Purpose

The purpose of this program is to explore OOP through representing cars through a base Vehicle class and a derived Car class. The utilization of virtual and pure virtual functions is also required. The program must adhere to provided specifications and pass the provided driver file.

Design

I follow the specification and make Car inherit from Vehicle. Move is pure virtual, making Vehicle a virtual class. Car is a concrete class because it implements Move. Both have virtual destructors.

Problems/Changes

None

Line by Line Explanation

//////////////////////////////// ← Output by testing main

///// Constructor Tests ///// ← Output by testing main

//////////////////////////////// ← Output by testing main

Testing Derived Default ctor ← Output testing by main

Vehicle: Default-ctor ← Vehicle Default ctor is constructed in Car

Car: Default-ctor ← Car default constructor

Testing Derived Parametrized ctor ← Output testing by main

Vehicle: Parametrized-ctor ← Vehicle parameterized ctor is constructed in Car

Car: Parametrized-ctor ← Car parameterized ctor

Testing Derived Copy ctor ← Output testing by main

Vehicle: Parametrized-ctor ← Vehicle Parameterized Constructor called by Car Copy Constructor

Car: Copy-ctor ← Car Copy Constructor

Testing Derived Assignment operator ← Output by main

Car: Assignment ← Assignment Operator

///////////////////////////////// ← Output by main

///// Polymorphism Tests ///// ← Output by main

///////////////////////////////// ← Output by main

Testing VIRTUAL Move Function for DERIVED Class Objects ← Output by main

Car: DRIVE to destination, with throttle @ 75 ← Output by virtual move function

Testing Insertion operator<< Overload for BASE Class Objects ← Output by main

Vehicle@ [39.54, 119.82, 4500] ← Output by overload operator and virtual serialize function

/////////////////////////////////////////////////// ← Output by main

///// Polymorphic Base Class Pointer Tests ///// ← Output by main

/////////////////////////////////////////////////// ← Output by main

Testing VIRTUAL Move Function on Base Class Pointers ← Output by main

Car: DRIVE to destination, with throttle @ 75 ← Output by pure virtual move function

Car: DRIVE to destination, with throttle @ 75 ← Output by pure virtual move function

Car: DRIVE to destination, with throttle @ 75 ← Output by pure virtual move function

Testing Insertion operator<< Overload for Base Class Pointers ← Output by main

Vehicle@ [37.77, 122.42, 52] ← Output by overload operator and virtual serialize function

Vehicle@ [37.77, 122.42, 52] ← Output by overload operator and virtual serialize function

Vehicle@ [37.77, 122.42, 52] ← Output by overload operator and virtual serialize function

//////////////////////////// ← Output by main

///// Tests Done ///// ← Output by main

//////////////////////////// ← Output by main

Car: Dtor ← Output virtual car destructor

Vehicle: Dtor ← Output virtual vehicle destructor

Car: Dtor ← Output virtual car destructor

Vehicle: Dtor ← Output virtual vehicle destructor

Car: Dtor ← Output virtual car destructor

Vehicle: Dtor ← Output virtual vehicle destructor