```
start : program;

program : program unit
        | unit
        ;

unit : var_declaration
     | func_declaration
     | func_definition
     ;

func_declaration : type_specifier ID LPAREN parameter_list RPAREN SEMICOLON
                 | type_specifier ID LPAREN RPAREN SEMICOLON
                 ;

func_definition : type_specifier ID LPAREN parameter_list RPAREN
                  compound_statement
                | type_specifier ID LPAREN RPAREN compound_statement
                ;

parameter_list : parameter_list COMMA type_specifier ID
               | parameter_list COMMA type_specifier
               | type_specifier ID
               | type_specifier
               ;

compound_statement : LCURL statements RCURL
                   | LCURL RCURL
                   ;

var_declaration : type_specifier declaration_list SEMICOLON
                ;
type_specifier : INT
               | FLOAT
               | VOID
               ;

declaration_list : declaration_list COMMA ID
                 | declaration_list COMMA ID LTHIRD CONST_INT RTHIRD
                 | ID
                 | ID LTHIRD CONST_INT RTHIRD
                 ;

statements : statement
           | statements statement
           ;
```

```
statement : var_declaration
          | expression_statement
          | compound_statement
          | FOR LPAREN expression_statement expression_statement expression
            RPAREN statement
          | IF LPAREN expression RPAREN statement
          | IF LPAREN expression RPAREN statement ELSE statement
          | WHILE LPAREN expression RPAREN statement
          | PRINTLN LPAREN ID RPAREN SEMICOLON
          | RETURN expression SEMICOLON
          ;

expression_statement : SEMICOLON
                     | expression SEMICOLON
                     ;

variable : ID
         | ID LTHIRD expression RTHIRD
         ;

expression : logic_expression
           | variable ASSIGNOP logic_expression
           ;

logic_expression : rel_expression
                 | rel_expression LOGICOP rel_expression
                 ;

rel_expression : simple_expression
               | simple_expression RELOP simple_expression
               ;

simple_expression : term
                  | simple_expression ADDOP term
                  ;
term : unary_expression
     | term MULOP unary_expression
     ;

unary_expression : ADDOP unary_expression
                 | NOT unary_expression
                 | factor
                 ;
```

```
factor : variable
       | ID LPAREN argument_list RPAREN
       | LPAREN expression RPAREN
       | CONST_INT
       | CONST_FLOAT
       | variable INCOP
       | variable DECOP
       ;

argument_list : arguments
              |
              ;
arguments : arguments COMMA logic_expression
          | logic_expression
          ;
```