**Tiny Language CFG**

# Basic Terminals

Letter -> \_ | [a-z] | [A-Z]

Digit -> [0-9]

Boolean\_Operator -> && | \|\|

Stats\_set -> Assign\_Stat | Write\_Stat | Read\_Stat | Return\_Stat | Declaration\_Stat

# Terminals\NonTerminals

1. Number:
   1. Number -> Number’. Number’ | Number’
   2. Number’ -> Number’ Digit | Digit
2. String:
   1. String -> “String’”
   2. String’ -> String’ String’’ | String’’
   3. String’’ -> Letter | Digit | A\_Operator | Ɛ
3. Reserved Keywords:
   1. Res\_Keys -> int | float | string | read | repeat | until | if | elseif | else | return | endl
4. Comment:
   1. Comment -> \*Comment’\*
   2. Comment’ -> String
5. Identifier:
   1. Id -> Letter Id’!!!!
   2. Id’ -> Id’ Letter | Id’ Digit | Ɛ
6. Function Call:
   1. Fun\_Call -> Id (Id Id\_Arg ) ;
   2. Id\_Arg -> Id\_Arg, Id | Ɛ
7. Term:
   1. Term -> Number | Id | Fun\_Call
8. Arithmetic Operator:
   1. A\_Operator -> +|-|/|\*
9. Equation:
   1. Eq -> Term | Eq A\_Operator Eq | (Eq ) Eq’
   2. Eq’ -> A\_Operator (Eq)
10. Expression:
    1. Exp -> String | Term | Equation
11. Assignment Statement:
    1. Assign\_Stat -> Id:=Exp;
12. Datatypes:
    1. DataType -> int | float | string
13. Declaration Statement:
    1. Decl\_Stat -> DataType Decl\_Stat’ Decl\_Stat’’
    2. Decl\_Stat’ -> Id | Assign\_Stat
    3. Decl\_Stat’’ -> ,Id Decl\_Stat’’ | ,Assign\_Stat Decl\_Stat’’ | Ɛ
14. Write Statement:
    1. Write -> write Exp; | write endl;
15. Read Statement:
    1. Read -> read Id;
16. Return Statement:
    1. Return -> return Exp;
17. Condition Operator:
    1. CO -> <|>|=|<>
18. Condition:
    1. Cond -> Id CO Term
19. Condition Statement:
    1. Cond\_Stat -> Cond Cond\_Stat’
    2. Cond\_Stat’ -> Boolean\_Operator Cond Cond\_Stat | Ɛ
20. If Statement:
    1. If\_Stat -> if Cond\_Stat then Stats\_Set’ ElseIF\_Stat’ Else\_Stat’ end
    2. Stats\_Set’ -> Stats\_Set Stats\_Set’ | Ɛ
    3. ElseIF\_Stat’ -> ElseIF\_Stat’ ElseIF\_Stat
    4. Else\_Stat’ -> Else\_Stat | Ɛ
21. Elseif Statement:
    1. ElseIF\_Stat ->elseif Cond then Stats\_Set’ ElseIF\_Stat’ Else\_Stat’ end
22. Else Statement:
    1. Else\_Stat -> else Stats\_Set’ end
23. Repeat Statement:
    1. Rep\_Stat -> repeat Stats\_Set’ until Cond\_Stat
24. Function Name:
    1. Fun\_Name -> Id
25. Parameter:
    1. Para -> DataType Id
26. Function Declaration:
    1. Fun\_Decl -> DataType Fun\_Name (Para Para’)
    2. Para’ -> , Para Para’ | Ɛ
27. Function Body:
    1. Fun\_Bod -> {Stats\_Set’ Return}
28. Function Statement:
    1. Fun\_Stat -> Fun\_Decl Fun\_Bod
29. Main Function:
    1. Main -> DataType main () Fun\_Bod
30. Program:
    1. Prog -> Fun\_Stat’ Main
    2. Fun\_Stat’ -> Fun\_Stat Fun\_Stat’ | Ɛ