**PRODUCTION RULES**

1. Program -> Comment\_Statement ProgramHelp
2. ProgramHelp -> MainFunc Comment\_Statement | FuncMaker Comment\_Statement MainFunc Comment\_Statement
3. FuncMaker -> Function FuncMaker | ε
4. Function -> FuncDecl FuncBody
5. FuncDecl -> Datatype identifier Parameters
6. Parameters -> (ParamList)
7. ParamList -> Parameter ParamHelp | ε
8. ParamHelp -> , Parameter ParamHelp | ε
9. Parameter -> Datatype identifier
10. FuncBody -> { Statements Return\_Statement }
11. Return\_Statement -> return Expression ;
12. Expression -> String\_state | Term | Equation
13. String\_state -> string\_value
14. Term -> number | identifier | Func\_Call
15. Func\_Call -> identifier ArgList
16. ArgList → (Arguments)
17. Arguments → AgrHlper Arg | ε
18. AgrHlper -> identifier | number | string\_value
19. Arg → , AgrHlper Arg | ε
20. Equation -> Preceeded Equation\_Helper
21. Equation\_Helper -> Addop Equation Equation\_Helper | ε
22. Addop -> + | -
23. Preceeded-> Factor Preceeded\_Helper
24. Preceeded\_Helper -> Mulop Preceeded Preceeded\_Helper | ε
25. Mulop -> \* | /
26. Factor -> ( Equation ) | Term
27. Datatype -> int | float | string
28. MainFunc -> Datatype main () FuncBody
29. Statements -> Statement Statements | ε
30. Statement -> Comment\_Statement | Assignment\_Statement | Declaration\_Statement | Write\_Statement | Read\_Statement | If\_Statement | Repeat\_Statement | Func\_Call
31. Comment\_Statement -> comment Comment\_Statement | ε
32. Assignment\_Statement -> identifier := Expression ;
33. Declaration\_Statement -> Datatype IdentifierDec Idenlist ;
34. IdentifierDec -> identifier Expr
35. Idenlist → , IdentifierDec IdenList | ε
36. Expr -> := Expression | ε
37. If\_Statement -> if Condition\_Statement then Statements Flase\_Condition end
38. Flase\_Condition -> Else\_If\_Statments Flase\_Condition | Else\_Statment | ε
39. Else\_If\_Statments -> elseif Condition\_Statement then Statements
40. Else\_Statment -> else Statements
41. Condition\_Statement -> Condition Condition\_Helper
42. Condition\_Helper -> Boolean\_Operator Condition Condition\_Helper | ε
43. Condition-> identifier Condition\_Operator Term
44. Condition\_Operator -> < | > | = | <>
45. Boolean\_Operator -> && | ||
46. Repeat\_Statement -> repeat Statements until Condition\_Statement
47. Write\_Statement -> write Write\_Rest ;
48. Write\_Rest -> Expression | endl
49. Read\_Statement -> read identifier ;

**TERMINALS**

|  |  |  |
| --- | --- | --- |
| int | float | string |
| read | write | repeat |
| until | if | elseif |
| else | then | endl |
| end | return | { |
| } | , | ; |
| := | ( | ) |
| + | - | \* |
| / | < | > |
| = | <> | && |
| || | number | string\_value |
| comment | main | identifier |