

Ryan Hoffman

CS 202.1001

**NOTE: I have 2 source files so please compile with both (g++ proj3.cpp RentalCar.cpp -o proj3)**

### Project 3 Documentation

The purpose of this program is to become familiar with classes and structs as well as implementing them into header and cpp files. Array manipulation using pointers is also used for accessing object/class information outside the main function. The project uses a text file with car rental agencies that each have inventories of cars. A menu is used to perform different functions like renting, finding the most expensive car, and printing available cars.

In my program, I have two header files, one is called RentalCar, the other is called RentalAgency. I also have two source files, one named RentalCar and the other named proj3, which contains my main function. The RentalAgency header file contains my rental agency struct. The RentalCar header file contains the RentalCar class with all the get methods, set methods, etc. The RentalCar source file has the definitions of all the functions in the RentalCar header file. I created the menu using a do while loop that calls a different function depending on which option is entered. I used a pointer of type RentalAgency that can access information from the RentalAgency struct or the RentalCar class. I use the “->” to dereference the pointer in order to print the information.

The first problem I had was creating the header files. I had to look up how to use `#ifndef` in order to make the header file work. The next thing was that I couldn't figure out how to access the variables from RentalCar without accessing the variables directly. To solve this problem I added get and set methods to get and set the variable data. When I finished my project I didn't use pass by reference anywhere because it was easier not to. I wasn't sure where to put my string functions so I put them in my RentalCar source file because that's where I needed to the string copy function. I had a problem trying to read in the zip code from the file because the whole zip code would get stored in the first element of the int array. The last problem I had was when I tried to compile my code, I was told my instructors that I didn't need to have both source files inside the g++ compile command but I would get a big error if I didn't have both the proj3.cpp and RentalCar.cpp inside my compile command.

If I had more time I would try to have more header and source files to separate my code. I would like to become faster at making header files. I want to know how `#ifndef` and `#endif` works as well as the `#define` in the header files. I know they are needed but nobody explained what they do. It was helpful to think about header files as headers in your code. Whatever you have in the header file is pretty much just above the code in your source files as long as you include the header file in the source code. I would have added more detailed comments to my code if I had more time as well. I wasn't sure if I needed a cpp file for my RentalAgency header so I didn't add one but if I do actually need one I would like to figure out how to add it and why I need one.