

program : declarations functions main
;

declarations : ('#int' id_list)
;

id_list : ID (',' ID)
;

glob_decl : ('global' id_list)
;

functions : function
;

function : 'def' ID '(' id_list ')' ':'
'#{'
declarations
functions
glob_decl
code_block
'#}'
;

main : '#def' 'main'
declarations
code_block
;

code_block : statement+
;

statement : simple_statement
| structured_statement
;

simple_statement
: assignment_stat
| print_stat
| return_stat
;

structured_statement
: if_stat |
| while_stat
;

assignment_stat : ID '=' (expression
| 'int' '(' 'input' '(' '
)
;

print_stat : 'print' '(' expression ')'
;

return_stat : 'return' expression

;

statement_or_block

: statement

| '#{ statement+ '#}'

;

if_stat : 'if' condition ':'

statement_or_block

('elif' condition ':'

statement_or_block)*

('else' ':'

statement_or_block)?

;

while_stat : 'while' condition ':'

statement_or_block

;

expression : optional_sign term (add_oper term)*

;

term : factor (mul_oper factor)*

;

factor : INTEGER

| '(' expression ')'

| ID idtail

;

idtail : '(' actual_par_list ')'

|

;

actual_par_list : expression (',' expression)*

|

;

condition : bool_term ('or' bool_term)*

;

bool_term : bool_factor ('and' bool_factor)*

;

bool_factor : expression rel_op expression

| 'not' expression rel_op expression

;

optional_sign : add_oper

|

;

add_oper : '+' | '-'

;

mul_oper : '*' | '/' | '%'

;

rel_op : '>' | '<' | '>=' | '<=' | '==' | '!='

