

# Programming Assignment 2

## CSCD 420 - Spring 2021

Due: 26 MAY 2021, 11:59pm  
Tokens to be Recognized

### Keywords

Lexemes	Token Name	Attribute Value
<b>for</b>	<b>for</b>	-
<b>endfor</b>	<b>endfor</b>	-
<b>foreach</b>	<b>foreach</b>	-
<b>endforeach</b>	<b>endforeach</b>	-
<b>as</b>	<b>as</b>	-
<b>do</b>	<b>do</b>	-
<b>while</b>	<b>while</b>	-
<b>endwhile</b>	<b>endwhile</b>	-
<b>break</b>	<b>break</b>	-
<b>continue</b>	<b>continue</b>	-

### Operators

Lexemes	Token Name	Attribute Value
<b>=</b>	<b>assign</b>	-
<b>==</b>	<b>relop</b>	EQ
<b>&lt;</b>	<b>relop</b>	LT
<b>&gt;</b>	<b>relop</b>	GT
<b>!=</b>	<b>relop</b>	NE
<b>&lt;=</b>	<b>relop</b>	LE
<b>&gt;=</b>	<b>relop</b>	GE
<b>&lt;=&gt;</b>	<b>relop</b>	VADER
<b>===</b>	<b>relop</b>	IDENTICAL
<b>!==</b>	<b>relop</b>	NOTIDENTICAL
<b>+</b>	<b>arithop</b>	ADD
<b>-</b>	<b>arithop</b>	SUB
<b>*</b>	<b>arithop</b>	MUL
<b>/</b>	<b>arithop</b>	DIV
<b>%</b>	<b>arithop</b>	MOD
<b>++</b>	<b>arithop</b>	AUTOADD
<b>--</b>	<b>arithop</b>	AUTOSUB
<b>+=</b>	<b>arithassign</b>	ADD
<b>-=</b>	<b>arithassign</b>	SUB
<b>*=</b>	<b>arithassign</b>	MUL
<b>/=</b>	<b>arithassign</b>	DIV
<b>%=</b>	<b>arithassign</b>	MOD
<b>&amp;&amp;</b>	<b>logicalop</b>	AND
<b>and</b>	<b>logicalop</b>	AND
<b>  </b>	<b>logicalop</b>	OR
<b>or</b>	<b>logicalop</b>	OR
<b>xor</b>	<b>logicalop</b>	XOR
<b>!</b>	<b>logicalop</b>	NOT

### Punctuation

Lexemes	Token Name	Attribute Value
<b>(</b>	<b>openparen</b>	-
<b>)</b>	<b>closeparen</b>	-
<b>{</b>	<b>opencurly</b>	-
<b>}</b>	<b>closecurly</b>	-
<b>[</b>	<b>openbracket</b>	-
<b>]</b>	<b>closebracket</b>	-
<b>-&gt;</b>	<b>skinnyarrow</b>	-
<b>=&gt;</b>	<b>fatarrow</b>	-
<b>;</b>	<b>semicolon</b>	-
<b>:</b>	<b>colon</b>	-
<b>"</b>	<b>doublequote</b>	-
<b>'</b>	<b>singlequote</b>	-

### Identifiers and other

Lexemes	Token Name	Attribute Value
Any id	<b>id</b>	Pointer to symbol table entry
Any variable	<b>var</b>	Pointer to symbol table entry
Any number	<b>number</b>	Pointer to symbol table entry
Any string literal	<b>string</b>	Pointer to symbol table entry

Integer and floating-point literals are defined as seen in lecture. String literals are all characters between double quotes (") or single quotes ('). Identifiers are defined as  $id \rightarrow letter\_ (letter\_ | digit)^*$  and variables are  $var \rightarrow \$ id$ .

Comments can be done in three ways: 1) everything between /\* and matching \*/ is a comment, which can be across multiple lines; 2) everything from # to end of line is a comment; and 3) everything from // to end of line is a comment.