

Tiny CFG Rule

Team:

G3_34

TA:

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Token_Class

INT, STRING, FLOAT, READ, WRITE, REPEAT, UNTIL, IF, ELSEIF, ELSE, THEN, END,
CONSTANT, MAIN_FN, RETURN, ENDL, IDENTIFIER, DO, WHILE_STATEMENT, COMMA, DOT, STRING_VAL,
PLUS_OP, MINUS_OP, DIVIDE_OP, MULTIPLY_OP, ASSIGNMENT_OP, INCREMENT, DECREMENT,
SEMICOLON, LESS_THAN, GREATER_THAN, EQUALS, NOT_EQUALS, AND, OR, LEFT_BRACKET,
RIGHT_BRACKET, LEFT_CBRACKET, RIGHT_CBRACKET, LEFT_SBRACKET, RIGHT_SBRACKET

1. Program \rightarrow Func_States Main_Func
2. Func_States \rightarrow Func_State Func_States $\mid \epsilon$
3. Func_State \rightarrow Func_Declr Func_Body
4. Main_Func \rightarrow Datatype MAIN_FN LEFT_BRACKET RIGHT_BRACKET Func_Body
5. Func_Declr \rightarrow Datatype FN_Name LEFT_BRACKET (Param Other_Param $\mid \epsilon$) RIGHT_BRACKET
6. Param \rightarrow Datatype IDENTIFIER
7. Other_Param \rightarrow (comma Param) Other_Param $\mid \epsilon$
8. Func_Body \rightarrow LEFT_CBRACKET Statements Return_State RIGHT_CBRACKET
9. Statements \rightarrow Statement Statements $\mid \epsilon$
10. Statement \rightarrow Assign_State SEMICOLON \mid Declr_State \mid Read_State \mid Write_State \mid FN_Call
SEMICOLON \mid IF_State \mid Repeat_State \mid return
11. Datatype \rightarrow INT \mid FLOAT \mid STRING
12. FN_Name \rightarrow IDENTIFIER
13. Assign_State \rightarrow IDENTIFIER ASSIGNMENT_OP EXP
14. Declr_State \rightarrow Datatype (IDENTIFIER \mid Assign_State) Declr_States SEMICOLON
15. Declr_States \rightarrow (comma (IDENTIFIER \mid Assign_State) Declr_States) $\mid \epsilon$
16. Read_State \rightarrow READ IDENTIFIER SEMICOLON

17. Write_State -> write (EXP | ENDL) SEMICOLON
18. FN_Call -> IDENTIFIER LEFT_BRACKET (IDENTIFIER | CONSTANT) Other_IDs | ϵ RIGHT_BRACKET
19. Other_IDs -> (comma (IDENTIFIER | CONSTANT)) Other_IDs | ϵ
20. IF_State -> IF Cond_State THEN Other_IF_States (ElseIf_State | Else_State | END)
21. ElseIf_State -> ELSEIF Cond_State THEN Other_IF_States (ElseIf_State | Else_State | end)
22. Else_State -> else Other_IF_States END
23. Other_IF_States -> Statement Other_IF_State
24. Other_IF_State -> Statement Other_IF_State | ϵ
25. Repeat_State -> repeat Other_IF_States until Cond_State
26. Return_State -> return EXP SEMICOLON
27. EXP -> STRING_VAL | Term | Equation
28. Term -> CONSTANT | IDENTIFIER | FN_Call
29. Equation -> (Term MultiTerms) | BRACKET_Op (OPs BRACKET_Op | OPs EXP)
30. MultiTerms -> (OPs EXP) MultipleTerm
31. MultipleTerm -> (OPs EXP) MultipleTerm | ϵ
32. BRACKET_Op -> LEFT_BRACKET Term MultiTerms RIGHT_BRACKET
33. OPs -> PLUS_OP | MINUS_OP | MULTIPLY_OP | DIVIDE_OP
34. Cond_State -> Condition MultiConditions
35. MultiConditions -> (Bool_OpsCondition) MultiConditions | ϵ
36. Condition -> IDENTIFIER Cond_Op EXP
37. Bool_Ops-> AND | OR
38. Cond_Op -> LESS_THAN | GREATER_THAN | EQUALS | NOT_EQUALS