**RELATIONAL DATABASES**

**Griffith College Dublin**

**Computing Faculty / Assignment Title Sheet**

Course: HDC

Stage/Year: 1

Module: Relational Databases

Semester: 1

Assignment Number: Assignment 1

Date of Title Issue: 18/11/2021

Assignment Deadline: 9/12/2021

Assignment Submission: Moodle

Assignment Weighting: 15%

Upload the answer as a single file in PDF format only.

Format: studNo\_Name\_Assign2.pdf

Please name your file correctly and submit in the correct format (pdf)

All submissions should be accompanied by an assignment cover sheet

**Academic Dishonesty:** All of your assignments need to represent your own effort. Assignments should be done without consultation with other students and you should not share your source code with others. Any assignment submitted that is essentially the same, as someone else’s will not be accepted. ALL matching assignments will receive 0 credits.

Your task is to design and implement a database for the following scenario:

GoGoGo is a car rental company with branches located throughout Ireland. Each branch has an id, address and county. Branches can have several phone numbers.

Each site is allocated a stock of vehicles for hire, however, individual vehicles may be moved between branches, as required. A vehicle can be assigned to only one branch at a time. The registration number uniquely identifies each vehicle for hire and is used when hiring a vehicle to a client. Clients may hire vehicles for various periods of time (minimum 1 day to maximum 1 year). Each individual hire agreement between a client and the Company is uniquely identified using a hire number. Information stored on the vehicles for hire includes: the vehicle registration number, model, colour, current mileage, status(available, hired, broken), date NCT due, date acquired and which branch it is currently assigned to. There can be many cars of the same model. Information about each model, includes name of the model, manufacturer, engine size, capacity (how many people can fit inside) and which class it belongs to. GoGoGo has three vehicle classes A, B and C. Class determines how much customers will pay per day, class A being the most expensive.

Data stored about each rental consists of which car was rented by which customer, which staff member was responsible for the rental as well as date the customer started the rental period, date the customer wishes to terminate the rental plus the mileage before and after the rental period.

The data stored on customers includes the customer number, first name, surname, home address, phone number, date of birth, and driving licence number. All customers must have a driving license.

Information stored about staff includes: staff number, firstname, surname, home address, home phone number, date of birth (DoB), date joined the company, job title, and salary. Each staff member is associated with a single branch but may be moved to an alternative branch as required, although only the current location for each member of staff is stored.

The assignment should be submitted as a pdf file. The document should include the following:

1. An ER diagram of your database. Show foreign keys and intersection tables.(15 marks)
2. CREATE TABLE statements that would create every table in the database including all the constraints. Use AUTO\_INCREMENT, NOT NULL, UNIQUE, ON DELETE, ON UPDATE etc. where appropriate. Use UNIQUE to implement one-to-one relationships.

(30 marks)

1. INSERT INTO statements to populate your database.
   * You should have at least 3 car models per Vehicle Class(at least 9 altogether).
   * Add at least 12 cars assigned to 4 different branches.
   * Class A should cost 70 per day, class B should cost 55 per day and class C should cost 48 per day.
   * Add at least 6 customers. Customer one should rent a class A car twice and a class B car once. Customer two should rent 3 different class B cars. Customer three should rent one class C car and one class B car. There rest of the customers should have one rental each.

When you finish populating all tables use SELECT \* FROM each table and make a screenshot of the output. Use Ctrl+Alt+PRTSCN to make screenshots of only the selected window. Add screenshots to the document. (10 marks)

1. SQL statements that do the following operations:
   1. Find all available class A cars in branch 2 and show their details.
   2. Update a customer’s phone number to 0831234567.
   3. Show customers whose first name starts with “Bry” or “Bri”.
   4. Show details of employees that were responsible for less than 3 rentals each.
   5. Show details of all customers that rented a car with registration number “06B79238” sorted by rental date with the latest being shown first.
   6. Show class, cost and model of all red cars.
   7. Show the average number of rentals per customer.
   8. Increase all prices by 5%.
   9. Show which vehicle class is rented the most.
   10. Show names of manufacturers that have more than 3 broken cars.

(40 marks)

1. Three more SELECT statements that you think will be useful for working with this database. Explain what they may be used for.

(5 marks)

1. Make sure you add your name and student number on the first page of the document.
2. Submit the pdf document through moodle.