

## CISC181 Fall 2006 Lab 12

- Write a program for each of the following problems. Be sure to save every separate program. All programs must be properly commented and indented (see Assignment Standards on the class website). Ask your TA for guidance.
- Feeling lost or unsure? Your TA and professor are your best resources. Visit them frequently.
- Keep your emacs ref card handy so you can learn how to do complex tasks quickly.
- Expect versions of every lab question on the final exam.
- Name each program lab12.n.c, where n is the number in the list below.

### Programs

1. Write a class that specifies only an interface for one function, and specifies an interface and default implementation for another. Use two sub-classes and show how
  - (a) both derived classes implement the interface specification
  - (b) the first derived class can use the default implementation
  - (c) the second derived class can override the default implementation
  - (d) the second derived class, having overridden the default implementation, can still use the scope operator to call that base class version of a function.Use print statements in main and in the functions to show what function is being called when, to demonstrate that your program fulfills the required steps.
2. Write a very brief program that demonstrates why it is very bad style to have a derived class function shadow a base class function that isn't virtual. Hint: create a new instance of the derived class and make it behave like the base class.
3. Write a template function that prints its argument. Demonstrate it working with integers, doubles, and a simple rational number class that has an overloaded << operator.
4. Write a template class that declares a data member of the template type. Have a member function, declared inside the class definition but defined outside, that prints the data member and returns it as a constant.

You should have a total of 4 programs. Make a single script file (see lab00 for the instructions) where you cat, compile, and run each one in its final form. Remove all object and executable files before scripting make.

Submit all 4 program files, makefiles, *and* your script on WebCT by midnight before your next lab. Give the paper version of the complete script file **only** on paper to your TA at the **beginning** of your next lab. Note: Cat, compile, and run each program in order - do *not* cat all programs, then compile, etc.