Coursework Specification   
CS4D2A/CS4LL1/CS3041 Coursework 2017/2018

**Coursework Description:**

Each student is required to take the ONLINE SQL COURSE which is available via the CS4D2A/CS4LL1/CS3041 module page on TCD Blackboard ([mymodule.tcd.ie](http://mymodule.tcd.ie/)). All students should be registered on the module on the Blackboard portal.

The **CS4D2A/CS4LL1/CS3041** course work **has FOUR distinct phases, each with a separate DEADLINE.**

* **Phase 1:** Students are asked to complete the ONLINE Personalised SQL eLearning course. This course consists of studying interactive web content, using an integrated MySQL database to practice your SQL queries as well as completing an SQL Quiz to assess how much you have learned. The online course is accessible via the CS4D2A/CS4LL1/CS3041 module page on mymodule.tcd.ie. Once you have studied your assigned SQL content, you need to practice your SQL skills and complete the SQL quiz. **The DEADLINE for completing the Practice Database and SQL Quiz is Friday 3 Nov 2017.**
* **Phase 2:** Students must perform the "webquest" as a group. This involves working as a group 1st) to identify and bookmark online resources concerning two SQL topics and 2nd) to create a presentation that describes this content. The details about your group will be given to you by this website (see 'Group Details'). For a detailed description of the tasks please click on 'My Course' link. **The DEADLINE for completing the Bookmarks is Friday 10 Nov 2017 and the DEADLINE for submitting a screencast of your group Presentation is Friday 17 Nov 2017.**
* **Phase 3:** Design and develop an SQL database based on the project description (see project specification below). **The DEADLINE for submitting your completed project is midday Monday 11 Dec 2017.**
* **Phase 4:** After submission of your own project, each student will be asked to "peer review" the project work of three other students and submit an assessment form for each of these projects. **Finally, the DEADLINE for submitting your reviews Friday 15 Dec 2017.**

**PART 2: Project Specification:**

Each student is required to create a database using the Oracle RDBMS. ORACLE has been set up on the Computer Science Servers and is accessible from the Computer Science PC labs in college. You can find more information on how to connect to ORACLE, and some of the commands you may need, under the heading â€œOracle Notesâ€, as part of the Project Task. This will appear when you have completed the prerequisite tasks. Each project must include:

* A Minimum of 6 relational tables.
* Appropriate implicit constraints (including primary & foreign keys).
* Explicit (semantic) constraints such as table constraint(s) and triggers (you need not implement assertions).
* At least one view should also be defined within the database.
* A minimum of 5 tuples per table.

In order to facilitate marking and reviewing of projects, each student must submit a **brief report** with an appendix section containing the contents of the relational tables in the project. The report should include:

1. A brief description of your application (max 1 page)
2. An Entity Relationship Diagram for your database and a mapping to an outline Relational Schema
3. A functional dependency diagram for your database and list of normalised relations, identifying the primary and foreign keys.
4. A brief explanation of any semantic constraints defined for the database
5. Examples of Database Security commands for access and brief explanation of security policy intended.
6. Examples of:
   1. View creation (including a view across more than one table).
   2. Use of relational select, table joins (across more than one table) operations.
   3. Update operations.
   4. A trigger command used in the database.
7. Any additional features of SQL used in your database project. Note: Additional marks will be awarded for innovation and degree of difficulty in the use of SQL. An example of an extra feature which could be included is: the use of variables in PL/SQL, etc.
8. APPENDIX (Listing of Database Content):
   1. Listing of data definition commands (create) used to create your database - including integrity constraints, e.g. table checks etc.
   2. Listing of database population commands (Insert) used to populate your database

**Students must submit the printed report to the secretary's office in the School of Computer Science and Statistics, O'Reilly Building, by 12 noon on Monday 11 Dec 2017**.

**ADDITIONALLY, an electronic version of the report must be submitted by 12 noon on Monday 11 Dec 2017 via the online SQL course tools.**

The application area and information represented and contained within the database is left to the student's discretion1. Random students will be asked to demonstrate their database and demonstrate knowledge of the SQL used therein.

To help students learn SQL, the introductory SQL online course content will remain available throughout the duration of the course. It is important to complete all phases of the SQL course, Phase 1 and 2 contain learning activities which must be completed before tackling your project. The learning activities are deliberately intended to assist students in gaining skills in SQL before attempting the project.

**Seamus Lawless and Vincent Wade, Wednesday 25 Oct 2017**

1 Students are asked to avoid the database examples used in the course notes, reading lists and other books. The idea is for the student to make up his/her own databases based on some application or problem area they know about. If in difficulty or unsure of the appropriateness of your intended database please consult with Prof. Seamus Lawless or Prof. Vincent Wade after any of the lectures.