

Грамматика

Program $\rightarrow \{ \text{Statement} \}$
Statement $\rightarrow \text{Scope} \mid \text{If} \mid \text{For} \mid \text{While} \mid \text{DoWhile} \mid \text{Function} \mid \text{Expression} \text{ '};'$
Scope $\rightarrow \text{'{' Program '}'}$
If $\rightarrow \text{'if' '(' Expression ')' Scope ElseIfList ElseOpt}$
ElseIfList $\rightarrow \{ \text{'else' 'if' '(' Expression ')' Scope} \}$
ElseOpt $\rightarrow \text{'else' Scope} \mid \varepsilon$
Type $\rightarrow \text{'int'} \mid \text{'char'} \mid \text{'double'}$ $\mid \text{'string'}$
For $\rightarrow \text{'for' '(' ForInit ';' Expression ';' Expression ')' Scope}$
ForInit $\rightarrow \text{Type VarList}$
VarList $\rightarrow \text{VarDecl} \{ \text{' , ' VarDecl} \}$
VarDecl $\rightarrow \text{Identifier} [\text{'=' Expression}] [\text{'[' Expression ']' }]$
Identifier $\rightarrow \text{Letter} \{ \text{Letter} \mid \text{Digit} \mid \text{'_'} \}$
Letter $\rightarrow \text{'Q' } \mid \text{'W' } \mid \text{'E' } \mid \text{'R' } \mid \text{'T' } \mid \text{'Y' } \mid \text{'U' } \mid \text{'I' } \mid \text{'O' } \mid \text{'P' }$
 $\mid \text{'A' } \mid \text{'S' } \mid \text{'D' } \mid \text{'F' } \mid \text{'G' } \mid \text{'H' } \mid \text{'J' } \mid \text{'K' } \mid \text{'L' }$
 $\mid \text{'Z' } \mid \text{'X' } \mid \text{'C' } \mid \text{'V' } \mid \text{'B' } \mid \text{'N' } \mid \text{'M' }$
 $\mid \text{'q' } \mid \text{'w' } \mid \text{'e' } \mid \text{'r' } \mid \text{'t' } \mid \text{'y' } \mid \text{'u' } \mid \text{'i' } \mid \text{'o' } \mid \text{'p' }$
 $\mid \text{'a' } \mid \text{'s' } \mid \text{'d' } \mid \text{'f' } \mid \text{'g' } \mid \text{'h' } \mid \text{'j' } \mid \text{'k' } \mid \text{'l' }$
 $\mid \text{'z' } \mid \text{'x' } \mid \text{'c' } \mid \text{'v' } \mid \text{'b' } \mid \text{'n' } \mid \text{'m' }$
Digit $\rightarrow \text{'0' } \mid \text{'1' } \mid \text{'2' } \mid \text{'3' } \mid \text{'4' } \mid \text{'5' } \mid \text{'6' } \mid \text{'7' } \mid \text{'8' } \mid \text{'9' }$
Number $\rightarrow \text{Digit} \{ \text{Digit} \}$
String $\rightarrow \text{'" { Letter } \mid \text{Digit} } \text{'"}$
While $\rightarrow \text{'while' '(' Expression ')' Scope}$
DoWhile $\rightarrow \text{'do' Scope 'while' '(' Expression ')' ';' }$
Function $\rightarrow \text{'fn' Type Identifier '(' FunctionArgsOpt ')' Scope}$
FunctionArgsOpt $\rightarrow \text{FunctionArgs} \mid \varepsilon$
FunctionArgs $\rightarrow \text{Type Identifier} [\text{'[' ']' }] \{ \text{' , ' Type Identifier} [\text{'[' ']' }] \}$
Expression $\rightarrow \text{AssignmentExpr}$
AssignmentExpr $\rightarrow \text{EqualityExpr AssignmentTail}$
AssignmentTail $\rightarrow \text{'=' AssignmentExpr} \mid \varepsilon$
EqualityExpr $\rightarrow \text{ExprLevel1}$
EqualityOperator $\rightarrow \text{'==' } \mid \text{'!='}$
ExprLevel1 $\rightarrow \text{ExprLevel2} [\text{EqualityOperator ExprLevel2}]$
ComparisonOperator $\rightarrow \text{'<' } \mid \text{'<=' } \mid \text{'>' } \mid \text{'>='}$
ExprLevel2 $\rightarrow \text{ExprLevel3} [\text{ComparisonOperator ExprLevel3}]$
ExprLevel3 $\rightarrow \text{ExprLevel4} \{ \text{'+' } \mid \text{'-'} \} \text{ExprLevel4}$
ExprLevel4 $\rightarrow \text{ExprLevel5} \{ \text{'*'} \mid \text{'/' } \mid \text{'\%' } \} \text{ExprLevel5}$
ExprLevel5 $\rightarrow \text{Primary}$
Primary $\rightarrow \text{Number} \mid \text{String} \mid \text{Identifier PrimaryTail} \mid \text{'(' Expression ')'}$
PrimaryTail $\rightarrow \text{'(' CallArgsOpt ')' } \mid \text{'[' Expression ']' PrimaryTail} \mid \varepsilon$
CallArgsOpt $\rightarrow \text{CallArgs} \mid \varepsilon$
CallArgs $\rightarrow \text{Expression} \{ \text{' , ' Expression} \}$