

KAIST

EE209: Programming Structures for EE

C Statements

Statement Type	Statement Syntax	Examples
Expression Statement	<i>expression;</i>	i = 5; printf("Hello"); 5; /* valid, but nonsensical */
Declaration Statement	<i>modifiers datatype variable [= initialvalue][, variable [= initialvalue]]...;</i>	int i; int i, j; int i = 5, j = 6; const int i; static int i; extern int i;
Compound Statement (alias Block)	{ <i>statement statement ...</i> }	{ int i; i = 5; ... }
If Statement	if (<i>integralexp</i>) <i>statement</i> ; if (<i>pointerexpr</i>) <i>statement</i> ;	if (i == 5) { <i>statement</i> ; <i>statement</i> ; }
Switch Statement	switch (<i>integralexp</i>) { case <i>integralconstant</i> : <i>statements</i> case <i>integralconstant</i> : <i>statements</i> default: <i>statements</i> }	switch (i) { case 1: <i>statement</i> ; break; case 2: <i>statement</i> ; break; default: <i>statement</i> ; }
While Statement	while (<i>integralexp</i>) <i>statement</i>	while (i < 5) { <i>statement</i> ; <i>statement</i> ; }
DoWhile Statement	do <i>statement</i> while (<i>integralexp</i>);	do { <i>statement</i> ; <i>statement</i> ; } while (i < 5);
For Statement	for (<i>initexpr</i> , <i>integralexp</i> , <i>increxp</i>) <i>statement</i>	for (i = 0; i < 5; i++) { <i>statement</i> ; <i>statement</i> ; }
Return Statement	return; return <i>expr</i> ;	return; return i + 5;
Break Statement	break;	while (i < 5) { <i>statement</i> ; if (j == 6) break; <i>statement</i> ; }

Continue Statement	continue;	<pre>while (i < 5) { <i>statement</i>; if (j == 6) continue; <i>statement</i>; }</pre>
Goto Statement	goto <i>label</i> ;	<pre>mylabel: ... goto mylabel; ...</pre>

Differences between C and Java:

Expression Statement:

- Java: Only expressions that have a side effect can be made into expression statements
- C: Any expression can be made into an expression statement
- Java: Has "final" variables
- C: Has "const" variables

Declaration Statement:

- Java: Compiletime error to use a local variable before specifying its value
- C: Runtime error to use a local variable before specifying its value

Compound Statement:

- Java: Declaration statements can be placed anywhere within compound statement
- C: Declaration statements must appear before any other type of statement within compound statement

If Statement

- Java: Controlling expr must be of type boolean
- C: Controlling expr must be of some integral type or a pointer (0 => FALSE, non-0 => TRUE)

While Statement

- Java: Controlling expr must be of type boolean
- C: Controlling expr must be of some integral type or a pointer (0 => FALSE, non-0 => TRUE)

DoWhile Statement

- Java: Controlling expr must be of type boolean
- C: Controlling expr must be of some integral type or a pointer (0 => FALSE, non-0 => TRUE)

For Statement

- Java: Controlling expr must be of type boolean
- C: Controlling expr must be of some integral type or a pointer (0 => FALSE, non-0 => TRUE)
- Java: Can declare loop control variable in initexpr
- C: Cannot declare loop control variable in initexpr

Break Statement

- Java: Also has "labeled break" statement
- C: Does not have "labeled break" statement

Continue Statement

Java: Also has "labeled continue" statement
C: Does not have "labeled continue" statement

Goto Statement

Java: Not provided
C: Provided (but don't use it!)