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| **Module:** | Introduction to Database Programming |
| **Assignment No:** | 1 (70% of module)<br>Group Assignment worth 50% of Module, individual component 20% of Module. |
| **Hand-out Date:** | Week beginning 19th September 2016 |
| **Hand-In Date:** | As specified below |
| **Lecturer:** | Andrew Shields (andrew.shields@staff.ittralee.ie) |

## Goal

The goal of the project is to design and develop a database driven application. You will work on the database design and development in a group. This part of the project is worth 50%.

The final part of the project will entail the development of a Java/C#/PHP/Android etc front end. You will do the final part on your own and this part is worth 20%.

You will work in groups of four/five. The group membership will be decided early in the term. There are three deliverables.

- The first two deliverables are group deliverables for which you will get a group mark.
- The final deliverable is an individual deliverable for which you will get an individual mark.

The practical class each week will be assigned to project work and all group members must attend. Attendance will be monitored and a portion of your group mark will be based on attendance.

Possible projects (four pieces of functionality from the following)

MULTIMEDIA

Media sharing site (youtube/flikr) – see the folder for multimedia

SOFTWARE DEVELOPMENT

Social Media Site or other (facebook/linkedin) – see the folder for software development

GAMES

Club Penguin/Moshi Monsters/Minecaft type game – see the folder for games

Some documents/applications will be provided in the three folders (Games, Software Development, Multimedia).

Decide on your group. Get your group name/number (G1 etc)

# Deliverables:

## Phase 1 Analysis : Friday 12th October - 20%

**Produce a Group report with the following elements**

1. Develop an Enterprise Model. (recommended that each student should take ownership for part of the functionality and manage this throughout the phases)
2. Develop a functional model with enough details to support the design of the ERD
3. Develop an Entity-Relationship (ERD) diagram. Justify your model with some top-down and bottom up analysis of user requirements/ use cases etc. It is recommended that you use a data model design tool like Microsoft Visio to design and document your ERD model.
4. Try Identify how your business rules/game rules are to be implemented in the model (i.e. are they structural rules, constraints on a field or triggers).
5. Develop a detailed relational schema for your model.
6. Include references

Gather any source documents you may be using for your analysis (use cases, scenarios, documents, applications). Include this source documentation in your submission and **reference** it in your report)

All relations in your design should at least be in 3rd normal form (3NF).

It is recommended that you use Microsoft Word and drawing tools to document and design your relational schema.

This is a group report. However, each member of the group must include an individual reflective report saying what they contributed to the work, this report should be no longer than one page and emailed to me by the date and time below. The Individual report should be emailed directly to me.

Highlight any additional tasks or innovations that you have included i.e. Data dictionary, Screen prototypes, project iterations, business rule pseudocode etc.

Upload your report and any supporting files on your groups zythos drive

## Phase 2: Friday 16th November - 30%

**Implementation -** SQL Programming/Triggers

Develop SQL script to create the database corresponding to your relational schema

Implement the database in parallel (Oracle Server in college/ Amazon AWS Oracle Server in cloud)

You should populate the tables with data.

Implement triggers for your business rules/game rules (each student should implement at least 3 triggers of moderate complexity)

Identify the need for and implement views, indexes and sequences in your database

Show examples of the triggers working.

To receive a higher grade groups must demonstrate a level of innovation and initiative in their submission. For example, a level of complexity in their triggers/constraints and perhaps the inclusion of other database features such as stored procedures Views blobs etc.

Write a group report with an introduction, a description of how you implemented the rules and include the SQL script.

This is a group report. However, each member of the group must include an individual report of what they contributed to the work. Again individual reports should be emailed directly to me and are private.

Put your report and scripts on your groups zythos drive

## Phase 3: Week ending 7th December - 20% (you must present your code in class)

**Java/C#/VB.Net/PHP/Android App?**

Develop a simple Java/C# enabled interface part of the functionality for the database you created in prior phases of the class project e.g. search for and view a member, show an image/video, “Like” something etc.

Use DAO if you are using Java. Use ADO if you are using C#.

Try to use a team server/code repository if you are using Netbeans or Visual Studio but each group member must write his/her own code.

(Use the Cloud version of your database if possible)

Your application should both select and update data in the database. It should display some of the data on a form on the screen and cause a trigger to fire.

Write a report which describes your code and how it works.

**YOU MUST DEMONSTRATE YOUR CODE IN THE FINAL CLASS.**