Complete grammar of the Jack language

Lexical elements:	The Jack language includes five types of terminal elements (tokens):
keyword:	'**class**' | '**constructor**' | '**function**' | '**method**' | '**field**' | '**static**' | '**var**' | '**int**' | '**char**' | '**boolean**' | '**void**' | '**true**' | '**false**' | '**null**' | '**this**' | '**let**' | '**do**' | '**if**' | '**else**' | '**while**' | '**return**'
symbol:	'{' | '}' | '(' | ')' | '[' | ']' | '. ' | ', ' | '; ' | '+' | '-' | '*' | '/' | '&' | '|' | '<' | '>' | '=' | '~'
integerConstant:	A decimal number in the range 0 .. 32767.
StringConstant	'"' A sequence of Unicode characters not including double quote or newline '"'
identifier:	A sequence of letters, digits, and underscore ('_') not starting with a digit.
Program structure:	A Jack program is a collection of classes, each appearing in a separate file. The compilation unit is a class. A class is a sequence of tokens structured according to the following context free syntax:
class:	'**class**' className '{' classVarDec* subroutineDec* '}'
classVarDec:	('**static**' | '**field**') type varName (',' varName)* ';'
type:	'**int**' | '**char**' | '**boolean**' | className
subroutineDec:	('**constructor**' | '**function**' | '**method**') ('**void**' | type) subroutineName '(' parameterList ')' subroutineBody
parameterList:	((type varName) (',' type varName)*)?
subroutineBody:	'{' varDec* statements '}'
varDec:	'**var**' type varName (',' varName)* ';'
className:	identifier
subroutineName:	identifier
varName:	identifier
Statements:	
statements:	statement*
statement:	letStatement | ifStatement | whileStatement | doStatement | returnStatement
letStatement:	'**let**' varName ('[' expression ']')? '=' expression ';'
ifStatement:	'**if**' '(' expression ')' '{' statements '}' ('**else**' '{' statements '}')?
whileStatement:	'**while**' '(' expression ')' '{' statements '}'
doStatement:	'**do**' subroutineCall ';'
ReturnStatement	'**return**' expression? ';'
Expressions:	
expression:	term (op term)*
term:	integerConstant | stringConstant | keywordConstant | varName | varName '[' expression ']' | subroutineCall | '(' expression ')' | unaryOp term
subroutineCall:	subroutineName '(' expressionList ')' | (className | varName) '.' subroutineName '(' expressionList ')'
expressionList:	(expression (',' expression)*)?
op:	'+' | '-' | '*' | '/' | '&' | '|' | '<' | '>' | '='
unaryOp:	'-' | '~'
KeywordConstant:	'**true**' | '**false**' | '**null**' | '**this**'