CS 162
Intro to CS II
Finish “Big Three”
Odds and Ends...

• Last week to demo Assignment #1!!!
• Continue to work on Assignment 2
• Assignment 2 questions???

Exam I - next Wed.
• Classroom at class time.
Let’s revisit our library...

• Where do we need the Big Three?
  – Only in cart and library
  – The implicit Big Three is okay in classes without dynamic memory
The Big “Three”

• If dynamic memory allocation in class, then...
  – Destructor
  – Copy Constructor
  – Assignment operator overload
What is a Destructor?

• Deallocate any member variable dynamically allocated...

• What would this destructor look like then?

```cpp
string::~string() {
    delete [] s; //delete ignores NULL
}
```
What is a copy constructor?

- Used in pass by value
- Returning an object from a function
- Pass the class type to a constructor

```cpp
//The copy constructor has to have parameter (const same_class_type &)
string::string(const string &other) {
    len=other.len;
    if(len == 0) s=NULL;
    else {
        s=new char[len];
        for(int i=0; i<len; i++)
            s[i] = other.s[i];
    }
}
```
What is assignment overload?

//Looks like copy constructor but has void return type and delete
void string::operator=(const string &other) {
    if(s!=NULL) delete [] s; //have to delete before copying over
    len=other.length();
    if(len == 0) s=NULL;
    else {
        s=new char[len];
        for(int i=0; i<len; i++)
            s[i] = other.at(i);
    }
}