

Universidad San Carlos de Guatemala

Facultad de Ingeniería

Escuela de Ciencias y Sistemas

Organización de Lenguajes y Compiladores

Sección C

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Gramatica

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Carnet 202100308

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```
%start BEGINING
```

```
BEGINING: ENTRY EOF
```

```
    | ERROR EOF
```

```
;
```

```
ENTRY: ENTRY ENTZERO
```

```
    | ENTZERO
```

```
;
```

```
ENTZERO: FUNCTIONBODY
```

```
    | METHODBODY
```

```
    | RUNBODY
```

```
    | DEC_VAR
```

```
    | DEC_VECT
```

```
;
```

```
FUNCTIONBODY: IDENTIFIER PARENTHESIS_THAT_OPENS  
PARENTHESIS_THAT_CLOSSES TWO_POINTS TYPE KEY_THAT_OPENS INSTRUCTION  
KEY_THAT_CLOSSES
```

```
    | IDENTIFIER PARENTHESIS_THAT_OPENS PARENTHESIS_THAT_CLOSSES  
TWO_POINTS TYPE KEY_THAT_OPENS KEY_THAT_CLOSSES
```

```
    | IDENTIFIER PARENTHESIS_THAT_OPENS PARAMETERS_LIST  
PARENTHESIS_THAT_CLOSSES TWO_POINTS TYPE KEY_THAT_OPENS INSTRUCTION  
KEY_THAT_CLOSSES
```

```
    | IDENTIFIER PARENTHESIS_THAT_OPENS PARAMETERS_LIST  
PARENTHESIS_THAT_CLOSSES TWO_POINTS TYPE KEY_THAT_OPENS KEY_THAT_CLOSSES
```

```
;
```

```
FPRINTLN: PRINTLN PARENTHESIS_THAT_OPENS EXPRESSION  
PARENTHESIS_THAT_CLOSSES SEMICOLON
```

```
    | PRINTLN PARENTHESIS_THAT_OPENS PARENTHESIS_THAT_CLOSSES  
SEMICOLON
```

```
    | PRINTLN ERROR SEMICOLON
```

```
;
```

```
FROUND: TK_ROUND PARENTHESIS_THAT_OPENS EXPRESSION  
PARENTHESIS_THAT_CLOSSES
```

```
;
```

```
RUNBODY: TK_RUN IDENTIFIER PARENTHESIS_THAT_OPENS  
PARENTHESIS_THAT_CLOSSES SEMICOLON
```

```
| TK_RUN IDENTIFIER PARENTHESIS_THAT_OPENS VALUES_LIST  
PARENTHESIS_THAT_CLOSSES SEMICOLON
```

```
| TK_RUN ERROR
```

```
;
```

```
FPRINT: PRINT PARENTHESIS_THAT_OPENS EXPRESSION  
PARENTHESIS_THAT_CLOSSES SEMICOLON
```

```
| PRINT PARENTHESIS_THAT_OPENS PARENTHESIS_THAT_CLOSSES SEMICOLON
```

```
;
```

```
FTOLOWER: TK_TOLOWER PARENTHESIS_THAT_OPENS EXPRESSION  
PARENTHESIS_THAT_CLOSSES
```

```
;
```

```
FTOUPPER: TK_TOUPPER PARENTHESIS_THAT_OPENS EXPRESSION  
PARENTHESIS_THAT_CLOSSES
```

```
;
```

```
FLENGTH: TK_LENGTH PARENTHESIS_THAT_OPENS EXPRESSION  
PARENTHESIS_THAT_CLOSSES
```

```
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_CLOSSES
TWO_POINTS TK_VOID KEY_THAT_OPENS INSTRUCTION KEY_THAT_CLOSSES

| IDENTIFIER PARENTHESIS_THAT_OPENS PARENTHESIS_THAT_CLOSSES TWO_POINTS
TK_VOID KEY_THAT_OPENS KEY_THAT_CLOSSES

| IDENTIFIER PARENTHESIS_THAT_OPENS PARAMETERS_LIST
PARENTHESIS_THAT_CLOSSES TWO_POINTS TK_VOID KEY_THAT_OPENS INSTRUCTION
KEY_THAT_CLOSSES

| IDENTIFIER PARENTHESIS_THAT_OPENS PARAMETERS_LIST
PARENTHESIS_THAT_CLOSSES TWO_POINTS TK_VOID KEY_THAT_OPENS
KEY_THAT_CLOSSES

| 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_CLOSSES KEY_THAT_OPENS CASESLIST DEFAULT
KEY_THAT_CLOSSES

| TK_SWITCH PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES
KEY_THAT_OPENS CASESLIST KEY_THAT_CLOSSES

| TK_SWITCH PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES
KEY_THAT_OPENS DEFAULT KEY_THAT_CLOSSES

| TK_SWITCH ERROR KEY_THAT_CLOSSES

;

