

Weekend Assignment: Car Marketplace Management System

Objective:

Your task is to create a JavaScript program that manages a car marketplace using object or ES6 classes, as you prefer. This system should be able to handle different entities such as car agencies, customers, and a tax authority. The car marketplace data will be provided to you. All actions will be executed with console outputs.

Requirements:

Your JavaScript program should be able to perform the following functionalities:

1. CarAgencyManager object/class Operations:

- Search for a car agency by its name or ID.
- Retrieve all agencies' names.
- Add a new car to an agency's inventory.
- Remove a car from an agency's inventory.
- Change the cash or credit of an agency.
- Update the price of a specific car in an agency (Method: `updateCarPrice`).
- Calculate and return the total revenue for a specific agency (Method: `getTotalAgencyRevenue`).
- Transfer a car from one agency to another (Method: `transferCarBetweenAgencies`).

2. CustomerManager object/class Operations:

- Search for a customer by their name or ID.
- Retrieve all customers' names.
- Change the cash of a customer.
- Calculate the total value of all cars owned by a specific customer (Method: `getCustomerTotalCarValue`).

3. CarManager object/class Operations:

- Retrieve all cars available for purchase.
- Search for cars based on certain criteria. The search parameters should include the production year, price, and optionally, the brand of the car.
- Return the most expensive car available for sale (Method: `getMostExpensiveCar`).
- Return the cheapest car available for sale (Method: `getCheapestCar`).

4. CarPurchaseManager object/class Operations:

- Implement a `sellCar` function that sells a car to a specific customer. This function should:
 - Check the availability of the car at the agency.
 - Verify if the customer has enough cash to purchase the car.
 - Update the cash and credit for both the agency and the customer accordingly.
 - Update the tax authority's records.
- Calculate and return the total revenue of the entire market (Method: `getTotalMarketRevenue`).

Instructions for handling taxes:

- a. Subtract the vehicle amount + 17% (tax) from the customer's cash.
- b. Add the vehicle value to the car agency cash.
- c. Change the car owner's id to the customer's id.
- d. Remove the car from the array of the agency's car models.
- e. Add the car to the client cars array.

Taxes Authority:

- f. Pay 17 percent of the vehicle value to the tax authority. (add the amount to totalTaxesPaid)
- g. Increase the number of transactions made in one (numberOfTransactions)
- h. Add the vehicle amount + tax to sumOfAllTransactions
- Check that there is the requested vehicle at the agency if not return 'The vehicle does not exist at the agency'
- Check that the customer has enough money to purchase the vehicle, if not return 'The customer does not have enough money'

Notes:

- Make sure to handle possible edge cases, for example, when a car or a customer doesn't exist, or when a customer doesn't have enough cash to buy a car.
- Remember to break down your code into manageable and logically separated methods for better readability and maintainability.
- Comment your code appropriately to describe the functionality of your methods.

Good luck!