

# **EE 200** Lecture 11: Constructors and destructors

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# You should be able to:

Explain what constructors are good for

Explain the difference between a copy constructor and assignment

State the "rule of three" and explain what it means

Define "unnamed temporaries" and count them in a piece of code

Reduce or eliminate unnamed temporaries in code

# What's a constructor?

A constructor is a special function which "creates" an object.  
(or initializes)

Let's extend BoundedInteger with a constructor

# Assignment and copy constructor

```
BoundedInteger a(0, 10, 4);
```

```
BoundedInteger b;
```

```
b = a; // `b` gets the value of `a`
```

```
BoundedInteger c = a;
```

# References, again

```
BoundedInteger(const BoundedInteger& orig)  
{  
    // Initialize this BoundedInteger based on `orig`  
}
```

Bounded Integer cheetah = aardvark;

# How many copies?

`howmany.cpp` CountedString example

# Initializer lists

When the constructor runs, all of the member variables have **already been created**.

This means that objects may get created twice: once by the default constructor, and a second time when initialized.

```
BoundedInteger(int min, int max, int value)  
    : mMin(min), mMax(max), mValue(value)
```

# The rule of 3

If you need a **custom copy constructor**, then your class is probably not "Plain Old Data", and you almost certainly need a **custom assignment operator** and **destructor**.



# **.gitignore**

You probably have files that you don't want to include in your Git repository:

- Binary files (result of building your code)

- Vim swapfiles

Create a file in your git repository called ``.gitignore`` and list the names of these files.

You can use ``*`` as a wildcard (match anything).

# Homework 11 is hosted on Github

Same repository as homework 10

But you may want to make a branch for it, so you can do hw10 resubs

Code should be submitted on Gradescope by class (4:30pm)  
next Thursday (11/10).