Terminals

Digit = [0 - 9]   Letter = [a - z A - Z]

1) Number:

$$Digit^+ (. Digit^+)?$$

2) String:

“.*”

3) Reserved_Keywords:

Int | float | string | read | write | repeat | until | if | else | elseif | then | return | endl

4) Comment_Statement:

“ /* ” .* “*/”

5) Identifiers:

Letter (Digit | Letter)*

6) Arithmatic_Operator:

+ | - | / | *

7) Condition_Operator:

(< | > | <>)

8) Boolean_Operator:

(&& | (||))

Production Rules

1. *Function_call* → **Identifier (***Arguments***)**
   - *Arguments* → *Expression Arg* | **ε**
   - *Arg* → **,** *Expression Arg* | **ε**

2. *Term* → **Number** | **Identifier** *T*
   - *T* → **(***Arguments***)** | **ε**

3. *Arithmetic_operator* → **+** | **-** | ***** | **/**

4. *Equation* → *Term Eq* | **(***Equation***)** *Eq*
   - *Eq* → *Arithmetic_operator E Eq* | **ε**
   - *E* → *Term* | **(***Equation***)**

5. *Expression* → *Term Ex* | **(***Equation***)** *Eq* | **String**
   - *Ex* → *Eq* | **ε**

6. *Assignment_statement* → **Identifier :=** *Expression*

7. *DataType* → **int** | **float** | **String**

8. *Declaration_Statement* → *DataType Declaration Declist***;**
   - *Declist* → **,** *Declaration Declist* | **ε**
   - *Declaration* → **Identifier** *D*
   - *D* → **:=** *Expression* | **ε**

9. *Write_Statement* → **write** *W_statement* **;**
   - *W_statement* → *Expression* | **endl**

10. *Read_Statement* → **read Identifier ;**

11. *Return_Statement* → **return** *Expression* **;**

12. *Condition_Operator* → **<** | **>** | **=** | **<>**

13. *Bool_Operator* → **&&** | **||**

14. *Condition_Statement* → *Condition condStmts*
    - *condStmts* → *Bool_Operator Condition condStmts* | **ε**
    - *Condition* → **Identifier** *Condition_Operator Term*

15. *Statements* → *Statement Statetments* | **ε**
    - *Statement* → *Assignment_Statement* **;**| *Decleration_Statement* | *Write_Statement* | *Read_Statement* | *Repeat_Statement* | *If_Statement* | *Comment_Statement* | *Function_call* **;**

16. *If_Statement* → **if** *Condition_Statement* **then** *Statements Other*
    - *Other* → *Else_If_Statement* | *Else_Statement* | **end**

17. *Else_If_Statement* → **else if** *Conditional_Statement* **then** *Statements Other*

18 . *Else_Statement* → **else** *Statements* **end**

19. *Repeat_Statement* → **repeat** *Statements* **until** *Condition_Statement*

20. *Function_Decleration* → *Datatype Function_Name* **(***Parameters***)**
    - *Parameters* → *Parameter Par* | **ε**
    - *Parameter* → *Datatype* **Identifier**
    - *Par* → **,** *Parameter Par* | **ε**

21. *Function_Name* → **Identifier**

22. *Function_Body* → **{** *Statements Return_Statement* **}**

23. *Program → Function Main_Function*
   - *Function → Function_Statement Function* | **ε**

24. *Function_Statement → Function_Decleration Function_Body*

25. *Main_Function → Datatype* **main()** *Function_Body*