**Universidad San Carlos de Guatemala**

Facultad de Ingeniería

Escuela de Ciencias y Sistemas

Organización de Lenguajes y Compiladores

Sección C

Ing. Kevin Lajpop

Aux. Mynor Ruiz

**Gramatica**

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Carnet 202100308

Guatemala 03 de mayo de 2023

%start BEGGINING

BEGGINING: ENTRY EOF

| ERROR EOF

;

ENTRY: ENTRY ENTZERO

| ENTZERO

;

ENTZERO: FUNCTIONBODY

| METHODBODY

| RUNBODY

| DEC\_VAR

| DEC\_VECT

;

FUNCTIONBODY: IDENTIFIER PARENTHESIS\_THAT\_OPENS PARENTHESIS\_THAT\_CLOSES TWO\_POINTS TYPE KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES

| IDENTIFIER PARENTHESIS\_THAT\_OPENS PARENTHESIS\_THAT\_CLOSES TWO\_POINTS TYPE KEY\_THAT\_OPENS KEY\_THAT\_CLOSES

| IDENTIFIER PARENTHESIS\_THAT\_OPENS PARAMETERS\_LIST PARENTHESIS\_THAT\_CLOSES TWO\_POINTS TYPE KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES

| IDENTIFIER PARENTHESIS\_THAT\_OPENS PARAMETERS\_LIST PARENTHESIS\_THAT\_CLOSES TWO\_POINTS TYPE KEY\_THAT\_OPENS KEY\_THAT\_CLOSES

;

FPRINTLN: PRINTLN PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES SEMICOLON

| PRINTLN PARENTHESIS\_THAT\_OPENS PARENTHESIS\_THAT\_CLOSES SEMICOLON

| PRINTLN ERROR SEMICOLON

;

FROUND: TK\_ROUND PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES

;

RUNBODY: TK\_RUN IDENTIFIER PARENTHESIS\_THAT\_OPENS PARENTHESIS\_THAT\_CLOSES SEMICOLON

| TK\_RUN IDENTIFIER PARENTHESIS\_THAT\_OPENS VALUES\_LIST PARENTHESIS\_THAT\_CLOSES SEMICOLON

| TK\_RUN ERROR

;

FPRINT: PRINT PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES SEMICOLON

| PRINT PARENTHESIS\_THAT\_OPENS PARENTHESIS\_THAT\_CLOSES SEMICOLON

;

FTOLOWER: TK\_TOLOWER PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES

;

FTOUPPER: TK\_TOUPPER PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES

;

FLENGTH: TK\_LENGTH PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES

PARAMETERS\_LIST: PARAMETERS\_LIST COMMA PARAMETROS

| PARAMETROS

;

PARAMETROS: TYPE IDENTIFIER COR\_ABRE COR\_CIERRA

| TYPE IDENTIFIER

;

INSTRUCTION: INSTRUCTION INSZERO

| INSZERO

;

INSZERO: DEC\_VAR

| CONTROLSTATEMENT

| CYCLESTATEMENT

| DEC\_VECT

| TRANSFERENCESTATEMENT

| CALL SEMICOLON

| FPRINTLN

| FPRINT

| ERROR SEMICOLON

;

METHODBODY: IDENTIFIER PARENTHESIS\_THAT\_OPENS PARENTHESIS\_THAT\_CLOSES TWO\_POINTS TK\_VOID KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES

| IDENTIFIER PARENTHESIS\_THAT\_OPENS PARENTHESIS\_THAT\_CLOSES TWO\_POINTS TK\_VOID KEY\_THAT\_OPENS KEY\_THAT\_CLOSES

| IDENTIFIER PARENTHESIS\_THAT\_OPENS PARAMETERS\_LIST PARENTHESIS\_THAT\_CLOSES TWO\_POINTS TK\_VOID KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES

| IDENTIFIER PARENTHESIS\_THAT\_OPENS PARAMETERS\_LIST PARENTHESIS\_THAT\_CLOSES TWO\_POINTS TK\_VOID KEY\_THAT\_OPENS KEY\_THAT\_CLOSES

| IDENTIFIER ERROR

;

TRANSFERENCESTATEMENT: TK\_BREAK SEMICOLON

| TK\_RETURN EXPRESSION SEMICOLON

| TK\_CONTINUE SEMICOLON

| TK\_RETURN SEMICOLON

;

SWITCH: TK\_SWITCH PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS CASESLIST DEFAULT KEY\_THAT\_CLOSES

| TK\_SWITCH PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS CASESLIST KEY\_THAT\_CLOSES

| TK\_SWITCH PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS DEFAULT KEY\_THAT\_CLOSES

| TK\_SWITCH ERROR KEY\_THAT\_CLOSES

;

CASESLIST: CASESLIST TK\_CASE EXPRESSION TWO\_POINTS INSTRUCTION

| CASESLIST TK\_CASE EXPRESSION TWO\_POINTS

| TK\_CASE EXPRESSION TWO\_POINTS INSTRUCTION

| TK\_CASE EXPRESSION TWO\_POINTS

| TK\_CASE ERROR TWO\_POINTS

;

CYCLESTATEMENT: WHILE

| FOR

| DOWHILE

;

WHILE: TK\_WHILE PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES

| TK\_WHILE PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS KEY\_THAT\_CLOSES

| TK\_WHILE ERROR KEY\_THAT\_CLOSES

;

