FAST National University of Computer and Emerging Sciences Peshawar

OOP Lab # 2.4

DEPARTMENT OF COMPUTER SCIENCE

C++ Programming

Computer Instructor: Muhammad Abdullah Orakzai

Prepared By: Muhammad Abdullah Orakzai (Lab Instructor CS)

Contents

C++ Booleans

Very often, in programming, you will need a data type that can only have one of two values, like:

- YES / NO
- ON / OFF
- TRUE / FALSE

For this, C++ has a bool data type, which can take the values true (1) or false (0).

Boolean Values

A boolean variable is declared with the bool keyword and can only take the values true or false:

Example

```
bool isCodingFun = true;


bool isFishTasty = false;


cout << isCodingFun;  // Outputs 1 (true)


cout << isFishTasty;  // Outputs 0 (false)
```

Boolean Values...

```
#include<iostream>
using namespace std;
#include<cmath>

int main()
{
    bool isCodingFun=true;

    bool isFishTasty=false;

    cout<<isCodingFun<<endl;
    cout<<isFishTasty<<endl;
    return 0;
}
```

Boolean Values…

From the example above, you can read that a true value returns 1, and false returns 0. However, it is more common to return boolean values from boolean expressions (see next page).

Boolean Expressions

A **Boolean expression** is a C++ expression that returns a boolean value: 1 (true) or 0 (false).
You can use a comparison operator, such as the **greater than** (>) operator to find out if an expression (or a variable) is true:

Example

```
int x = 10;
int y = 9;
cout << (x > y);    // returns 1 (true), because 10 is higher than 9
```

Boolean Expressions...

```
#include<iostream>
using namespace std;
#include<cmath>

int main()
{
   int n1=10;
   int n2=7;

   cout<<(n1>n2);
   return 0;
}
```

Output: 1

Boolean Expressions…

Or even easier:
Example

```
cout << (10 > 9); // returns 1 (true), because 10 is higher than 9
```

In the examples below, we use the **equal to** (==) operator to evaluate an expression:
Example

```
int x = 10;
cout << (x == 10);  // returns 1 (true), because the value of x is equal to 10
```

Example

```
cout << (10 == 15);  // returns 0 (false), because 10 is not equal to 15
```

References

- https://beginnersbook.com/2017/08/cpp-data-types/
- https://www.geeksforgeeks.org/c-data-types/
- http://www.cplusplus.com/doc/tutorial/basic_io/
- https://www.geeksforgeeks.org/basic-input-output-c/
- https://www.w3schools.com/cpp/default.asp
- https://www.javatpoint.com/cpp-tutorial

THANK YOU