Experiment in Compiler Construction
Compiler Construction LAB

School of Infomation and Communication Technology

Hanoi University of Science and Technology

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- Compiler Construction LAB course ?
- What is a compiler ?
- How do we construct a compiler ?
- How to take weekly your LAB exams ?

Compiler Construction LAB course ?

- 3 credits
- 4 lessons ~ day/week and 16 weeks in semester
- Working totally on LAB with computer
- Teaching simultaneously the Compiler Construction THEORY course

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What is a compiler ?

- A special program that translates a programming language's source code into executable machine code.

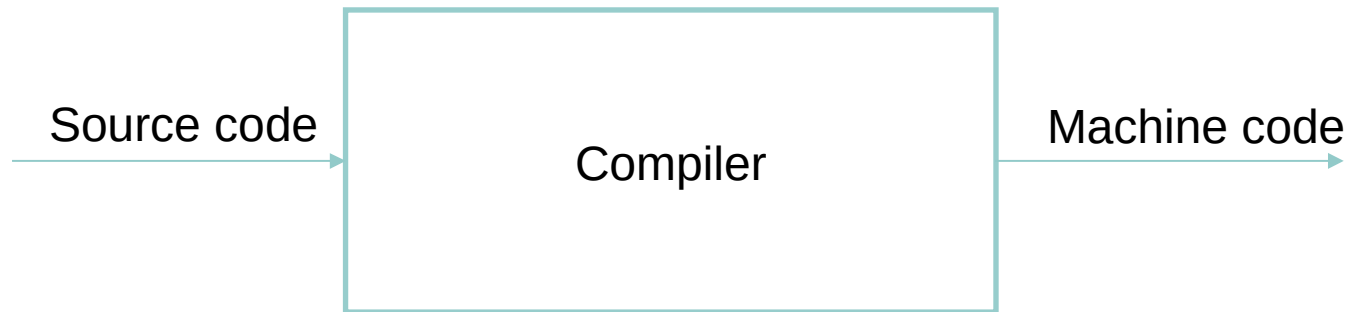# What is a compiler ? (cont.)

- helloworld.c <= source code

    #include <stdio.h>
    int main(){
      printf("Hello World");
      return 0;
    }

- gcc <= compiler or translator
- helloworld.exe <= machine code

What is a compiler ? (cont.)

Source code → **Compiler** → Machine code

What is a compiler ? (cont.)

- Some essential features of the compiler
  - Lexical analysis
  - Syntax analysis
  - Semantic analysis
  - Code optimizer (not ready on this course)
  - Code generator

What is a compiler ? (cont.)

- A compiler consists of *consecutive* modules
  - Indexer
  - Scanner
  - Parser
  - Semantic analyzer
  - Code generator

What is a compiler ? (cont.)

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How do we construct a compiler ?

- To program our compiler in module-by-module corresponding to day per week
- Each module will be responsible to the specified feature of the compiler
  - e.g. Scanner module realizes the feature of lexical analysis

How do we construct a compiler ?

- Taking a schedule plan to accomplish this task
  - Intro (1st day - today)
  - Indexer (2 days)
  - Scanner (4 days)
  - Parser (4 days)
  - Semantic analyzer (4 days)
  - Code generator (optional) (1 day)

How do we construct a compiler ?

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How to take weekly your LAB exam ?

- Each day folder details a task for each week
- Each day folder contains a set of uncompleted source codes,
  - i.e. // TO DO
- For your assignment, sending your completed source codes to teacher at the end of LAB exam.

How to take weekly your LAB exam ?

- Picking randomly 10~20 students from class for each day ? QuayXoSo.htm
- Compressing your source codes in C programming language into fullname_yourID.zip
  - e.g. NguyenVanAn_20180445.zip
- Uploading this zipped file to your teacher on TEAMS.

Today task

- Downloading all slide files
- Downloading and Uncompressing students.zip
- Browsing all of its contents

Today task