

CS170 Week 6 Lecture 1 Notes

Disclaimer: These notes are meant to be read in parallel with Professor Mead's online notes if you have missed class. Topics will not be covered extensively. Here, you will only see the minor details Prof. Mead spoke about which were not on his topic notes.

Pre-Class Mentions/Q&A

- Both a new assignment and lab will be handed out today, surprise!
- The nice thing is that we are no longer working on WarBoats
- We still however have three more list labs
- After the fifth lab, it will be submitted as an assignment without any additional work (if you've kept up thus far)
- Keep in mind that you should be practicing programming and reading constantly
- Do not include empty return tags in Doxygen
- For header files, you only need the file header
- You shouldn't have any exception tags right now since we haven't talked about them
- Typically, if you switch between compilers you should use “*make clean && make*”
- If your make file is correct, you shouldn't have to use clean in other instances
- Today, we'll build our own string class
- Anyone can use libraries, we'll learn enough to be able to write them ourselves

Even More Classes Continued

Creating a String Class

Keep in mind that pointers do not have destructors.

If you manually allocate memory, you need to delete it.

What's the size of the string class? → 8 bytes (pointer).

With C++ we can create new methods (using overloaded operators) to do what we always wanted to in C, but needed library functions to do.

Fixing the String Class

Up until now, the string class is totally broken.

When the strings go out of scope and crash the program, we can see that we conclude to make our own copy constructor.

For every constructor call, you should have a destructor call.

The problem is that we've passed an object by value and the default constructor is doing a shallow copy.

99.99% of the time, you never want to pass an object by value, because they can be huge.

The true fix to these problems is to write your own default constructor, assignment operator, copy constructor, and your own destructor.

Every time there's a deficiency in your class, typically you need to add a function.

More Enhancements to the String Class

EH = Exception Handling.

Reminder: Return types are not a part of the signature of functions, unlike parameters.

Class methods and static Members

What does it mean to be static as apposed to non-static? - Know this. Understand this.

If you forget to initialize a static member outside of the class, you'll get a linker error.

Using the static keyword is a more advanced technique, we are being introduced to it so that when we need the functionality, we know how to possess it.

Remember, non static methods have a this pointer.

If you're a member function (part of the object) you have access to the non-static data.