Copy Assignment Operator

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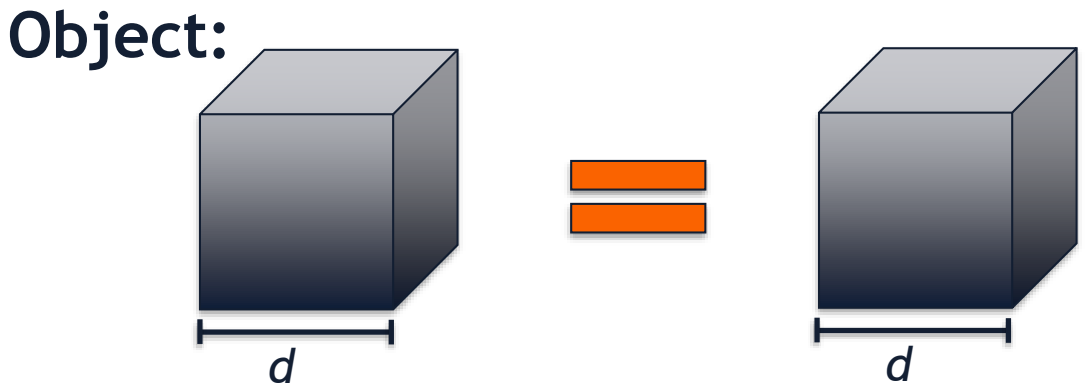
In C++, a **copy assignment operator** defines the behavior when an object is copied using the assignment operator =.



Copy Constructor vs. Assignment

A copy constructor **creates a new object** (constructor).

An assignment operator assigns a **value to an existing object**.

- An assignment operator is always called on an object that has already been constructed.

Automatic Assignment Operator

If an assignment operator is not provided, the C++ compiler provides an automatic assignment operator.

The automatic assignment operator will copy the contents of all member variables.

Custom Assignment Operator

A custom assignment operator is:

- Is a public member function of the class.
- Has the function name `operator=`.
- Has a return value of a reference of the class' type.
- Has exactly one argument
  - The argument must be const reference of the class' type.

Example: `Cube & Cube::operator=(const Cube & obj)`

cpp-assignmentOp/Cube.cpp

```cpp
namespace uiuc {
  Cube::Cube() {
    length_ = 1;
    std::cout << "Default constructor invoked!" << std::endl;
  }

  Cube::Cube(const Cube & obj) {
    length_ = obj.length_;
    std::cout << "Copy constructor invoked!" << std::endl;
  }

  Cube & Cube::operator=(const Cube & obj) {
    length_ = obj.length_;
    std::cout << "Assignment operator invoked!" << std::endl;
    return *this;
  }
...
```

cpp-assignmentOp/main.cpp

```
8  #include "Cube.h"
9  using uiuc::Cube;
10
11 int main() {
12   Cube c;
13   Cube myCube;
14
15   myCube = c;
16
17   return 0;
18 }
```