**Compiler Theory**

**Team: G3\_40**

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| --- | --- | --- |
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|  |  |
| --- | --- |
| **Terminals** | **description** |
| number |  |
| identifier |  |
| string |  |
| Reserved\_Keywords | int | float | string | read | write | repeat | until | if | elseif | else |  then | return | endl | end |
| Arithmatic\_Operator | + | - | \* | / |
| Condition\_Operator | less than “<” | greater than “>” |  is equal “=” | not equal “<>” |
| Boolean\_Operator | AND operator “&&” |  OR operator “||” |
| assignment operator | Equal operator “:=” |

1. **Function-call** 🡪 identifier ( **Idnum** **Id** )

**Idnum** 🡪 identifier| number

**Id** 🡪 , **Idnum Id |** Ꜫ

1. **Term** 🡪 number | identifier | **Function-Call**
2. **Equation** 🡪 **Term Equ** | ( **Term Equ** ) **Equ**

**Equ** 🡪 arithmatic\_Operator **Equation** | Ꜫ

1. **Expression** 🡪 string | **Term** | **Equation**
2. **Assignment-statement** 🡪 identifier := **Expression** ;
3. **Datatype** → int | float | string
4. **Declaration-statement** 🡪 **Datatype** identifier **Assign** ;

**AssignId** 🡪 **Assignment-statement** |identifier

**AssignExp** 🡪, **AssignId**  **|**:= **Expression**

**Assign** 🡪 **AssignExp**  **Assign |**Ꜫ

1. **Write-Statement** → write **WriteS** ;

**WriteS** → **Expression** | endl

1. **Read-Statement** → read identifier ;
2. **Return-Statement** 🡪 return **Expression** ;
3. **Condition** → identifier condition-Operator **Term**
4. **Condition\_statement** 🡪 **Condition** **Cond**

**Cond** 🡪 boolean\_Operator  **Condition** **Cond |** Ꜫ

1. **If\_statement** 🡪 if **condition\_statement** then

**Statementss Elstat**

**Elstat** 🡪  **Elseif\_statement | Else\_statement |** end

**Statementss** 🡪 **Write-Statement Statementss |**

**Read-Statement Statementss|**

**Return-Statement Statementss |**

**If\_statement Statementss |**

**Repeat\_statement Statementss |**

**Function\_Statement Statementss |**

**Assignment-statement Statementss |**

**Declaration-statement Statementss | Ꜫ**

1. **Elseif\_statement** 🡪 elseif **condition\_statement** then

**Statements Elstat**

1. **Else\_statement** 🡪 else **Statementss** end
2. **Repeat\_statement** 🡪 repeat **Statementss** until

**condition\_statement**

1. **Function-Name** 🡪 Identifier
2. **Parameter** → **Datatype** identifier
3. **Function\_Declaration**→ **Datatype Function-Name** (

**Parameter Functions** )

**Functions** → , **Parameter Functions |** Ꜫ

1. **Function\_Body** → { **Func\_Statementss**

**Return-Statement** }

**Func\_Statementss** → **Write-Statement Statementss |**

**Read-Statement Statementss|**

**If\_statement Statementss |**

**Repeat\_statement Statementss |**

**Function\_Statement Statementss |**

**Assignment-statement Statementss |**

**Declaration-statement Statementss | Ꜫ**

1. **Function\_Statement** →**Function\_Declaration**

**Function\_Body**

1. **Main\_Function** → **Datatype** main( ) **Function\_Body**
2. **Program** → **Prog Main\_Function**

**Prog** → **Function\_Statement Prog |** Ꜫ