

## 4.9 — Boolean values

ALEX APRIL 7, 2021

Hi everyone! In this tutorial, we'll learn about the `bool` type, which is used to represent true or false values. It's a very simple and useful type that you'll use a lot in your C++ programs.

There are two main ways to declare a `bool` variable: using the `bool` keyword, or using the `bool_` namespace. We'll cover both methods in detail.

Let's start with the first method: declaring a `bool` variable using the `bool` keyword. This is the most common way to declare a `bool` variable. Here's an example:

### Boolean variables

Here's how to declare a `bool` variable using the `bool` keyword:

Here's how to declare a `bool` variable using the `bool_` namespace:

```
1 | bool  
   | b;
```

Here's how to declare a `bool` variable using the `bool_` namespace:

```
1 | bool b1 { true };  
  | bool b2 { false };  
2 | b1 = false;  
  | bool b3 {}; // default initialize to  
3 | false
```

Here's how to declare a `bool` variable using the `bool_` namespace:

```
1 | bool b1 { !true }; // b1 will be initialized with the value  
  | false  
  | bool b2 { !false }; // b2 will be initialized with the value  
  | true
```

Here's how to declare a `bool` variable using the `bool_` namespace:

nrpsCnmpd\_jqcNf cwe\_t\_js\_rcenrf cgl rcecpqf qd\_jqcjnpf qps cgl Aca\_s qcAmjc\_l qe ars\_jjwermrcgl rcecpqf cwe pcaml qdpcpbe\_l  
d rcep\_jevncH

## Printing Boolean variables

V f c l e u c n p g r e a m j c \_ l e \_ j s c q u g f e r b j j a n s r i e r b j j a n s r e n p g r q e e m p e l j a c i e l b e e m p e r s c l j

```
1 #include <iostream>
2
3 int main()
4 {
5     std::cout << true << '\n'; // true evaluates to 1
6     std::cout << !true << '\n'; // !true evaluates to 0
7
8     bool b{false};
9     std::cout << b << '\n'; // b is false, which evaluates to 0
10    std::cout << !b << '\n'; // !b is true, which evaluates to 1
11    return 0;
12 }
```

Ns rns rqIJ

1  
0  
0  
1

Hl̥vns ɛ\_l r̥ɛr bJ̥ns r̥ɛm̥pɔ r̥ɛrps c̥N̥p̥ɛnd\_jɔc̥N̥ɔ qrc\_b̥ɛnd̥ɛ̃ ɛm̥p̥ɛ hl̥vns ɛ\_l ɛ q̥c̥ɛr bJ̥f m̥j\_jnf\_t̥G̥cpc̥N̥ɛ\_l ɛ v\_k njcIj

```
1 #include <iostream>
2
3 int main()
4 {
5     std::cout << true << '\n';
6     std::cout << false << '\n';
7
8     std::cout << std::boolalpha; // print bools as true or
9     false
10
11     std::cout << true << '\n';
12     std::cout << false << '\n';
13     return 0;
14 }
```

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```
1
0
true
false
```

Xns @\_l \$ qc@rbllj m`mj\_jnf\_<ms pl @e`\_ai @ubft

## Integer to Boolean conversion

Xns @\_l N@l gq jkxc\_e Amjc\_l @ gf\_e l @ rccps qd e\_e l gmk @l gq jkx\_rgnl IJ

```
1 #include <iostream>
2
3 int main()
4 {
5     bool b{ 4 }; // error: narrowing conversions
6     std::cout << b;
7
8     return 0;
9 }
```

Let's print out the value of the variable `alpha`.

Now let's print out the value of the variable `alpha` and the value of the variable `beta`.

```
1 #include <iostream>
2 int main()
3 {
4     std::cout << std::boolalpha; // print bools as true or false
5
6     bool b1 = 4 ; // copy initialization allows implicit conversion from int to bool
7     std::cout << b1 << '\n';
8
9     bool b2 = 0 ; // copy initialization allows implicit conversion from int to bool
10    std::cout << b2 << '\n';
11
12    return 0;
13 }
```

So the output is:

```
true
false
```

## Inputting Boolean values

Now let's print out the value of the variable `alpha` and the value of the variable `beta`.

```
1 #include <iostream>
2 int main()
3 {
4     bool b{}; // default initialize to false
5     std::cout << "Enter a boolean value: ";
6     std::cin >> b;
7     std::cout << "You entered: " << b << '\n';
8
9     return 0;
10 }
```

```
Enter a Boolean value: true
You entered: 0
```

So the output is:

Smk\_i c~~erb~~*Ug* e aacnrend\_jocNē l bērp~~s~~cNē qd ns rōf c~~erb~~*Uf mm\_jnf\_* emrgn f\_ qmē cē l\_`jcb

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Brm qdpcrf cehjmu d eev\_k njclû f of epos qceok q\_pemrf ce `nt cI

```

1 #include <iostream>

2 // returns true if x and y are equal, false otherwise
3 bool isEqual(int x, int y)
4 {
5     return (x == y); // operator== returns true if x equals y, and false
    otherwise
6 }

7 int main()
8 {
9     std::cout << "Enter an integer: ";
10    int x{};
11    std::cin >> x;

12    std::cout << "Enter another integer: ";
13    int y{};
14    std::cin >> y;

15    std::cout << std::boolalpha; // print bools as true or false

16    std::cout << x << " and " << y << " are equal? ";
17    std::cout << isEqual(x, y); // will return true or false

18    return 0;
19 }

```

Enter an integer: 5

Enter another integer: 5  
5 and 5 are equal? true

Enter an integer: 6  
Enter another integer: 4  
6 and 4 are equal? false

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Leave a comment... Put C++ code between triple-backticks (markdown style): ``Your C++ code``

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