

# Tiny RegEx Task <1>

**digit** = [0-9] , **letter** = [a-z A-Z] , **space** = [\n\t\r] , **operator** = . | ; | , | ( | ) | = | < | > | ! | + | \_ | \*

- 1) **Number** =  $(+|-)?(\text{digit})^+(\backslash. (\text{digit})^+)?$
- 2) **String** =  $“(\text{letter}|\text{digit}|\text{operator}|\text{space})^*”$
- 3) **Reserved\_Keywords** = int | float | string | read | write | repeat | until | if | elseif | else | then | return | endl
- 4) **MultiLine\_Comment** =  $/* (\text{letter}|\text{digit}|\text{operator}|\text{space})^* */$
- 5) **Identifier** =  $\text{letter}(\text{letter}|\text{digit})^*$
- 6) **Function\_Call** =  $\text{Identifier} \backslash ( (\text{Identifier} , .)^* \text{Identifier}? \backslash )$
- 7) **Term** = Number | Identifier | Function\_Call
- 8) **Arithmetic\_Operator** =  $( + | - | * | / )$
- 9) **Equation** =  $\text{Term}(\text{Arithmetic\_Operator} \text{Term})^+ | “(“ \text{Term} (\text{Arithmetic\_Operator} \text{Term})^+ “)“ (\text{Arithmetic\_Operator} “(“ \text{Term} (\text{Arithmetic\_Operator} \text{Term})^+ “)“ | \text{Arithmetic\_Operator} \text{Term})^*$
- 10) **Expression** = String | Term | Equation
- 11) **Assignment\_Statement** = Identifier **":="** Expression
- 12) **Datatype** = int | float | string
- 13) **Declaration\_Statement: DataType ( (Identifiers (":= Expression) ? , ) \* Identifiers (":= Expression) ? )";**
- 14) **Write\_Statement: "write" (Expression|endl) ";"**
- 15) **Read\_Statement: "read " (Identifiers) ";"**

16) **Return\_Statement**: "return " Expression ";"

17) **Condition\_Operation**: ">" | "<" | "<>" | "="

18) **Condition**: identifier Condition\_Operation Term

19) **Boolean\_Operator**: "&&" | "||"

20) **Condition\_Statment**: **Condition**(**Boolean\_Operator** **Condition**)\*

21) **if\_Statment**:

**"if" Condition\_Statment "then"**

**Statements\***

**(Else\_IF\_Statment | Else\_Statment | "end ")**

22) **Else\_IF\_Statment** :

**"elseif" Condition\_Statment "then"**

**Statements\***

**(Else\_IF\_Statment | Else\_Statment | "end ")**

23) **Else\_Statment** :

**"else"**

**Statements\***

**"end "**

24) **Repeat\_Statement**:

**"repeat"**

**Statements\***

**"until" Condition\_Statment**

25) **FunctionName** = Identifier

26) **Parameter** = Datatype Identifier

27) **Function\_Declaration** = Datatype **FunctionName** "("  
**Parameter?** ( "," **Parameter** )\* ")"

28)

**Function\_Body = "{"**  
**Statements\***

**Return\_Statement**  
**"}"**

29) **Function\_Statement = Function\_Declaration**  
**Function\_Body**

30) **Main\_Function = Datatype "main" "()" Function\_Body**

31) **Program = Function\_Statement\* Main\_Function**