

## Instructions

We are going to be using Flex and Bison (instead of lex and yacc) to build the parser, and gcc to compile the C code. Installation files are attached in the mail.

If you encounter some problems when running Flex or Bison, move the GnuWin32 folder from Program Files to a folder that does not contains spaces in its name (eg. C:\GnuWin32)

Attached are 4 examples. The first example uses just lex without yacc.

### To run Ex0:

1. Run: flex characters.l. you should see a new file named lex.yy.c
2. Run: gcc lex.yy.c to compile the code.
3. Run the resulting .exe file and type your input in the command window.
4. The program should output 3 numbers: the total number of characters, the total number of words and the number of lines respectively.

### To run Ex1 and Ex2:

1. Ex1 is a calculator that supports addition and subtraction, Ex2 supports variables as well.
2. Run: bison -yacc calc1.y -d
3. Run: flex calc1.l
4. Run: gcc y.tab.c lex.yy.c
5. Run the resulting .exe file and type your expressions.

### To run Ex3:

1. Ex3 is a mini compiler that supports 3 modes:
  - a. Interpreter mode: treats the code as an interpreted language and prints its results inline.
  - b. Compiler mode: compiles the code into assembly-like language.
  - c. Graph mode: draws a graph of the parse tree of the expressions.
2. To run, simply run bison and flex as per the preceeding examples.
3. When running gcc, add the file corresponding to the mode you'd like to the input of the command.
  - a. Ex if you want to run interpreter mode run gcc calc3a.c y.tab.c lex.yy.c
  - b. Compiler mode is calc3b.c and graph mode is calc3g.c