

Assignment Details

Module Title:	Databases Design & Development.
Module Code:	B8IT113
Module Leader:	Jennifer Byrne
Level:	8
Assessment Title	Database Design & Development
Assessment Number:	1 of 1
Restrictions on Time/Length	N/A
Individual/Group:	Individual
Assessment Weighting:	50%
Issue Date:	2 nd April 2021
Due Date:	27 th May 2021 (midnight)
Feedback Date:	Hand in date plus 3 weeks
Mode of Submission	Moodle only

Learning Outcomes:

1. Develop a data model for a business application.
2. Design and build a Database to store and retrieve data for a business application.

Assessment Overview

The assignment focuses on the technical design and provision of a new database server and the development of a new database for a Car Dealership accompanied with a Technical Design document.

Assessment Task

A Car Dealership sells both new and used cars, and it operates a service facility. We know that a salesperson may sell many cars, but each car is sold by only one salesperson. For each car he or she sells a salesperson writes a single invoice. Every customer may buy many cars, but each car is bought by only one customer. With each purchase a customer receives an invoice.

Customers details are recorded by the Dealership and periodically they review these as part of GDPR and ask customers via email/text message if they are happy for their details to remain in their system. If the customer wishes to be removed, the Dealership will remove only the personal information and hold onto the Business-Critical Information. Where a Customer has not done any business with them in 13 months or more, they are marked as “*inactive*” and a report is sent to the Marketing Dept to be contacted and offered deals etc.

The Dealership also offers servicing of cars. Someone who is not a customer may simply drop a car in for servicing and never buy a car. The Dealership handles servicing through a ticketing system, this uses an alphanumeric numbering system e.g. SRV001. When a customer drops a car in for a either a service or repair they will receive a ticket for that car, there is one ticket per car even if left in by the same customer. Overtime a customer may of course get their car serviced or repaired many times. All this information is held in the Ticketing System, and so a customer/car servicing and repair history can be

built up overtime. To keep track of a cars service history, the Dealership records all history against the car's serial number, this is stored as an alphanumeric with a max size of 12 characters, e.g. SER101021.

Each Service Ticket is assigned to a Mechanic. Daily each Mechanic may work on many service tickets.

Overtime there are a lot of different tickets per Mechanics and again this history is built up on the Ticketing System. Mechanics are uniquely identified by their MechanicID which is their PPS Number is usually.

In terms of some of the key entities they have given you the following list:

- Car
- Customer
- Employee (SalesPerson or Mechanic)
- Service Ticket

In terms of data Updates, they have the following requirement:

- They want the ability to create:
 - A new Customer via a parameterised Stored Procedure.
 - A New or Used Car to the sales stock via a parameterised Stored Procedure.
 - A new Employee (SalesPerson/Mechanic) via a parameterised Stored Procedure, this should set up all the relevant information, such as Name, PPS Number etc.
 - A New Service or Repair Ticket via a parameterised Stored Procedure.

- They want the ability to delete a Customer and foreign key records associated with this Customer via a parameterised Stored Procedure if they have requested their details be deleted, as per GDPR compliance. This data must be **FULLY** deleted, i.e. a “**hard delete**”.

In terms of Management Information (MI), they see real value in having a single view on all their Mechanics, Tickets and Cars worked on and as such want the following extract:

They want an MI extract created as a SQL View which will return all Mechanics, Tickets and Cars worked on in the last quarter.

Inactive Customer Data View

The company also want visibility of all Customers who have not bought or serviced their car with them in the last 13 months. This information will be passed to the Marketing dept to send out deals etc to them.

They have come to you as an IT Consultant and they want these requirements developed into an enterprise solution. Along with the final solution you must supply the customer a Technical Design Document with the technical design details of the solution.

Technical Document

The accompanying Technical Document should cover (but not limited to):

1. Scope of the document.
2. Technical Design to include:
 - a. ER Diagram (Physical Model to 3NF)
 - b. Data Dictionary
 - c. Technology used
 - d. Embedded **Transact SQL** File containing all DDL and DML statements.
3. Test Data, ie ***INSERT STATEMENTS***.
4. Test Plan.
5. Reflection on Learnings.
6. References.

