

Details of Inheritance

2-15-2002

Opening Discussion

- What did we talk about last class? Do you have any questions about assignment #2? Questions about the reading?
- Assignment #1 has been graded and posted.
 - NEVER include a ".cpp" file.
 - If you have bugs in your program it is often helpful to use a debugger to find them. We have gdb on these computers. Compile with the "-g" flag so you can use the debugger.
 - Will your design allow SubStrHandler to work with any subclass of SubStr?

Abstract Methods: Why?

- Last time we looked at abstract methods and some asked the question of why we would even want these? After all, they don't have any implementation.
- We could just put the method in the subclasses, but then we couldn't get polymorphism using the supertype.
- This will be illustrated more in the code for today.

Inclusion Polymorphism in C++

- Getting inclusion polymorphism to work in C++ requires knowing a bit about how things are laid out in memory.
- You don't get polymorphism with "by value" variables because the memory for those is statically determined.
- To have inclusion polymorphism you have to be using a pointer or a reference variable. This includes arrays.

Static Binding of Parameters

- The types of parameters passed to methods (or functions) are determined statically.
- This matters when methods are overloaded and the compiler has to determine which version to call. It uses the locally declared type of a variable instead of its dynamic type at runtime.

Multiple Inheritance

- It is also possible in C++ to have a class inherit from multiple superclasses. I stand with your text on this that it is not something that you should be doing for all the reasons they list and more.
- If we ever find a need for this it will be with purely abstract classes that define only an interface and no implementation.

Code

- Lets go back now and look at the code we had been writing for demonstrating using inheritance and inclusion polymorphism.

Minute Essay

- This is the last day we will be discussing inheritance specifically as a topic, but you will be using it in every assignment from here through the end of the semester. Do you have any questions about it?
- Your design for assignment #2 is due today. We have a quiz next class. I will be holding an algorithms meeting here at 4:00pm today.
