INST0012 Database Theory and Practice

Database Development

This assignment counts as **50%** of the total course assessment.

Background

The objective of this assignment is to develop a full functioning database using a given conceptual model (EER Diagram). Your task is to map the EER model to its logical representation (relational model), discuss any semantics lost due to mapping, create the database, populate the database with data and query the database to demonstrate functionality. To complete this assignment, **you have to use your UCL database account (MySQL – phpMyAdmin)**. Details on how to access your MySQL account using phpMyAdmin are available from the Week 6 Lab exercise sheet[1]. In case you have problems accessing your MySQL-phpMyAdmin, please email me at a.vlachidis@ucl.ac.uk. The detailed requirements of the submission components are described below.

Submission Date : 23 April 2021@3pm	**Return Date: 21 May 2021**

Important Notice!

- This is an individual piece of coursework not a group work and you should not share and discuss your work with other peers or third parties. By submitting this piece of coursework, you agree with the university regulations regarding plagiarism and fair academic practice.
- Failure to provide a database dump file will result to fail this piece of coursework

This is an anonymised assignment, please do not include your name anywhere in your submission

Submission Details

You must submit the following:

- A PDF file containing, the details of your mappings to the Logical Data Model (component 2), information on loss of semantics due to mapping, and screenshot evidence from phpMyAdmin showing the following;
  - a) the whole database structure (tab 

)
  - b) the output of the SQL queries (tab 

).

  You don't have to worry about capturing long pages in their entirety.
- A dump of your database including structure and data. The database dump file is produced by phpMyAdmin in text format and can be uploaded as a supporting file to your submission. See the following tutorial on how to produce the dump file https://moodle.ucl.ac.uk/mod/folder/view.php?id=2803197

[1] https://moodle.ucl.ac.uk/mod/resource/view.php?id=2803195

Please check that the first page of your PDF document includes: (i) your student number (SRN - you will find this on your ID card), (ii) the module code and title: "INST0012 Database Theory and Practice", (iii) the lecturer's name: "Dr Andreas Vlachidis", and (iv) an indication that this is "Assessed Exercise 2". The name of the PDF and SQL dump file that you submit must begin with your student number (SRN - this can be found on your ID card) and the module code, in that order, without spaces - e.g. "123456_INST0012cw2".

Deliverables and Components

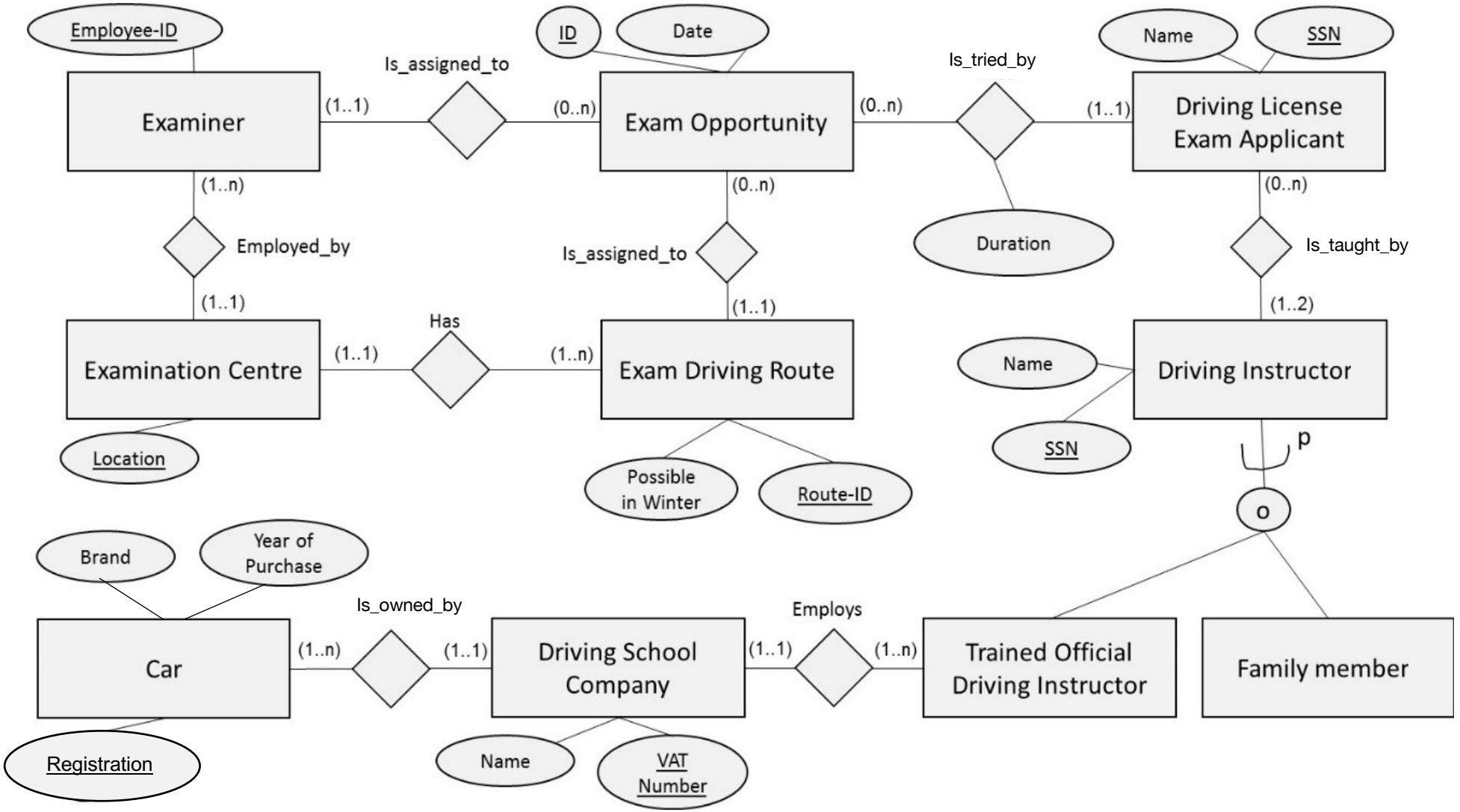
Three components must be included in the submission as described below:

