



Object Oriented Software Development - CA1

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Worth: 20%

Duration: 90 minutes

Problem:

You have been asked to create a car sales system called **CarSales** to manage the increasing sales of cars at the various dealerships (e.g. Dublin, Cork, Carlow, etc.). The system will keep track of the sales details for all cars and the number of cars allocated for sale to each dealership. The system should offer the user the following options:

1. List all dealerships
2. Create a new car record
3. List all cars

Some specifics:

- The system will initialise 5 dealership records automatically. They should have unique IDs starting at 1000 (allocated from a static class variable).
- Each dealership should have a trading name and an address consisting of
 - Street
 - City/town
 - County
- Users can create up to a maximum of 10 car records.
- Each car should have an automatically assigned car sale number, starting at 100, a make, model, engine size and sale price.
- They should have a car type of either Petrol, Diesel, or Electric
- If they are an Electric then they should indicate whether they are a Hybrid, Plug-in Hybrid or Fully Electric.
- All cars must be assigned to an existing Dealership (maximum 3 cars in per dealership)

Implementation:

You are expected to use classes and aggregation. You should have the following classes (include whatever class variables you feel appropriate):

- Car
 - (it should also contain a method to return the number of cars records)
- Address
- Dealership

- (it should also contain a method to return the number of cars assigned to it)
- (it should also contain a method to return the record of each car assigned to the dealership)

Each class should implement a `toString()` method for printing.

Deliverables:

1. The Java classes and driver program implementing all the above requirements. Marks for:
 - (a) A running program,
 - (b) Requirements correctly implemented,
 - (c) Good programming practices (variable names, comments, indentation, readability).
2. Only submit the java source files (i.e. `.java` files).
3. **Zip the files and rename the zipped file (e.g. `CA1-Student-Name.zip`).**
4. Upload the zipped file back to Blackboard.