Noah Hoffman CS 202 Project 4 documentation sheet

Purpose:

The purpose of this project was to be familiar constructors, inheritance, pointers, references, and operators.

Design:

The design was very easy. All we had to do was write the files for Car.cpp Car.h and Vehicle.cpp and Vehicle.h. The main proj5.cpp was already given to us to test our classes and functions against.

Problems:

This project was much easier than the previous one. I had some issues with the operators and had a little troubles with inheritance . Other than that not too bad.

Changes:

Would not change anything works like a charm!!

Observations: FORMAT = (output ---- Explanation)

First thing that runs is the base tests.

Testing Base Default ctor ----- the cout.
Vehicle #1: Default-ctor ----- Vehicle v1 which run my Default Vehicle Constructor.

Testing Base insertion operator ---- the cout
Vehicle #1 @ [0.672549, 4.56781e-41, 0.672549] --- runs base insertion operator for
                                                    ----Vehicle fills with garbage.
Base idgen: 2 ---- Vehicle default constructor increments idgen from 1 to 2.

Testing Base Parametrized ctor ---- cout
Vehicle #99: Parametized-ctor ---- runs Paramatized Constructor for vehicle class
Vehicle #99 @ [39.54, 119.82, 4500] ----- sets m-vin to 99 and m_lla to what is passed through
Base idgen: 2 --- Then runs insertion and prints new vehicle keeping idgen as same as last one because it is not called again.

Testing Base Copy ctor --- cout

Vehicle #3: Copy-ctor -- runs copy constructor increments vehicle number and sets v99_cpy to the pervious v99.
Vehicle #3 @ [39.54, 119.82, 4500] - runs insertion operator and prints the copied vehicle.
Base idgen: 3 --- idgen incremented.

Testing Base Assignment operator -- cout
Vehicle #1: Assignment -- runs assignment operator and assigns v1 to v99_cpy
Vehicle #1 @ [39.54, 119.82, 4500] - runs insertion operator and prints v1
Base idgen: 3 -- because same as v99_cpy

Testing Base Move Function
Vehicle #1: CANNOT MOVE - I DON'T KNOW HOW --- runs move function.

Then the Derived tests

Testing Derived Default ctor - - cout
Vehicle #3: Default-ctor -- runs Default constructor for car.
Car #3: Default-ctor   --- prints vehicle DC cout first then car DC cout secound

Testing Derived insertion operator - cout
Car #3 Plates: EMPTY, Throttle: 0 @ [9.2052e-30, 4.5807e-41, 9.2052e-30] -- runs insertion operator and prints data m_lla is filled with garbage because nothing is set to these array slots.
Derived idgen: 4 -- increments for new vehicle

Testing Derived Parametrized ctor -----cout
Vehicle #999: Parametized-ctor ---- runs Parametrized ctor saves values put in and does couts
Car #999: Parametized-ctor ---Parametrized ctor cout
Car #999 Plates: Gandalf, Throttle: 0 @ [39.54, 119.82, 4500] -- saved values for new car.
Derived idgen: 4 -- same as above supposed to increment

Testing Derived Copy ctor -- cout
Vehicle #5: Copy-ctor ---- vehicle copy cotr cout first
Car #5: Copy-ctor ---Car copy cotr cout second

Car #5 Plates: Gandalf, Throttle: 0 @ [39.54, 119.82, 4500] -- copys car above into this new one.
Derived idgen: 5 -- new increment

Testing Derived Assignment operator --- cout
Car #3: Assignment ---Assignment operator for Car cout
Car #3 Plates: Gandalf, Throttle: 0 @ [39.54, 119.82, 4500] --- replicates car above.
Derived idgen: 5- same car same id

Testing Derived Move Function - cout
Car #3: DRIVE to destination, with throttle @ 75 -- runs move functions and prints cout and sets throttle to chosen amount.

///////////////////////////
/////   Tests Done   /////
///////////////////////////
Car #5: Dtor   -
Vehicle #5: Dtor   -
Car #999: Dtor   -
Vehicle #999: Dtor   - ----- ---
Car #3: Dtor   ----------   Deconstructors
Vehicle #3: Dtor   -
Vehicle #3: Dtor   -
Vehicle #99: Dtor   -
Vehicle #1: Dtor -

ORIGINAL PRINT OUT:

///////////////////////////
/////   Base Tests   /////
///////////////////////////

Testing Base Default ctor
Vehicle #1: Default-ctor

Testing Base insertion operator
Vehicle #1 @ [0, 0, 0]
Base idgen: 2

Testing Base Parametrized ctor
Vehicle #99: Parametized-ctor
Vehicle #99 @ [39.54, 119.82, 4500]
Base idgen: 2

Testing Base Copy ctor
Vehicle #3: Copy-ctor
Vehicle #3 @ [39.54, 119.82, 4500]
Base idgen: 3

Testing Base Assignment operator
Vehicle #1: Assignment
Vehicle #1 @ [39.54, 119.82, 4500]
Base idgen: 3

Testing Base Move Function
Vehicle #1: CANNOT MOVE - I DON'T KNOW HOW

/////////////////////////////
/////   Derived Tests /////
/////////////////////////////

Testing Derived Default ctor
Vehicle #3: Default-ctor
Car #3: Default-ctor

Testing Derived insertion operator
Car #3 Plates: EMPTY, Throttle: 0 @ [9.2052e-30, 4.5807e-41, 9.2052e-30]
Derived idgen: 4

Testing Derived Parametrized ctor
Vehicle #999: Parametized-ctor
Car #999: Parametized-ctor
Car #999 Plates: Gandalf, Throttle: 0 @ [39.54, 119.82, 4500]
Derived idgen: 4

Testing Derived Copy ctor
Vehicle #5: Copy-ctor
Car #5: Copy-ctor
Car #5 Plates: Gandalf, Throttle: 0 @ [39.54, 119.82, 4500]
Derived idgen: 5

Testing Derived Assignment operator
Car #3: Assignment
Car #3 Plates: Gandalf, Throttle: 0 @ [39.54, 119.82, 4500]
Derived idgen: 5

Testing Derived Move Function
Car #3: DRIVE to destination, with throttle @ 75

//////////////////////////
/////   Tests Done   /////
//////////////////////////
Car #5: Dtor
Vehicle #5: Dtor
Car #999: Dtor
Vehicle #999: Dtor
Car #3: Dtor
Vehicle #3: Dtor
Vehicle #3: Dtor
Vehicle #99: Dtor
Vehicle #1: Dtor