theoretical understanding of, and use the relevant tools to generate, a grammatical parser.
- **CLO4** Construct an abstract syntax tree & perform semantic operations on it. → C-compiler: procedure PL. ↓ instructions set.
- **CLO5** Communicate the design and implementation of a DSL and its associated tools.



1. Lectures: theories.
2. A2, Proj.: auto-generated.

24 lectures

$24 - 1 - 2 - 1 = \boxed{20}$.

1 ~ 1st class

2 ~ Progtest WT

1 ~ trial att. on Thurs.

Semantic Domain

↳ specific meaning

↳ vocabulary.

SD1: Object-Orientation

↳ classes, objects, aliasing → polymorphism, dynamic binding

SD2: relational database

↳ entities, tables, PKs, FKs, queries

SD3: predicate logic (1019/1040)

(free) vars, (dummy) variable, $\forall$, $\exists$, $\wedge$ $\vee$ $\Rightarrow$ $\neg$

object-relational bridge.

↳ Java-to-SQL compiler.

↳ classes → tables

methods → queries

↳ much more challenging