FOR: TK\_FOR PARENTHESIS\_THAT\_OPENS DEC\_VAR EXPRESSION SEMICOLON ACTUALIZACION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES

| TK\_FOR PARENTHESIS\_THAT\_OPENS DEC\_VAR EXPRESSION SEMICOLON ACTUALIZACION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS KEY\_THAT\_CLOSES

| TK\_FOR ERROR KEY\_THAT\_CLOSES

;

DOWHILE: TK\_DO KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES TK\_WHILE PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES SEMICOLON

| TK\_DO KEY\_THAT\_OPENS KEY\_THAT\_CLOSES TK\_WHILE PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES SEMICOLON

| TK\_DO ERROR SEMICOLON

;

CONTROLSTATEMENT: CONTROLIF

| SWITCH

;

CONTROLIF: IF

| IFELSE

| ELSEIF

| TK\_IF ERROR KEY\_THAT\_CLOSES

;

IF: TK\_IF PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES

| TK\_IF PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS KEY\_THAT\_CLOSES

;

IFELSE: TK\_IF PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES TK\_ELSE KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES

| TK\_IF PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS KEY\_THAT\_CLOSES TK\_ELSE KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES

| TK\_IF PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES TK\_ELSE KEY\_THAT\_OPENS KEY\_THAT\_CLOSES

| TK\_IF PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS KEY\_THAT\_CLOSES TK\_ELSE KEY\_THAT\_OPENS KEY\_THAT\_CLOSES

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ELSEIF: TK\_IF PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS INSTRUCTION KEY\_THAT\_CLOSES TK\_ELSE CONTROLIF

| TK\_IF PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES KEY\_THAT\_OPENS KEY\_THAT\_CLOSES TK\_ELSE CONTROLIF}

;

DEFAULT: TK\_DEFAULT TWO\_POINTS INSTRUCTION

| TK\_DEFAULT TWO\_POINTS

;

DEC\_VAR: TYPE IDENTIFIER IGUAL EXPRESSION SEMICOLON

| TYPE IDENTIFIER SEMICOLON

| IDENTIFIER IGUAL EXPRESSION SEMICOLON

| IDENTIFIER INCREMENTO SEMICOLON

| IDENTIFIER DECREMENTO SEMICOLON

| TYPE ERROR SEMICOLON

;

FTYPEOF: TK\_TYPEOF PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES

;

FTOSTRING: TK\_TOSTRING PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES

;

FTOCHARARRAY: TK\_TOCHARARRAY PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES

;

CALL: IDENTIFIER PARENTHESIS\_THAT\_OPENS VALUES\_LIST PARENTHESIS\_THAT\_CLOSES

| IDENTIFIER PARENTHESIS\_THAT\_OPENS PARENTHESIS\_THAT\_CLOSES

;

VALUES\_LIST: VALUES\_LIST COMMA VALUES

| VALUES

;

VALUES: EXPRESSION

;

DEC\_VECT: TYPE IDENTIFIER COR\_ABRE COR\_CIERRA IGUAL NEW TYPE COR\_ABRE EXPRESSION COR\_CIERRA SEMICOLON

| TYPE IDENTIFIER COR\_ABRE COR\_CIERRA IGUAL COR\_ABRE VALUES\_LIST COR\_CIERRA

SEMICOLON

| IDENTIFIER COR\_ABRE EXPRESSION COR\_CIERRA IGUAL EXPRESSION SEMICOLON

| TYPE IDENTIFIER COR\_ABRE COR\_CIERRA IGUAL EXPRESSION SEMICOLON

| TYPE COR\_ABRE COR\_CIERRA ERROR SEMICOLON

;

TYPE: TIPODATO

;

TIPODATO: STRING

| INTEGER

| DOUBLE

| CHAR

| BOOLEAN

;

EXPRESSION: EXPRESSION OP\_SUM EXPRESSION

| EXPRESSION OP\_MINUS EXPRESSION

| EXPRESSION OP\_MULTIPLICATION EXPRESSION

| EXPRESSION OP\_DIVISION EXPRESSION

| EXPRESSION OP\_EXPONENT EXPRESSION

| EXPRESSION OP\_MODULE EXPRESSION

| OP\_MINUS EXPRESSION %prec umenos

| PARENTHESIS\_THAT\_OPENS EXPRESSION PARENTHESIS\_THAT\_CLOSES

| EXPRESSION EQUALS EXPRESSION

| EXPRESSION DIFERENTEA EXPRESSION

| EXPRESSION LESS EXPRESSION

| EXPRESSION LESS\_OR\_EQUAL EXPRESSION

| EXPRESSION GREATER EXPRESSION

| EXPRESSION GREATER\_OR\_EQUAL EXPRESSION

| EXPRESSION OR EXPRESSION

| EXPRESSION AND EXPRESSION

| NOT EXPRESSION

CAST: PARENTHESIS\_THAT\_OPENS TYPE PARENTHESIS\_THAT\_CLOSES EXPRESSION

;

TERNARY: EXPRESSION OP\_TERNARY EXPRESSION TWO\_POINTS EXPRESSION

;

RESERVEDFUNCTIONS: FTOLOWER

| FTOUPPER

| FLENGTH

| FROUND

| FTYPEOF

| FTOSTRING

| FTOCHARARRAY

;