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Project Five Documentation

**Purpose:**

The purpose of this project was to get familiar with inheritance. This was done by having a base class, which was the vehicle class. A derived class was also used which was the Car class. What I learned through this project is the derived class has direct access to protected and public methods of the base. It also has access to private members but get and set functions would be necessary for that. Protected is basically private as they cannot be directly accessed outside of the class in main. For example, if I had a variable int nums in a protected scope in a class, if I wanted to cout << nums in main, that would not be possible.

**Design:**

The design of my project came first by making the header file of the vehicle class. I then coded the prototypes for each function, trying to make things const that should be const. This is not necessary but I have been told that it is good coding practice to do this. I then created the vehicle cpp file and started to implement the functions. I started with the constructors and realized I needed an intialilizer list for all the constructors as the vin numbers for the car can not be changed once assigned. Realizing that I created a function that increments the static variable when called. I then proceeded to code the remaining functions then moved on to my derived class cpp file. A thing that is different about derived classes is they need to include : public then the name of the baseclass. This makes sense as the derived class is basically an extension of the base class. For the initializer list in the ctors of the derived class, I realized something. I knew that the base class constructors should be called as well to fill in those members of the derived class. So for the derived class ctors initializer list, I also called the ctors of the base class. In the output I noticed that the ctors of the base class were implemented first and the dtors of the derived class happened before the base class.