

Assignment Details

Module Title:	Databases and Business Applications
Module Code:	B8IT101
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:	60%
Issue Date:	7 th April 2020
Due Date:	9 th June 2020
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 Gym accompanied with a Technical Design document.



Assessment Task

LetsGetFit is a Gym, with many paying Members and Trainers. When Members sign-up they are given a choice of payment options, they can only choose one, however they may change this during the lifetime of the membership:

- Monthly
- Annually
- Quarterly

Each Member is issued with a Membership card, which contains a photo and unique membership number. When this card is presented the login date and time is recorded. When Members join the gym, they are assigned a Trainer to give them their own personalised training program. Normally these personalised training programs are updated every 6-8 weeks. Each Member can have many personalised training programs and work with many trainers. Each Trainer can set up many personalised training programs. Currently all this has been stored on paper, which has proven problematic, with personalised programs going missing along with Members details being misplaced.

They want to create a single database to consolidate all these details into one single source. The logical data model must be designed to meet 3NF (Third Normal Form) requirements. They want it to record all Member, Trainer, Program and Payment details at a minimum. It must be flexible enough to allow for changes such as Members or Trainer details. It must also lend itself to be used for marketing purposes, i.e. contacting current and old members with offers etc.

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

- Members
- Trainers
- Programs
- Payments

As part of GDPR compliance Members are asked for permission for the LetGetFit to:

- a) Send them emails and texts
- b) Retain their information after they leave and keep in contact with them.



Whichever option they chose or not must be recorded in the database. If they don't give permission for option b, then once a person's final payment is made, their personal information must be removed within 30 days of their membership's end date. The database should retain any business critical information generated by that member during the lifetime of their Membership.

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

- They want the ability to create a new Member and their first Program via a parameterised Stored Procedure.
- They want the ability to add new Trainers as they are employed by the Gym via a parameterised Stored Procedure, this should set up all the Trainers information, such as Name, PPS Number etc.
- They want the ability to delete a Member and foreign key records associated with this Member via a parameterised Stored Procedure if they have made their final payment and requested their details be deleted, as per GDPR compliance, i.e. they did not tick the box. This data must be **FULLY** deleted, i.e. a “hard delete”.

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

Where the Member has indicated that LetsGetFit can keep their information and contact them once the member has left, they want their information to remain in the system, not show up as active though. A “soft delete” as such, so that the main interfacing application will not pull them as live or active members on the screen, however their data is still in the system for future marketing purposes.

In terms of Management Information (MI), they see real value in having a single view on all their Members.

Programs and Trainers between and as such want the following extract:

They want an MI extract created as a SQL View which will return all active Members, their Program details and Trainer details.



Deleted Member Data View

The company also want visibility of all Members who have left and ticked the GDPR box on their application form. They want to be able to query a SQL View which will show their information to send them offers to encourage them back to the gym.

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.
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%	9th June
Database Design & Development	80%	9th June

ASSESSMENT CRITERIA Criteria/Mark	< 40	40 - 49	50 - 59	60 – 69	70+
Database Design & Development (80%)					
Database with at least five tables properly designed: 40%	Poor database design with less than five tables.	At least five tables with correct data types.	At least five tables with correct data types and correct Primary Keys.	At least five 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.
Stored Procedures 20% (SPs)	SPs not executing or executes and updates/ returns no fields.	SPs executes and inserts some fields for a single Member, Program and Trainer.	SPs executes and inserts all fields for a single Member, Program and Trainer. Including error checking or transaction control	Stored Procedure executes and inserts/updates all fields for a single customer and some fields for all Member, Program and Trainer. Containing error checking and Transaction Control	Stored Procedure executes and inserts/updates all fields for a single Member, Program and Trainer or all Member, Program and Trainer records.
Member 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	Supports GDPR compliance and fully differentiates between deleting

				Leaving business-critical information.	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.
Deleted Member Data View (GDPR box ticked) 5%	View returns little or no deleted Member data.	View returns some deleted Member data but not all.	View returns deleted Member data but not all fields.	View returns deleted Member data but result set is incomplete.	View returns full deleted Member dataset.
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.



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 2marks 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.