Kripash Shrestha

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Project 3 Documentation

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The purpose of this program is copy a datafile with 10 different cars and then have a user interactive menu that allows the user to read all data from a file, print out all the data for all of the cars, estimate the rental cost of a car, find the most expensive car, and printout the data for all of the available cars. This program will be completed with an array of structs, switch statements and a do while loop every menu option being its own individual function. This is expanded on project 2 by the addition of the RentalCar class and the use of pointer arithmetic rather than array manipulation. The user will also be prompted to enter the name of the file and make several other decisions from a menu which makes the program either read all the data from the file, print out all data for all of the cars, estimate car rental cost, find the most expensive car, print out only the available cars and exit the program.

One of the hardest parts of this program was to actually use pointer arithmetic to assign values to the members using the set function. At first I created a separate program that used array manipulation without pointer method to create a program. That program was very easy to do and worked perfect fine. The harder part came when I had to do all of this with pointer arithmetic. All of my functions have the pointer to the structure that contains the RentalCar class, name and zip code. By pointing to the Structure and the RentalCar class in the structure, I was able to manipulate, assign and retrieve data from the structure, including the class.

When reading from the file to the structure. I stored the values from the file to certain variables in the function. This will be used later on. For the zip code, I used pointer arithmetic and get function. The get function takes character by character form the input stream and stores it to a pointer. However, I had to subtract '0' from the value received because it was in ASCII characters. I then took that value and assigned it to the zipCode array in the structure. I then continue to assign values to each variable. Then after an entire loop of that, my pointer to the class, known as inventory pointer, will be used with the arrow operator and setMethod to assign value to m_members in the class. This is how all of my assignment is done, for each car and each agency.

Retrieving the data was not so hard. All of my functions have a pointer that pointers to my structure. I create local variables point to the inventory array of that structure. Using pointer arithmetic with for loops, I am able to retrieve data. I also printed them out via a print function that I have created in my class.

Something to note is that I do not ask for the rental agency name when the user selects estimate rental cost. Instead I ask the user to choose a number between 1-3, that represents the agency. This is definitely something that I would change and improve on if I was given more time. I would use a string compare to find the agency that the user types in and then point to that agency. Then I would take the car number and increment the pointer till it gets to the car that the user wishes to rent.