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CSC 372 Project 2: Grammar

$\langle \text{stmt} \rangle ::= \langle \text{comment} \rangle \mid \langle \text{printVal} \rangle; \mid \langle \text{printStr} \rangle; \mid \langle \text{assign} \rangle; \mid \langle \text{conditional} \rangle$

$\langle \text{comment} \rangle ::= @\langle \text{string} \rangle \backslash n$

$\langle \text{printVal} \rangle ::= \text{show}(\text{varName})$

$\langle \text{printStr} \rangle ::= \text{show}(\langle \text{alphabet} \rangle \langle \text{varName} \rangle \mid \langle \text{alphabet} \rangle)$

$\langle \text{conditional} \rangle ::= \text{if}(\langle \text{boolexpr} \rangle) \{ \langle \text{block} \rangle \} \mid \text{while}(\langle \text{boolexpr} \rangle) \{ \langle \text{block} \rangle \}$

$\langle \text{block} \rangle ::= \langle \text{block} \rangle \langle \text{stmt} \rangle \mid \langle \text{stmt} \rangle$

$\langle \text{string} \rangle ::= \langle \text{alphabet} \rangle \mid \langle \text{string} \rangle \langle \text{alphabet} \rangle$

$\langle \text{expr} \rangle ::= \langle \text{int_expr} \rangle \mid \langle \text{strexp} \rangle \mid \langle \text{var} \rangle \mid \langle \text{val} \rangle$

$\langle \text{int_expr1} \rangle ::= \langle \text{int_expr2} \rangle \mid \langle \text{int_expr1} \rangle + \langle \text{int_expr2} \rangle \mid \langle \text{int_expr1} \rangle - \langle \text{int_expr2} \rangle$

$\langle \text{int_expr2} \rangle ::= \langle \text{int_expr3} \rangle \mid \langle \text{int_expr2} \rangle * \langle \text{int_expr3} \rangle \mid \langle \text{int_expr2} \rangle / \langle \text{int_expr3} \rangle$

$\langle \text{int_expr3} \rangle ::= -\langle \text{int} \rangle \mid \langle \text{int} \rangle \mid -\langle \text{var} \rangle \mid \langle \text{var} \rangle$

$\langle \text{str_expr} \rangle ::= \langle \text{str_expr} \rangle + \langle \text{string} \rangle \mid \langle \text{string} \rangle$

$\langle \text{boolexpr} \rangle ::= \langle \text{boolexpr} \rangle \&\& \langle \text{cmpr} \rangle \mid \langle \text{boolexpr} \rangle \parallel \langle \text{cmpr} \rangle \mid !\langle \text{cmpr} \rangle \mid \langle \text{cmpr} \rangle$

$\langle \text{cmpr} \rangle ::= \langle \text{expr} \rangle < \langle \text{expr} \rangle \mid \langle \text{expr} \rangle > \langle \text{expr} \rangle \mid \langle \text{expr} \rangle == \langle \text{expr} \rangle \mid \langle \text{bool} \rangle$

$\langle \text{varName} \rangle ::= \langle \text{alphabet} \rangle \langle \text{varName} \rangle \mid \langle \text{alphabet} \rangle$

$\langle \text{val} \rangle ::= \langle \text{int} \rangle \mid \langle \text{string} \rangle \mid \langle \text{bool} \rangle$

$\langle \text{assign} \rangle ::= \langle \text{type} \rangle \langle \text{var} \rangle \text{ is } \langle \text{expr} \rangle$

<type>::=	Int, String, Bool
<int>::=	<int><digit> -<digit>
<int_ops> ::=	+ - * % /
<bool>::=	true false
<alphabet>	a b c ... z A B C ... Z
<digit>::=	1 2 3 4 5 6 7 8 9 0