1. **(30%) Mappings from conceptual to logical relational representation:** You should clearly state any limitations and loss of semantics that may have occurred as a result of the process of translating (mapping) the conceptual model to its logical representation (i.e. database). Your mapping should deliver a fully normalised database solution up to the third normal form (3NF).

2. **(40%) Database:** The proposed design and mappings to the logical data model should be carried out as a fully deployed database solution in MySQL using the phpMyAdmin front end. The submitted work should contain;
    - Database Tables including the respective attributes and data definitions. **Please note**, the EER diagram describes only the minimum set of attributes required for the database to function. You are welcome to enrich the tables with relevant attributes!
    - A sample set of data that fully demonstrate the database. You are not required to add a large set of data. The size should be no more than sufficient to cover all tables with a few examples to show variation of entry values.
    - The implementation should include appropriate definition of primary keys, foreign keys and NULL or NOT-NULL restrictions.

3. **(30%) SQL Queries:** Based on the relational model, give an example of
    - An SQL Update statement using WHERE
    - An outer join SQL query
    - A correlated SQL query with NOT EXISTS.

Scenario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Trained Official Driving Instructor
Family member
Registration
Name
VAT Number

Assessment Criteria	
Below (< 40%)	Failure to meet the criteria of the coursework
D (40% - 49%)	**A poor submission that does not address or very poorly addresses ONE OR MORE parts of the coursework.** A poor mapping of the conceptual model to a logical representation. Issues around loss of semantics, integrity rules are very partially recognised or not discussed. Poor and partial implementation of the database containing major flaws in table, attribute, data and keys definitions. No evidence of data samples and/or incomplete demonstration of the database. Poorly considered implementation of SQL queries and example statements that contain errors, showing limited understanding of the query language
C / PASS (50% - 59%)	**A basic submission which does address ALL THREE parts of the coursework but contains flaws and serious imperfections.** A good mapping of the conceptual model to a logical representation that presents some inconsistencies and minor errors. Reasonable definition of issues around loss of semantics and integrity rules which are discussed but not explained well. A basic implementation of the database containing core definitions of tables, attributes, data and keys but also containing imperfections that can affect the database operation. Some evidence of data samples and/or limited demonstration of the database. Partial implementation of SQL queries and example statements that may contain minor errors
B / MERIT (60% - 69%)	**A well-conceived submission which addresses ALL THREE parts of the coursework.** A very good mapping of the conceptual model to a logical representation that is somewhat free from inconsistencies and errors. Good discussion on issues around loss of semantics and integrity rules which are discussed and explained to a good extent. A well-considered implementation of the database containing full definitions about table, attribute, data and keys which can deliver a fully functional database. Clear and comprehensive evidence of data samples that demonstrate the database well. A well-considered and error free implementation of the majority of SQL queries.
A / DISTINCTION (70% +)	**An excellent submission which addresses ALL THREE parts of the coursework, showing both insight and attention to detail.** An excellent mapping of the conceptual model to a logical representation that is free from inconsistencies and errors. High quality definition of loss of semantics and integrity rules which are discussed and explained to an excellent extent. An excellent, error free implementation of the database containing full and advanced definitions about table, attribute, data and keys which can deliver a fully operational database. Excellent use of data samples that demonstrate the database to its full capacity. A very well-considered and error free implementation of ALL SQL queries