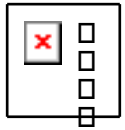
Project Overview

2023 Compiler

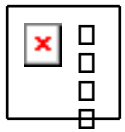
Prof. Eul Gyu Lm

Hanyang University
Division of Computer Science & Engineering

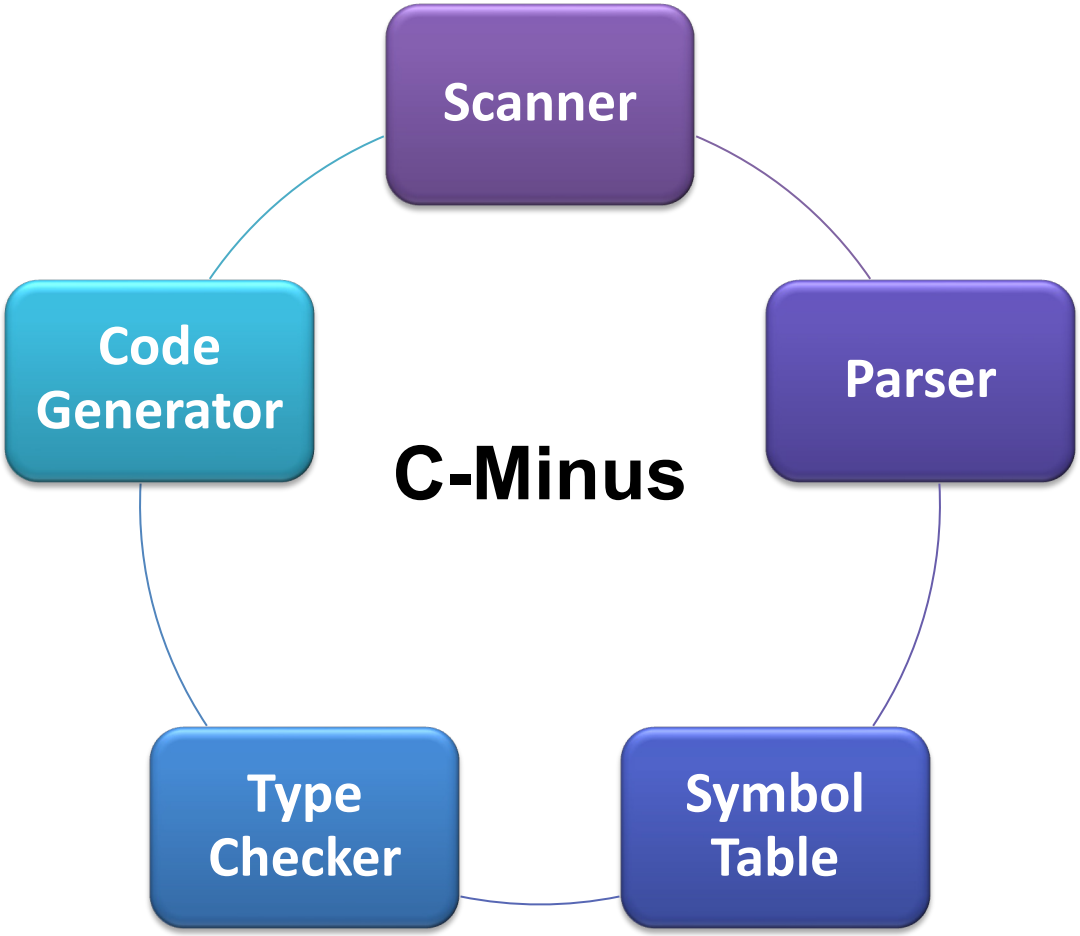


Contact

- **Professor**
  - Eul Gyu Lm
- **Teaching Assistants (TA)**
  - Taehoon Kim
  - E-mail: **ted6345@hanyang.ac.kr**
    - Please provide all questions related with projects to TAs.

