**PRACTICAL # 12**

**OBJECT:**

Implementation of conditional statements CFG.

**THEORY:**

In the previous lab, we discussed the CFG for if-else branching statements.

**IF – Else Statement CFG**

*<If\_st> -> if (<Cond>) <If\_body><Else\_st>*

*<If\_body> -> ; | <S\_st> | {<M\_st>}*

*<Else\_st> -> else <If\_body> | ε*

The program below implements the corresponding CFG.

**Program:**

This program below implements if else conditional statement.

*using System;*

*class SyntaxAnalyser{*

*public static bool cond(List<Token> tokens, ref int i) {*

*if (tokens[i].TokenClass == "ID")*

*{*

*i++;*

*if (tokens[i].TokenClass == "relop") {*

*i++;*

*if (tokens[i].TokenClass == "ID")*

*{*

*return true;*

*}*

*else {*

*Console.WriteLine("ID missing after relational operator");*

*}*

*}*

*}*

*return false;*

*}*

*public static bool while\_body(List<Token> tokens, ref int i)*

*{*

*if (tokens[i].TokenClass == ";")*

*{*

*//Console.WriteLine("while/if loop parsed successfully");*

*return true;*

*}*

*else if (tokens[i].TokenClass == "{") {*

*i++;*

*m\_st(tokens, ref i);*

*if (tokens[i].TokenClass == "}")*

*{*

*//Console.WriteLine("while loop parsed successfully");*

*return true;*

*}*

*else {*

*Console.WriteLine(" Syntax error in while loop ");*

*return false;*

*}*

*}*

*else*

*{*

*s\_st(tokens, ref i);*

*}*

*return true;*

*}*

*//<if\_st> -> if ( <cond> ) <while\_body>*

*public static bool if\_st( List<Token> tokens, ref int i ) {*

*if (tokens[i].TokenClass == "if") {*

*i++;*

*if (tokens[i].TokenClass == "(")*

*{*

*i++;*

*if (cond(tokens, ref i) == false) {*

*Console.WriteLine("condition syntax error at line: {0}", tokens[i].LineNum);*

*return false;*

*}*

*i++;*

*if (tokens[i].TokenClass == ")")*

*{*

*i++;*

*if (while\_body(tokens, ref i) == true) {*

*Console.WriteLine("if statement parsed successfully");*

*}*

*}*

*else*

*{*

*Console.WriteLine(" ) missing at line number {0}", tokens[i].LineNum);*

*return false;*

*}*

*}*

*}*

*return true;*

*}*

*}*

**ACTIVITIES**

**Activity 1**

Implement the conditional statement CFG of your own language.

**REVIEW QUESTIONS**

1. What are conditional statements used for?
2. How are conditional statements nested ?
3. How do you use else statement?