文法设计:

\*\*()内的内容为可选项,可有可无,{}内的内容为多选一,<>内大写为非终结符,小写为终结符

//程序

PROGRAME → <TYPE><subProgram><{><SENTENCE><}>

PROGRAME → <struct><IDENTIFIER><{><CLARIFY><}>

//句子

<SENTENCE>→ <KEYWORD><CONTENT><;>(<SENTENCE>)

<SENTENCE>→ <KEYWORD><ARRAY><;>(<SENTENCE>)

<SENTENCE>→ <CONTENT><;>(<SENTENCE>)

<SENTENCE>→<IF>(<SENTENCE>)

<SENTENCE>→ <WHILE>(<SENTENCE>)

<SENTENCE>→ <FOR>(<SENTENCE>)

<SENTENCE>→ <DOWHILE>(<SENTENCE>)

//<CLARIFY>

//<ARRAY>

<ARRAY>→ <[><CONSTANT><]><IDENTIFIER>(<,><IDENTIFIER>)(<=><{><CONSTANT>(<,><CONSTANT>)})

//<DOWHILE>

<DOWHILE>→ <do><{><SENTENCE><}><while><(><EXPRESSION><COMPARE><EXPRESSION>)<;>

//<FOR>

<FOR>→ <for><(>(<SENTENCE\_1>)<;><EXPRESSION><COMPARE><EXPRESSION><;><SENTENCE\_1><;><)><{><SENTENCE><}>

//<WHILE>

<WHILE>→ <while><(><EXPRESSION><COMPARE><EXPRESSION><)><{><SENTENCE><}>

//<IF>

<IF>→ <if><(><EXPRESSION><COMPARE><EXPRESSION><)><{><SENTENCE><}>(<else>{<{><SENTENCE><}>, <IF>})

//内容

<CONTENT>→ <IDENTIFIER>(<=><EXPRESSION>)(<,><CONTENT>)

//表达式(采用LL(1)分析)

<EXPRESSION>→ {<T>, <EXPRESS><OPTION\_0><T>}

<T>→ {<F>, <T><OPTION\_1><F>}

<F>→ {{<CONSTANT>, <IDENTIFIER>}, <(><EXPRESS><)>}

注: <CONSTANT>,<IDNETIFIER>由扫描器自动机识别,在此不做赘述