Objective:

Create an application that would use the following:

1. Read and write to file
2. Class
3. Array
4. User input
5. Loop(s)
6. Quick sort
7. Functions
8. Makefile

Application: Car Rental

Given Data: as4\_data.csv (read-only, do not modify the data)

Write a car rental application with the following features:

1. Read the as4\_data.csv **[3 marks]**
   * Store the information in a class
     1. Class name: CarInfo
     2. Separate the declaration from the implementation (e.g. .h and .cpp )
   * There are 11 rows
     1. 1st row represents the header
2. Allow the user to view the available car make, car year, and qty. **[4 marks]**
   * Qty represents the number of vehicles left (available for rental)
     1. The qty field in as4\_data.csv represents the original quantity. You need to subtract the number of vehicles rented.
     2. Example: Mercedes-Benz,1991,5
        + Assume that 3 people rented that vehicle. Therefore, the qty displayed to the user should be 2.
   * The names of the car make should be displayed in alphabetical order (ascending)
     1. Use Quick sort
3. Rent a vehicle
   * Can only rent from existing choices (e.g. car make mentioned in the as4\_data.csv) and with qty > 0
     1. Note: qty here refers to the available car left for rental (refer to b)
   * The following information should be obtained: **[2 marks]**
     1. Firstname
     2. Lastname
     3. Car make
     4. Car year
     5. Qty (by default, the customer only wants to rent 1 vehicle)
     6. Date rented: mm/dd/yyyy
   * Should be stored in file and properly formatted (separated by comma **[3 marks]**
     1. Filename: customers.csv
     2. Do not override the previous values
   * Should also be stored in memory through the use of a class **[5 marks]**
     1. Class name: Customers
        + (private) Fields: firstname, lastname, carMake, carYear, qtyRented, dateRented
        + Provide setters and getters
        + Provide necessary Constructor(s)
        + Separate the declaration from implementation (e.g. .h and .cpp)
     2. When you program runs, you can check if customers.csv file exists.
        + If it exists, then you can read the data and store it in memory
4. Allow the user to see all the vehicles rented: **[3 marks]**
   * Sorted (ascending) based on car make.
   * Display all the information (e.g. lastname, firstname, car make, etc…)
     1. Make sure it’s properly formatted for easy reading
   * Use Quick sort
5. Create a menu to allow user to choose the action he/she would like to perform (e.g. rent a vehicle, display vehicles rented, exit, … ) **[1 mark]**
   * Would need to use a loop
6. be creative
7. Provide a Makefile for easier compilation **[-5 marks if not implemented]**
   * Executable filename: as4\_main

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