%{

#include <stdio.h>

#include <stdlib.h>

#define YYDEBUG 1

%}

%token INT

%token STRING

%token CHAR

%token READ

%token WRITE

%token IF

%token ELSE

%token FOR

%token WHILE

%token RETURN

%token PROG

%token ARRAY

%token plus

%token minus

%token mul

%token division

%token mod

%token lessOrEqual

%token moreOrEqual

%token less

%token more

%token equal

%token different

%token eq

%token leftCurlyBracket

%token rightCurlyBracket

%token leftRoundBracket

%token rightRoundBracket

%token leftBracket

%token rightBracket

%token colon

%token semicolon

%token comma

%token apostrophe

%token quote

%token IDENTIFIER

%token NUMBER\_CONST

%token STRING\_CONST

%token CHAR\_CONST

%start program

%%

program : PROG compound\_statement

statement : declaration semicolon | assignment\_statement | return\_statement semicolon | iostmt semicolon | if\_statement | while\_statement | for\_statement

statement\_list : statement | statement statement\_list

compound\_statement : leftCurlyBracket statement\_list rightCurlyBracket

expression : expression plus term | expression minus term | term

term : term mul factor | term division factor | term mod factor | factor

factor : leftRoundBracket expression rightRoundBracket | IDENTIFIER | constant

constant : NUMBER\_CONST | STRING\_CONST | CHAR\_CONST

iostmt : READ leftRoundBracket IDENTIFIER rightRoundBracket | WRITE leftRoundBracket IDENTIFIER rightRoundBracket | WRITE leftRoundBracket constant rightRoundBracket

simple\_type : INT | STRING | CHAR

array\_declaration : ARRAY simple\_type IDENTIFIER leftBracket rightBracket

declaration : simple\_type IDENTIFIER | array\_declaration

assignment\_statement : IDENTIFIER eq expression semicolon

if\_statement : IF leftRoundBracket condition rightRoundBracket compound\_statement | IF leftRoundBracket condition rightRoundBracket compound\_statement ELSE compound\_statement

while\_statement : WHILE leftRoundBracket condition rightRoundBracket compound\_statement

return\_statement : RETURN expression

for\_statement : FOR for\_header compound\_statement

for\_header : leftRoundBracket INT assignment\_statement condition assignment\_statement rightRoundBracket

condition : expression relation expression

relation : less | lessOrEqual | equal | different | moreOrEqual | more

%%

yyerror(char \*s)

{

printf("%s\n",s);

}

extern FILE \*yyin;

main(int argc, char \*\*argv)

{

if(argc>1) yyin : fopen(argv[1],"r");

if(argc>2 && !strcmp(argv[2],"-d")) yydebug: 1;

if(!yyparse()) fprintf(stderr, "\tProgram is syntactically correct.\n");

}