

## CSE 341 Programming Languages HW3 Report

In this assignment, I submitted both parts requested from us to be complete. In the explanation pdf of the assignment, there was an ambiguous expression for if expressions, so when we asked the instructor of the course, he said to specify this in the documentation and act accordingly. I made the if expressions for the yacc part, however, I added all of the boolean keywords to the cfg rules in order to evaluate the if expressions and perform some operations. Apart from that, expressions such as defining the desired function and calling the function were fully done in the assignment. There is nothing additional in the report for the Yacc part. I did everything requested in the lisp part, I only did not process the if part, which is uncertainty, in the lisp part because I did not have enough time left. Makefile was written for both parts. There are sample input files in both files. Without reading from the file and without using the makefile, the codes can be compiled as follows:

Yacc :

```
yacc -d gpp_interpreter.y
lex gpp_lexer.l
cc lex.yy.c y.tab.c -o gpp_interpreter.exe -ll
./gpp_interpreter.exe (for command line reading)
./gpp_interpreter.exe filename (for file reading)
```

Lisp :

```
clisp gpp_interpreter.lisp (for command line reading)
clisp gpp_interpreter.lisp filename (for file reading)
```

Also in the assignment pdf "gpp\_interpreter.lisp - for the second part." Since it is stated in this way here, instead of sending the gpp\_lexer.lisp file that we should have done in the previous assignment separately, I combined it with the gpp\_interpreter.lisp file and combined the whole code in a single file, but I also put the gpp\_lexer.lisp file there to be safe.

In the Yacc part, I used struct arrays to keep the functions in memory at runtime. In the Lisp part, I used struct again, but since there was no pointer there, I used hash-map. In both parts, "Syntax Error!" error is given when an incorrect token or an illegal character is seen during tokenisation. In the CFG section, it is checked whether the incoming input matches our grammar patterns. If there is a non-conforming input, the same error is given for it. In both cases, the programme is terminated and nothing is written to the terminal or file after the "Syntax Error!" notification.