

# Compiler Lab

## Assignment #1

Extend the hand-written compiler discussed in the tutorial so that it can translate code segments generated by the following grammar:

$stmt \rightarrow id := expr$

| **if**  $expr$  **then**  $stmt$

| **while**  $expr$  **do**  $stmt$

| **begin**  $opt\_stmts$  **end**

$opt\_stmts \rightarrow stmt\_list \mid \epsilon$

$stmt\_list \rightarrow stmt\_list; stmt \mid stmt$

Also, modify the grammar for handling expressions so that it can handle relational operators ( $=$ ,  $<$ ,  $>$ ) as well as arithmetic operators ( $+$ ,  $-$ ,  $*$ ,  $/$ ). Try to generate x85 / x86 assembly as the translated code.

Before doing the above assignment, draw an expression tree for the expression:

$a + b * c + 4$