CSE 402 - Compiler Sessional Manual

Installation (Windows):

Follow Video tutorials step by step:

1. Install GCC compiler: [How to Install MinGW (GCC/G++) Compiler in Windows 10](#)

- Download & Install Mingw:
  https://sourceforge.net/projects/mingw/files/latest/download
- Select all the packages then go to installation and apply changes.

- Add this Path to
  Environment Variables -> System Variables -> Path -> Edit -> New :

```
C:\MinGW\bin
C:\MinGW\msys\1.0\bin
```

To check whether gcc and g++are installed, open command prompt and write:

```
gcc --version
g++ --version
```

To check whether flex and bison are installed, open command prompt and write:

```
Flex --version
Bison --version
```

[If command is not recognized, goto that directory and check whether flex and bison are in there. If not, then search for flex and bison in main directory of MinGW and add path containing flex and bison in Path variable]

2. Install Visual Studio Code: [How to install Visual Studio Code on Windows](#)

- Download and Install : https://code.visualstudio.com/
- Select-
- 1. Create desktop icon
- 2. Register Code as an Editor
- 3. Add to PATH

- Continue & Finish Installation

3. Install Visual Studio plugin to run code easily: [C++ with Visual Studio Code. (Easiest setup)](#)
- Go to Extensions in Visual Studio and search (@recommended) and install
- 1. C/C++
- 2. C/C++ Clang Command Adapter
- 3. C++ Insellisense
- 4. Code runner

- Go to settings in Visual Studio and search for: Run in Terminal and then check it.

4. Install MASAM32 (32bit MASM Assembler Installation): [Masm32 Tutorial - 01 Hello World](#)

- Download and extract files and install in C drive: https://www.masm32.com/download.htm
- Add this Path to
  Environment Variables -> System Variables -> Path -> Edit -> New :

  C:\masm32\bin

  This path must be on top of `C:\MinGW\msys\1.0\bin`

- Now Create a file hello world.asm inside C:\masm32 and open it with visual studio code and paste the following code:

```
.386

.model flat,stdcall
option casemap:none

include \masm32\include\windows.inc
include \masm32\include\kernel32.inc
include \masm32\include\masm32.inc

includelib \masm32\lib\kernel32.lib
includelib \masm32\lib\masm32.lib

.data
    helloworld db "Hello World!",0

.code

start:
    invoke StdOut,addr helloworld
    invoke ExitProcess,0
end start
```

Now goto folder C:\masm32 and search for cmd open command prompt and write:

```
ml /c /Zd /coff "hello world.asm"
Link /SUBSYSTEM:CONSOLE "hello world.obj"
"hello world.exe"
```

MakeFile:
1. VSCODE - Make File (https://www.youtube.com/watch?v=MnL7-rS1kZg&ab_channel=SantiagoB)

   In cmd write: where make
   If found : C:\MinGW\msys\1.0\bin\make.exe
   then
   Install extension in VS code : Makefile Tools

Create Makefile inside VSCode and paste all the commands.

Flex and Bison Program:
To run the program, goto terminal/command prompt inside vscode and write '`make`' and press enter.