CSC 110 2.0 Object Oriented Programming

Tutorial 07

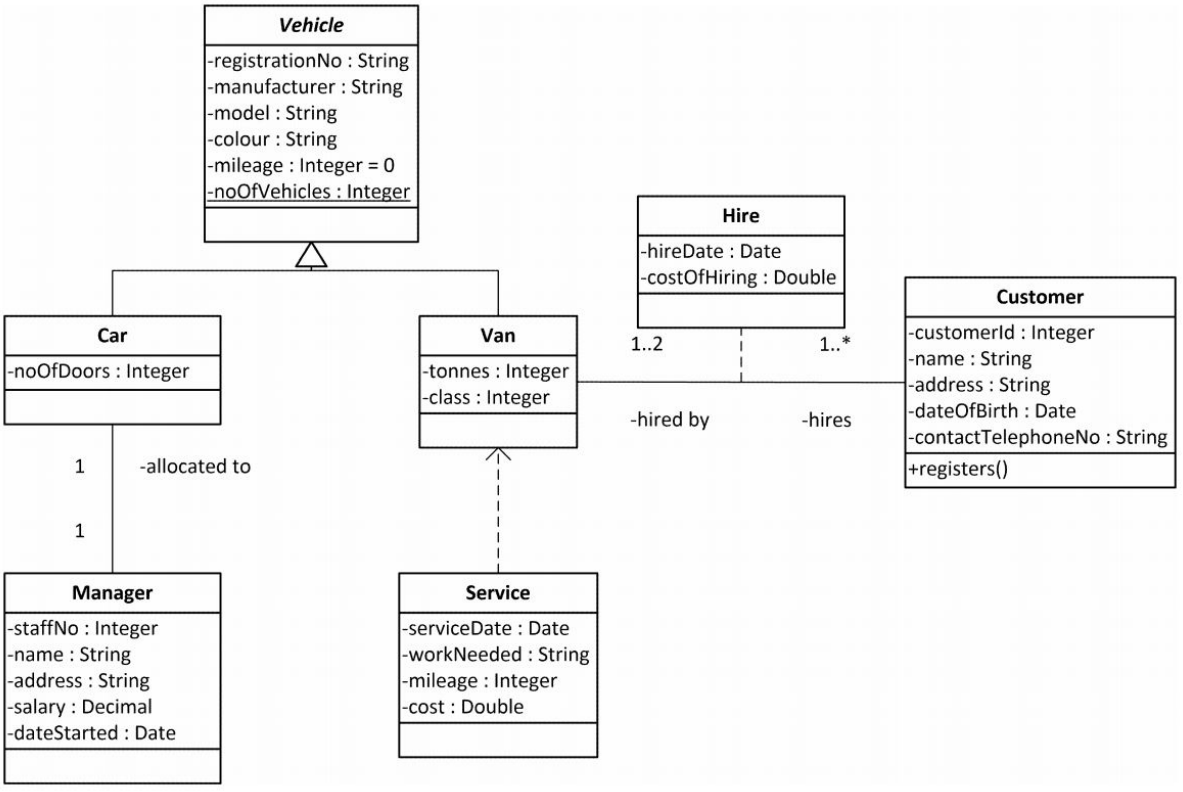
Instructions:

- All questions must be attempted and answers submitted in a handwritten document, **on or before, 4.00pm on Monday, 2nd September 2019, to the Department Office**.
- You must indicate your **Index Number and the Tutorial Class** to which you belong to **(LCS1/ LCS2/ NFC3.1)** clearly on the front page of your submission.

A. Coding in Java

For the following UML class diagram of a system to store details, write the source code in Java following Object Oriented Programming concepts.

The class diagram below represents a Van Hire system that records the hirings of a van. Managers are given a company car:



Show clearly in your answer where inheritance, composition, aggregation, encapsulation or any other object oriented have been used, using a comment.

For example:

```
//Inheritance
public class House extends Property {
...
}
```

B. Solving Problems: the Object-Oriented way

Read the given passage and design a solution to the said problem using Object Oriented Programing Concepts.

A private dental practice wishes to computerise its patient records system. A patient must register with the practice and the system needs to store their name, address and mobile telephone number. Each patient is given a unique seven digit patient number. The system will keep a count of how many patients the practice currently has.

Patients can book an appointment with a particular dentist; the system needs to store the date of the appointment and if the patient attended. A text message will be automatically sent out two working days before the appointment.

After the appointment, the dentist update the system with the cost of the treatment undertaken.

The practice employs two types of staff: Receptionists and Dentists. The system needs to record their details; which for all staff includes a four digit employee number, their name, address, gender, telephone number and next of kin. Dentists must be qualified; the system will store their highest dental qualification, date awarded and their General Dental Council registration number.

A list of appointment statistics is required at the end of each week. This will be a summary of how many patients turned up and how many were no-shows. If a patient repeatedly misses an appointment they will be charged a fixed amount of money.

All receptionists must go on a first aid course every year. The system must record the date of when they last attended the course and the name of the course provider.

(i) Draw a UML class diagram for the above problem statement.

(ii) Write the source code for the Classes necessary to implement the above.

(iii) Write a menu driven programme to implement the above system.

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