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CPSC 323

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**Assignment 2 (Syntax Analyzer) Documentation**

Operating System: Windows 10

Language: C++ (Visual Studio 2017)

Description:

**1. Problem Statement:**

Build a syntax analyzer using a top down parser (predictive RDP).

**2. How to use the program:**

- User enters a source code file or a single line of code.

- The program generates a stream of tokens and analyze the syntax.

- The program prints the tokens and production rules to the screen and “parse\_result.txt”  
 file.

- If the code is syntactically correct, the program will print “Finished.” at the end.  
 Otherwise, it will print an error message.

**3. Design of the program**:

Production rules:

<Statement> -> <Compound> | <Assign> | <If> | <Return> | <Print> | <Scan> | <While>

Assign statement:

<Assign> -> id = <Expression>;

<Expression> -> <Term> <ExpressionPrime>

<ExpressionPrime> -> + <Term> <ExpressionPrime> | - <Term> <ExpressionPrime> | <Empty>

<Term> -> <Factor> <TermPrime>

<TermPrime> -> \* <Factor> <TermPrime> | / <Factor> <TermPrime> | <Empty>

<Factor> -> - <Primary> | <Primary>

<Primary> -> id | int | id ( <IDs> ) | ( <Expression> ) |

real | true | false

<Empty> -> epsilon

**4. Any Limitation:**

None

**5. Any Shortcomings:**

None

**6. Test cases:**