COMP 2355
Winter 2013
Lab #16
March 5, 2013

This lab should be submitted to your course SVN by noon on March 6 in a folder named "Lab16".

In this lab you will practice using C++ classes. Design a generic C++ base class which a high-level interface which can be implemented in different ways in derived classes. Then, implement several derived classes, and write specific code that can perform some task on objects of the derived classes. Keep in mind the principle of substitutability. That is, the API for the base class should be generic in a way that allows for many substitutions.

Define appropriate output operators for printing your base and derived classes. If the base class allocates memory, be sure to make the destructor virtual.

Write a small function which performs some computation on the base and derived classes.

Examples that could be used include:

- A base vehicle class and derived vehicles which can move at different speeds. Compute the time required to travel a certain distance in each vehicle.
- A base NPC (non-player character) class and derived characters for a world simulation. Have characters move around and interact with each other.
- A shopping cart with many objects of different weight and cost. Compute the cost of the items in the shopping cart.