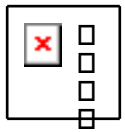


Tiny Compiler



Project Overview

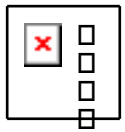
- **Final Goal**
  - C-Minus compiler implementation by modifying Tiny Compiler.
- **Project environments**
  - C-Minus using C
  - Tiny Machine (TM) Runtime Environment
    - Provided by the book (*Kenneth C. Louden* book)
  - OS
    - **Ubuntu 20.04 (recommended) or equivalent**
    - **MacOS**



Project Overview

- **Submission**
  - ***1_Scanner***
  - ***2_Parser***
  - ***3_Semantic***

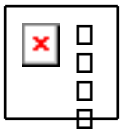
- **What to submit**
  - **All the source codes and the report(PDF)**



Evaluation

- **Evaluation Items**
  - Compilation (Success / Fail): 20%
  - Correctness check for several testcases: 70%
  - Report : 10%

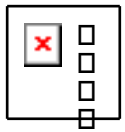
- **Cheating**
  - All references to classmates or open sources on the web are considered cheating and the project score will be zero.



How to Start Projects

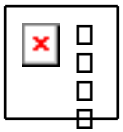
- **Tiny Compiler Source Codes**
  - ~~http://www.cs.sjsu.edu/faculty/louden/cmptext~~

    ~~(Download *loucomp.tar.Z*, instead of *loucomp.zip*)~~
  - ~~You need to modify default Tiny compiler codes to satisfy C-Minus specifications~~
  - **Upload to LMS per Submission.**
- **Compilation**
  - Default Makefile is recommended
  - You can also use clang instead of gcc
    - Clang would be preferable for MacOS users
    - In this case, modify “CC = gcc” to “CC= clang” in the Makefile.



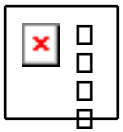
Ubuntu Guidelines

- **Install Packages**
  - Install Lex and Bison packages with the Terminal.
    - $ sudo apt-get install flex bison
  - Check whether the C compiler is available and install if it is not.
    - $ gcc --version
    - $ sudo apt-get install gcc



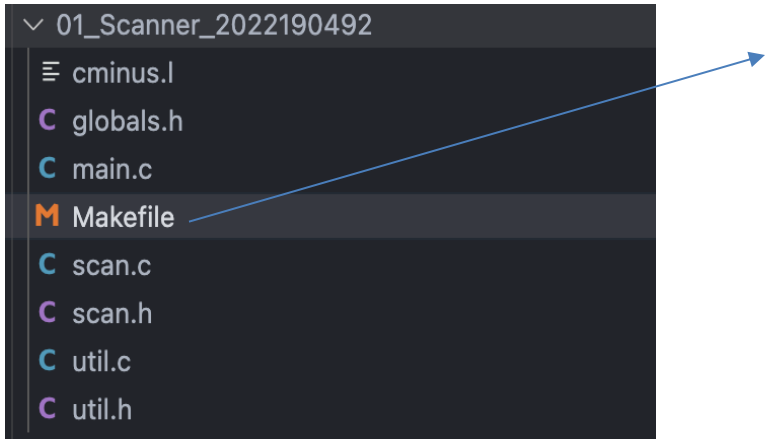
MacOS Guidelines

- **Install Homebrew**
  - Install Homebrew to access packages needed.
  - Please refer to the official page: https://brew.sh
- **Install Packages**
  - Install Lex and Bison packages with the Terminal.
    - $ brew install flex bison
  - Check wheter the C compiler is available and install if it is not.
    - $ clang(or gcc) –version
    - $ brew install clang(or gcc)



MacOS guideline

- **Library linking**
  - Modify ”CC= gcc” to “CC = clang” in the Makefile.
  - Modify **“-lfl” to “-ll”** in the Makefile to properly link Lex. (if, use clang)



<Makefile>

```
CC = gcc clang

CFLAGS = -W -Wall

OBJS = main.o util.o scan.o
OBJS_LEX = main.o util.o lex.yy.o

.PHONY: all clean
all: cminus_cimpl cminus_lex

clean:
    -rm -vf cminus_cimpl cminus_lex *.o lex.yy.c
    -rm -rvf ./temporary_for_grading

cminus_cimpl: $(OBJS)
    $(CC) $(CFLAGS) -o $@ $(OBJS)

cminus_lex: $(OBJS_LEX)
    $(CC) $(CFLAGS) -o $@ $(OBJS_LEX) -lfl -ll
```