This assignment should take an average student who is up-to-date with tutorial work approximately 25 hours
Deadline: your work must be submitted before the last week of this semester.

Plagiarism is presenting somebody else's work as your own. It includes: copying information directly from the Web or books without referencing the material; submitting joint assignment as an individual effort; copying another student's assignment; stealing or buying assignment from someone else and submitting it as your own work. Suspected plagiarism will be investigated and if found to have occurred will be dealt with according to the procedures set down by the University.

All material copied or amended from any source (e.g. internet, books) must be referenced correctly according to the reference style you are using.

Assignment Submission Requirements

- For this assignment you must submit a single Acrobat PDF document. In general, any text in the document must not be an image (ie must not be scanned) and would normally be generated from other documents (eg MS Office using "Save As .. PDF").

Detailed Specification

This is an individual assignment. You must design and develop a database for **online sharing learning resources** (any, such as **Coursera, CMSHN**, etc.).

The database must consist of at least six tables that have been populated with data. The database is to support queries that would typically be submitted to the system for the topical area that you have chosen. You must do the following:

- Self-investigation for the requirement of the system. Listed them all as form of reports, business rules.
- Using UML, Chen's or Crow's Foot notation or any case tool to create an Entity Relationship (ER) model for your relational database. All entity types, their attributes and relationships must be clearly shown. You will also be required to show all cardinality and participation constraints. You should use some enhanced ER features in your conceptual model where it makes sense to do so.
- Map the EER model devised in part (1) into a relational data model. It must be normalised up to at least 3rd Normal Form.
- Using appropriate SQL commands create a set of database tables in MS SQL Server 2008+. You should also show all constraints used in the creation of the tables.
- Populate the database with a small amount of data. The data should be meaningful but does not need to be extensive. The following sites may be useful for quickly generating data:
    - http://www.databasetestdata.com/
    - http://www.generatedata.com/

- Your database must contain one view, one trigger, on store procedure and an index (describe why).
- Create 10 sample queries that demonstrate the expressiveness of your database system. Your queries must demonstrate different aspects of the system.

Final Report

You must submit a brief final report which must include the following:

a) A brief description of the database including any assumptions made during the design (THIS IS VERY IMPORTANT TO CLERIFY THE ASSUMTIONS in form of business rules).
b) An ERD (Entity Relationship Diagram) that fully describes the database (giving descriptions on your work would be appreciated).
c) The relational schema derived from the ERD that is at least in 3NF (Any detail of the process would be appreciated).
d) The set of database statements used to create the tables used in your database. You do NOT need to include all the data and insert statements.
e) 10 queries that demonstrate the usefulness of the database. Also state why and when each query would be used. The following must be demonstrated by at least one of your queries:

- A query that uses ORDER BY
- A query that uses INNER JOINS
- A query that uses aggregate functions
- A query that uses the GROUP BY and HAVING clauses
- A query that uses a sub-query as a relation
- A query that uses a sub-query in the WHERE clause
- A query that uses partial matching in the WHERE clause
- A query that uses a self-JOIN

f) The trigger, store procedure, and the index should be added (explain why you make it)

The final report must have **30 pages at least**, and use the format:

- **Font: Calibri, Arial or Times New Roman.**
- **Font size: 11 – 12.**
- **Margin: normal**
- **And has not any unnecessary white space.**

Demonstration

You will be required to briefly demonstrate your system in one of the laboratory sessions prior to submission of the report.

Self-Assessment:

You will find a self-assessment sheet attached to this assignment. You are to complete this sheet and submit it with your assignment. The grade that you award yourself is **NOT** the final grade that you will be awarded. Your assignment will still be graded by an academic member of staff. There are 5 marks allocated for accurate self-assessment. These marks are available for accurately assessing how well you completed the assignment, so be as objective as possible when completing the form.

Self-Assessment Sheet

(Place a tick in the box that you deem to be most indicative of the quality of the work)

	%	No Attempt to Very Poor	Poor	Fair	Good	Very Good	Excellent
Conceptual Database Design (EER)	**25**						
Relational schema	**15**						
Database Implementation	**10**						
Views and Queries	**15**						
Data Used	**5**						
Database Objects Implementation	**15**						
Demonstration Quality	**15**						
Total	**100**						

Note: You must submit this self-assessment as part of the final report. The boxes in bold are for examiner use only.

General Assessment criteria:

Use the following descriptions to guide your self-assessment

Grading:

You will be graded according to the following criteria:

70-100%	all requirements completed to an excellent standard
60-69%	all requirements completed. However, there are a number of minor deficiencies in significant areas.
50-59%	all requirements completed. However, significant improvements could be made in many areas.
40-49%	all requirements completed. However, significant improvements could be made in all areas.
30-39%	all requirements attempted but the overall level of understanding and performance is poor.
0-29%	requirements are missing or completed to a very inadequate standard which indicates a very poor or non-existent level of understanding.