CS Bridge Module 4 Data Types and Expressions Part 4: "bool"

The "bool" data type

- "bool" short for Boolean

Kind of Data: Truth Value (True or False)

Inner Representation: Each "bool" data uses 1 byte (8 bits)
- False is represented by a Byte of 0's
- True is any Non-Zero Value

C++ Literals: true, false

Boolean Operators: !, &&, ||

Not Operator: Matches semantics of english, negates its operand
Example: "bool" b1 = true; "bool" b2 = !b1 (Not True = false)

And Operator: Binary Operator (Has 2 Operands)
- Acts the same way as it does in english if p = true "and q = true then statement T
Example: b1 = true, b2 = false, b3 = true && false (b3 is false)

Or Operator: Binary Operator
- Acts the same way as in English p = true or q = false then statement T
- Acts as inclusive-or; only one needs to be true for it to be true
Example: b1 = false; b2 = b1 || !b1 (b2 = false or true, which is true)

Boolean Expressions

Atomic Boolean Expressions:
- The "bool" literals: true and False Comparison Arithmetic Operators: <, >, <=, >=, ==, !=

Compound Boolean Expressions:
- Simple boolean expressions combined with boolean operators (!, &&, ||)

* In C++ we cannot chain arithmetic comparison operators