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_CLOSSES KEY_THAT_OPENS INSTRUCTION KEY_THAT_CLOSSES

| TK_WHILE PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES
KEY_THAT_OPENS KEY_THAT_CLOSSES

| TK_WHILE ERROR KEY_THAT_CLOSSES

;

```
FOR: TK_FOR PARENTHESIS_THAT_OPENS DEC_VAR EXPRESSION SEMICOLON
ACTUALIZACION PARENTHESIS_THAT_CLOSSES KEY_THAT_OPENS INSTRUCTION
KEY_THAT_CLOSSES
| TK_FOR PARENTHESIS_THAT_OPENS DEC_VAR EXPRESSION SEMICOLON
ACTUALIZACION PARENTHESIS_THAT_CLOSSES KEY_THAT_OPENS KEY_THAT_CLOSSES
| TK_FOR ERROR KEY_THAT_CLOSSES
;
```

```
DOWHILE: TK_DO KEY_THAT_OPENS INSTRUCTION KEY_THAT_CLOSSES TK_WHILE
PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES SEMICOLON
| TK_DO KEY_THAT_OPENS KEY_THAT_CLOSSES TK_WHILE PARENTHESIS_THAT_OPENS
EXPRESSION PARENTHESIS_THAT_CLOSSES SEMICOLON
| TK_DO ERROR SEMICOLON
;
```

```
CONTROLSTATEMENT: CONTROLIF
| SWITCH
;
```

```
CONTROLIF: IF
| IFELSE
| ELSEIF
| TK_IF ERROR KEY_THAT_CLOSSES
;
```

```
IF: TK_IF PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES
KEY_THAT_OPENS INSTRUCTION KEY_THAT_CLOSSES
| TK_IF PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES
KEY_THAT_OPENS KEY_THAT_CLOSSES
;
```

```
IFELSE: TK_IF PARENTHESIS_THAT_OPENS EXPRESSION
PARENTHESIS_THAT_CLOSSES KEY_THAT_OPENS INSTRUCTION KEY_THAT_CLOSSES
TK_ELSE KEY_THAT_OPENS INSTRUCTION KEY_THAT_CLOSSES
```

```
| TK_IF PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES  
KEY_THAT_OPENS KEY_THAT_CLOSSES TK_ELSE KEY_THAT_OPENS INSTRUCTION  
KEY_THAT_CLOSSES  
  
| TK_IF PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES  
KEY_THAT_OPENS INSTRUCTION KEY_THAT_CLOSSES TK_ELSE KEY_THAT_OPENS  
KEY_THAT_CLOSSES  
  
| TK_IF PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES  
KEY_THAT_OPENS KEY_THAT_CLOSSES TK_ELSE KEY_THAT_OPENS KEY_THAT_CLOSSES  
  
;
```

```
ELSEIF: TK_IF PARENTHESIS_THAT_OPENS EXPRESSION  
PARENTHESIS_THAT_CLOSSES KEY_THAT_OPENS INSTRUCTION KEY_THAT_CLOSSES  
TK_ELSE CONTROLIF  
  
| TK_IF PARENTHESIS_THAT_OPENS EXPRESSION PARENTHESIS_THAT_CLOSSES  
KEY_THAT_OPENS KEY_THAT_CLOSSES 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_CLOSSES  
  
;
```

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_CLOSSES

| 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_CLOSSES EXPRESSION

;

TERNARY: EXPRESSION OP_TERNARY EXPRESSION TWO_POINTS EXPRESSION

;

RESERVEDFUNCTIONS: FTOLOWER

| FTOUPPER

| FLENGTH

| FROUND

| FTYPEOF

| FTOSTRING

| FTOCHARARRAY

;