

C++ Quick Reference Guide

C++ Fundamental Data Types

```
bool      Boolean type (values are true or false)
char      Character
short     Usually a 2-byte integer
int       Usually a 4-byte integer
long      Same as long int (long size >= int size)
float     Single precision floating point
          usually 4 bytes
double    Double precision floating point
          usually 8 bytes
```

C++ has type modifiers `unsigned` and `long`. `unsigned` may be applied to integral types (including `char`). `long` may be applied to `int` or `double`. An unsigned data type only allows natural numbers to be stored (integers >= 0).

Default integral data type is `int`.
 Default floating-point data type is `double`.

"integral" and "floating-point" are examples of categories of data. `bool`, `char`, `int`, `double` etc. are C++ data types.

Examples of literals in C++	Data Type
<code>true</code> , <code>false</code>	<code>bool</code>
<code>'2'</code> , <code>'\n'</code> , <code>'A'</code>	<code>char</code>
<code>2</code> , <code>3</code> , <code>75</code>	<code>int</code>
<code>2.0</code> , <code>.5</code> , <code>5.</code>	<code>double</code>
<code>"2"</code> , <code>""</code> , <code>"Hello World!"</code>	<code>c-string</code>

Strings are represented in C++ as either `char arrays` or `string objects`.

```
#include <cstring>  functions for c-strings.
#include <string>    functions for string objects
```

```
char firstName[16]; //firstName is a "c-string"
string lastName;   //lastName is a string object
```

Commonly Used C++ Operators

Assignment Operators

```
=      Assignment
+=     Combined addition/assignment
-=     Combined subtraction/assignment
*=     Combined multiplication/assignment
/=     Combined division/assignment
%=     Combined modulus/assignment
```

Arithmetic Operators

```
+      Addition
-      Subtraction
*      Multiplication
/      Division (floating-point or integer)
      2.0/3.0 = .666667 (floating-point), 2/3 = 0 (integer)
%      Modulus (integer remainder)
      17 % 3 = 2, 13 % 15 = 13
```

Relational Operators

```
<      Less than
<=     Less than or equal to
>      Greater than
>=     Greater than or equal to
==     Equal to
!=     Not equal to
```

Logical Operators

```
&&    AND
||    OR
!     NOT
```

Increment/Decrement

```
++    Increment
--    Decrement
```

Increment/Decrement (used in prefix and postfix mode)
prefix: inc(dec) variable, then use in larger expression
postfix: use in larger expression, then inc(dec) variable

Selection Structure Information

- Unary or single selection
 - if
- Binary or dual selection
 - if-else
- Case structure
 - switch
- Simple selection
 - One condition
 - if (score > 50)
- Compound selection
 - Multiple conditions joined with AND / OR operators
 - if (score < 0 || score > 100)

Forms of the if Statement

Simple if	Example
<code>if (expression) statement;</code>	<code>if (x < y) x++;</code>
if/else	Example
<code>if (expression) statement; else statement;</code>	<code>if (x < y) x++; else x--;</code>
if/else if (nested if)	Example
<code>if (expression) statement; else if (expression) statement; else statement;</code>	<code>if (x < y) x++; else if (x < z) x--; else y++;</code>

To **conditionally** execute more than one statement, you must create a **compound statement** (block) by enclosing the statements in braces { (this is true for loops as well):

Form	Example
<code>if (expression) { statement; statement; }</code>	<code>if (x < y) { x++; cout << x << endl; }</code>

The "expression" in the parentheses for an

if statement

```
-or-
loop
```

is often also referred to as a "condition"

Conditional Operator ? : (Simplified if-else)

Form: `expr1 ? expr2 : expr3;`

Example: `x = a < b ? a : b;`

The statement above works like:

```
if (a < b) x = a;
else x = b;
```

Escape Sequences

Special characters in Java

<code>\n</code>	newline character	<code>"\n"</code>
<code>\t</code>	tab character	<code>"\t"</code>
<code>\"</code>	double quote	<code>"\""</code>
<code>'</code>	single quote	<code>"'"</code>
<code>\\</code>	backslash	<code>"\\"</code>

Operator Precedence

```
( )
-----
*, /, % [mathematical]
-----
+, -
```

Logical operators: `!, &&, ||`

(1) mathematical (2) relational (3) logical

C Quick Reference Guide

Arturo Cuomo



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C Quick Reference Guide Book Review: Unveiling the Magic of Language

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