K Lang

|  |  |  |
| --- | --- | --- |
| PROGRAM | -> | DECLARATION |
|  | | |
| *Declarations* | | |
| DECLARATION | -> | CLASS\_DECL DECLARATION |
| -> | FUN\_DECL DECLARATION |
| -> | VAR\_DECL DECLARATION |
| -> | STATEMENT DECLARATION |
| -> | **Ɛ** |
|  |  |  |
| CLASS\_DECL | -> | **class** **id** CLASS\_INHER **{** CLASS\_ELEMENT **}** |
|  |  |  |
| CLASS\_INHER | -> | **extends** **id** |
|  |  | **Ɛ** |
|  |  |  |
| CLASS\_ELEMENT | -> | VAR\_DECL CLASS\_ELEMENT |
|  | -> | FUN\_DECL CLASS\_ELEMENT |
|  | -> | **Ɛ** |
|  |  |  |
| FUN\_DECL | -> | **fun** **id** **(** PARAMETERS **)** BLOCK |
|  |  |  |
| VAR\_DECL | -> | **var** **id** VAR\_INIT **;** |
|  |  |  |
| VAR\_INIT | -> | **=** EXPRESSION |
| -> | **Ɛ** |
|  | | |
| *Statements* | | |
| STATEMENT | -> | EXPR\_STMT |
| -> | FOR\_STMT |
| -> | IF\_STMT |
| -> | PRINT\_STMT |
| -> | RETURN\_STMT |
| -> | WHILE\_STMT |
| -> | BLOCK |
|  |  |  |
| EXPR\_STMT | -> | EXPRESSION **;** |
|  |  |  |
| FOR\_STMT | -> | **for** **(** FOR\_STMT\_INIT FOR\_STMT\_COND FOR\_STMT\_INC **)** STATEMENT |
|  |  |  |
| FOR\_STMT\_INIT | -> | VAR\_DECL |
| -> | EXPR\_STMT |
| -> | **;** |
|  |  |  |
| FOR\_STMT\_COND | -> | EXPRESSION**;** |
| -> | **;** |
|  |  |  |
| FOR\_STMT\_INC | -> | EXPRESSION |
| -> | **Ɛ** |
|  |  |  |
| IF\_STMT | -> | **if** **(**EXPRESSION**)** STATEMENT ELSE\_STATEMENT |
|  |  |  |
| ELSE\_STATEMENT | -> | **else** STATEMENT |
| -> | **Ɛ** |
|  |  |  |
| PRINT\_STMT | -> | **print** EXPRESSION **;** |
|  |  |  |
| RETURN\_STMT | -> | **return** RETURN\_EXP\_OPC **;** |
|  |  |  |
| RETURN\_EXP\_OPC | -> | EXPRESSION |
| -> | **Ɛ** |
|  |  |  |
| WHILE\_STMT | -> | **while** **(** EXPRESSION **)** STATEMENT |
|  |  |  |
| BLOCK | -> | **{** DECLARATION **}** |
|  |  |  |
| *Expressions* | | |
| EXPRESSION | -> | ASSIGNMENT |
|  |  |  |
| ASSIGNMENT | -> | LOGIC\_OR ASSIGNMENT\_OPC |
|  |  |  |
| ASSIGNMENT\_OPC | -> | **=** EXPRESSION |
|  | -> | **Ɛ** |
|  |  |  |
| LOGIC\_OR | -> | LOGIC\_AND LOGIC\_OR’ |
|  |  |  |
| LOGIC\_OR’ | -> | **or** LOGIC\_OR |
| -> | **Ɛ** |
|  |  |  |
| LOGIC\_AND | -> | EQUALITY LOGIC\_AND’ |
|  |  |  |
| LOGIC\_AND’ | -> | **and** LOGIC\_AND |
| -> | **Ɛ** |
|  |  |  |
| EQUALITY | -> | COMPARISON EQUALITY’ |
|  |  |  |
| EQUALITY’ | -> | **!=** EQUALITY |
| -> | **==** EQUALITY |
| -> | **Ɛ** |
|  |  |  |
| COMPARISON | -> | TERM COMPARISON’ |
|  |  |  |
| COMPARISON’ | -> | **>** COMPARISON |
| -> | **>=** COMPARISON |
| -> | **<** COMPARISON |
| -> | **<=** COMPARISON |
| -> | **Ɛ** |
|  |  |  |
| TERM | -> | FACTOR TERM’ |
|  |  |  |
| TERM’ | -> | **-** TERM |
| -> | **+** TERM |
| -> | **Ɛ** |
|  |  |  |
| FACTOR | -> | UNARY FACTOR’ |
|  |  |  |
| FACTOR’ | -> | **/** FACTOR |
| -> | **\*** FACTOR |
| -> | **Ɛ** |
|  |  |  |
| UNARY | -> | **!** UNARY |
| -> | **-** UNARY |
| -> | CALL |
|  |  |  |
| CALL | -> | PRIMARY CALL’ |
|  |  |  |
| CALL’ | -> | **(** ARGUMENTS**)** CALL’ |
| -> | **.** **id** CALL’ |
| -> | **Ɛ** |
|  |  |  |
| PRIMARY | -> | **true** |
| -> | **false** |
| -> | **null** |
| -> | **this** |
| -> | **number** |
| -> | **string** |
| -> | **id** |
| -> | **(** EXPRESSION **)** |
| -> | **super** **.** **id** |
|  | | |
| *Others* | | |
| PARAMETERS | -> | **id** PARAMETERS’ |
| -> | **Ɛ** |
|  |  |  |
| PARAMETERS’ | -> | **,** **id** PARAMETERS’ |
| -> | **Ɛ** |
|  |  |  |
| ARGUMENTS | -> | EXPRESSION ARGUMENTS’ |
|  | -> | **Ɛ** |
|  |  |  |
| ARGUMENTS’ | -> | **,** EXPRESSION ARGUMENTS’ |
| -> | **Ɛ** |