

Introduction

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- **My name:** Nguyen Hua Phung
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- **Office hour:**
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- **BKeL**
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- Concepts of Programming Languages, Robert W. Sebesta, 12th edition, Pearson, 2019.
- Programming Languages: Principles And Paradigms, Maurizio Gabbrielli and Simone Martini, Springer, 2006.
- Programming Languages: Principles and Practices, Kenneth C. Loudon, Thomson Brooks/Cole, 2003.
- Ngon Ngu Lap Trinh: Cac nguyen ly va mo hinh, Cao Hoang Tru, 2004.

- Tutorial/Lab/Online: 10%
- Assignment: 30%
- Midterm: 20%
- Final: 40%

Note: Assignment is calculated by the following formula:

$$\text{Assignment} = 2 * \frac{A * B}{A + B}$$

where A is from some given project and B is from some questions in midterm or final

After complete this subject, students are able to:

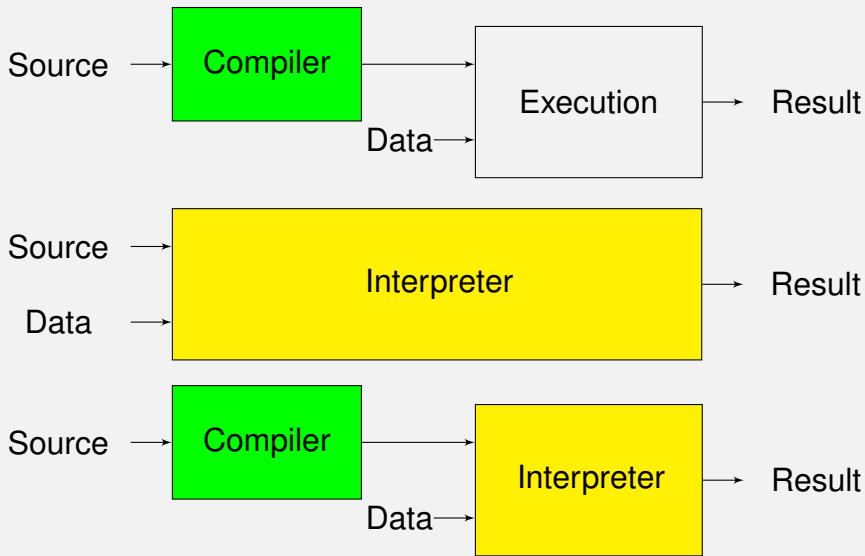
- describe formally lexicon and grammar of a programming language
- describe and explain some mechanism of a programming language
- implement a interpreter/compiler for a simple programming language

- Increased capacity to express idea
- Improved background for choosing appropriate languages
- Increased ability to learn new languages
- Better understanding of the significance of implementation
- Better use of languages that are already known
- Overall advancement of computing

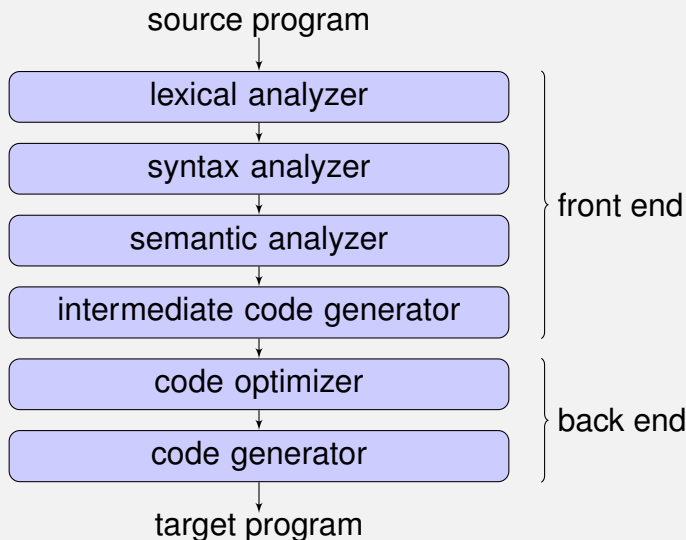
- Programming language description
 - Lexicon
 - Syntax
 - Semantics \leq not in this course
- Programming language paradigms
 - Object oriented programming
 - Functional programming
 - Logical programming \leq not in this course
- Programming language usage
 - Data control (data type, scope,...)
 - Flow control (expression, statement, unit)
- Programming language implementation

- **Compilation**
Programs are entirely translated into machine language and then executed
- **Pure Interpretation**
Programs are translated and executed line-by-line
- **Hybrid Implementation Systems**
A compromise between compilers and pure interpreters
- **Just-in-time Compiler**
A compiler inside an interpreter compiles just hot methods

Implementation Methods



Compilation Phases



- Preprocessor
- Assembler
- Linker
- Loader
- Debugger
- Editor

What are still in your mind?