Lab 5

Course: CSE 165
Section: 02L & 03L
Due: Sunday, October 17, at 11:59 pm

All the exercises below are selected from the textbook: Thinking in C++ (volume 1).

1. [Exercise-5 on Page 717] Modify Instrument3.cpp by adding a virtual prepare() function. Call prepare() inside tune(). [15 points]

2. [Exercise-14 on Page 718] In AddingVirtuals.cpp, make all the member functions of Pet pure virtual, but provide a definition for name(). Fix Dog as necessary, using the base-class definition of name(). [20 points]

3. [Exercise-20 on Page 719] Write a class with one virtual function and one non- virtual function. Inherit a new class, make an object of this class, and upcast to a pointer of the base-class type. Use the clock() function found in <ctime> (you'll need to look this up in your local C library guide) to measure the difference between a virtual call and non-virtual call. You'll need to make multiple calls to each function inside your timing loop in order to see the difference. [30 points]

4. [Exercise-33 on Page 721] Create a class with (at least four) data members and (at least two) virtual functions. Write a function that looks at the memory in an object of your class and prints out the various pieces of it. To do this you will need to experiment and iteratively discover where the VPTR is located in the object. [35 points]

Requirements:

* Usage of spaces, blank lines, indention, and comments for readability.

* Descriptive names of variables, functions, structs, classes, and objects (if any).

* Appropriate usage of structs, classes, and objects (if any).

Penalties:

* 10-point deduction per day late until zero.

* Zero if you have possession of a copy of online solutions or work done by someone else.