

The tiny language

Language described as:

- 1) **Number**: $[0-9]^+(\text{"."}[0-9]^+)?$
- 2) **String**: $(\text{"})(.[0-9])^*(\text{"})$
- 3) **Reserved_Keywords**: $\text{"int"} \mid \text{"float"} \mid \text{"string"} \mid \text{"read"} \mid \text{"write"} \mid \text{"repeat"} \mid \text{"until"} \mid \text{"if"} \mid \text{"elseif"} \mid \text{"else"} \mid \text{"then"} \mid \text{"return"} \mid \text{"endl"} \mid \text{"main"}$
- 4) **Comment_Statement**: $\text{"/*"}(.[0-9])^*\text{"*/"}$
- 5) **Identifiers**: $[a-zA-Z]([a-zA-Z] \mid [0-9])^*$
- 6) **Function_Call**: $(\text{Identifier})(\text{"("})((\text{identifier})(\text{"("})((\text{"})$
 $(\text{identifier}))^*)^*(\text{"})")$
- 7) **Term**: $\text{Number} \mid \text{Identifier} \mid \text{Function_Call}$
- 8) **Arithmetic_operator**: $\text{"+"} \mid \text{"-"} \mid \text{"*"} \mid \text{"/"}$
- 9) **Equation**:
- 10) **Expression**: $(\text{String}) \mid (\text{Term}) \mid (\text{Equation})$
- 11) **Assignment_Statement**: $(\text{Identifier})(\text{":="})(\text{Expression})$
- 12) **Datatype**: $\text{"int"} \mid \text{"float"} \mid \text{"string"}$
- 13) **Declaration_Statement**: $(\text{Datatype}) ((\text{Identifier})$
 $\mid (\text{Assignment_Statement}))$
 $((\text{"("})((\text{Identifier}) \mid (\text{Assignment_Statement}))^*$
 (";")

- 14) **Write_Statement**: (“write”)(Expression | “endl”)(“;”)
- 15) **Read_Statement**: (“read”)(Identifier)(“;”)
- 16) **Return_Statement**: (“return”)(Expression)(“;”)
- 17) **Condition_Operator**: “<” | “>” | “=” | “<>”
- 18) **Condition**: (Identifier)(Condition_Operator)(Term)
- 19) **Boolean_Operator** : (“&&”) | (“||”)
- 20) **Condition statement**: (condition) ((boolean_operator) (condition))*
- 21) **If_Statement**:
 (“if”)(Condition_Statement)(“then”)((Function_Call | Assignment_Statement | Write_Statement | Read_statement | Declaration_Statement | If_Statement))+
 (Else_If_Statement | Else_Statement | “end”)
- 22) **Elseif** : (“elseif”)(Condition_Statement)(then)
 ((Read_Statement | Write_Statement | Assignment_Statement | Declaration_Statement | Function_Call | If_Statement))+ (Else_If_Statement | Else_Statement | “end”)
- 23) **Else** : (“else”)

((Read_Statement | Write_Statement |
Assignment_Statement | Declaration_Statement |
Function_Call | If_Statement))+ (“end”)

24) **Repeat_Statement** : (“repeat”)

((Read_Statement | Write_Statement |
Assignment_Statement | Declaration_Statement |
Function_Call | If_Statement))+
(“until”)(Condition_Statement)

25) **FunctionName**: Identifier

26) **Parameter**: (datatype)(identifier)

27) **Function_Declaration** :

(Datatype)(Function_Name) (“(“
((Parameter)((“,”)(Parameter))*“(”)”)

28) **Function_Body**: (“{“ (Read_Statement |
Write_Statement | Assignment_Statement |
Declaration_Statement | Function_Call |
If_Statement)+ (Return_Statement) (“}”)

29) **Function_Statement**: (Function_Declaration)
(Function_Body)

30) **Main_Function**: (Datatype) (“main”) (“()”)
(Function_Body)

31) **Program** : (Function_Statement)* (Main_Function)