Project Deliverables

The distribution of assessment marks will be as follows:

Deliverable	Breakdown of Marks	Submission Date
Technical Document (Should not be less than 300 words)	20%	27 th May 2021
Database Design & Development	80%	27 th May 2021

ASSESSMENT CRITERIA Criteria/Mark	< 40	40 - 49	50 - 59	60 – 69	70+
Technical Document (20%)					
Technical Document (20%) Key Areas include: Overall Presentation, Description & Functionality and detailed Design.	Very Poor documentation. Description & functionality weak. Missing key parts (e.g. database schema). Poorly structured with spelling and syntax errors.	Poor documentation. Description and functionalities stated but lack clarity. Some key areas missing.	Adequate documentation with adequately stated details. Key areas are of reasonable standard.	Good documentation, all essential key areas covered. Description & functionalities clear.	Excellent documentation, Comprehensive design.

ASSESSMENT CRITERIA Criteria/Mark	< 40	40 - 49	50 - 59	60 – 69	70+
Database Design & Development (80%)					
Database (ERD) with at least SIX tables properly designed: 20%	Poor database design with less than SIX tables.	At least SIX tables with correct data types.	At least SIX tables with correct data types and correct Primary Keys.	At least SIX tables with correct data types & correct Primary Key and Foreign Keys.	Excellent database design with correct data types and correct Primary Key and Foreign Keys.
SQL to Create the Database: 20%	SQL does not create tables and generates errors for some/all tables. Cannot run/missing the insert statements	SQL runs & creates tables with PK but no ALL FKs. Inserts some/all data. Not fully implementing Referential Integrity.	SQL Creates tables MOST with PK & FKs. Data Inserts have some errors. Mostly Implementing Referential Integrity.	SQL Creates ALL tables with PK & FKs. Data Inserts have some minor errors easily fixed to continue to build the database. For example: ONE missing comma, ONE spelling mistake, IDENTITY value misaligned. Implementing Referential Integrity.	SQL Creates ALL tables with PK & FKs. Inserts all data. NO errors at all. Implementing Referential Integrity.
Stored Procedures 20% (SPs)	SPs not executing or executes and updates/ returns no fields.	SPs executes and inserts some fields for a single Customer, Employee and Car.	SPs executes and inserts all fields for a single Customer, Employee and Car. Including error checking or transaction control	Stored Procedure executes and inserts/updates all fields for a single customer and some fields for all Customer, Employee and Car. Containing error checking and Transaction Control	Stored Procedure executes and inserts/updates all fields for a single Customer, Program and Trainer or all Customer, Employee and Car records.

Customer Data GDPR Compliance 10%	Little or no design to support GDPR compliance	Partly supports GDPR compliance	Supports GDPR compliance, no real consideration for deleting only personal information.	Supports GDPR compliance some consideration for deleting only personal information Leaving business-critical information.	Supports GDPR compliance and fully differentiates between deleting personal information & business-critical.
MI Extract 5%	View returns little or no data.	View returns some data but not from all 3 tables.	View returns data from all 3 tables but contains duplicate columns/data.	View returns data from all 3 tables but Data is incomplete	View returns full dataset.
Inactive Customer Data View 5%	View returns little or no deleted Customer data.	View returns some deleted Customer data but not all.	View returns deleted Customer data but not all fields.	View returns deleted Customer data but result set is incomplete.	View returns full deleted Customer dataset.

General Assessment Submission Requirements for Students:

1. Online assignments must be submitted no later than the stated deadline.
2. All relevant provisions of the Assessment Regulations must be complied with.
3. Extensions to assignment submission deadlines will not be granted, other than in exceptional circumstances. To apply for an extension please go to <http://www.dbs-students.com/Registrar/> and download the Assignment Extension Request Form.
4. Students are required to retain a copy of each assignment submitted, and the submission receipt.
5. Assignments that exceed the word count will be penalised.
6. Students are required to refer to the assessment regulations in their Student Guides and on the Student Website.
7. Dublin Business School penalises students who engage in academic impropriety (i.e. plagiarism, collusion and/or copying). Please refer to the attached referencing guidelines for information on correct referencing.
8. Late submissions will be penalised by 2 marks per day late.

What is referencing and why is it necessary?

Please follow this link to the Harvard Style Referencing Guide - all referencing is required in this format.

http://issuu.com/dbslibrary/docs/harvard-referencing-guide/1?mode=a_p

The School of Arts generally use APA Referencing, information is available under DBS library guides on www.library.dbs.ie.