Assignment 1 ‐ 20% – groups of 2 or 3 students

The Task

Your task for this assignment is to complete a database design for the given case study.

Model the system described in the case study and draw a Physical Data Model using MySQL Workbench. Your diagram must conform to the notation used in this subject (object notation = 'Workbench Simplified', relationships notation = 'Crows Foot', show data types). If you include sub-types, place them inside a Layer with a note explaining their relationship to the super-type.

Your model should be in at least 3rd normal form.

If you are uncertain about any aspect of the handout, seek clarification via GOOGLE CLASSROOM, in class, or at Office Hours. You may write down any assumptions you made when designing your model. (However, assuming without checking, may not be accepted, especially if it simplifies the assignment.

Assessment

This assignment is worth 20% of your marks in the subject. Your data model will be assessed on the correctness and completeness of your solution. 'Correctness' refers to whether your model adheres to the rules and syntax of data modelling. 'Completeness' refers to whether the model includes all of the required entities and relationships and can handle the data storage problem specified.

Submission

Submit your assignment as **a single PDF document** via the GOOGLE CLASSROOM by midnight on the due date of **Thursday 15th April.**

To copy your ER diagrams into your document, use Workbench File/Export as a PNG file. Please ensure that you place the **student's name and ID** of each group member in the header of every page of your assignment.

Academic Honesty

This assignment must be your own work. Plagiarism - the copying of another's work without proper acknowledgment - is not permitted. Nor is allowing another person to copy your work. Work submitted for assessment purposes must be the independent work of the student concerned.

Academic misconduct occurs when students portray someone else's work as their own. There are many ways in which academic misconduct can occur. Some of these are:

- **Sham Paraphrasing:** Material copied verbatim from text and source acknowledged in-line but represented as paraphrased.
- **Illicit Paraphrasing:** Material paraphrased from text without in-line acknowledgement of source.
- **Other Plagiarism:** Material copied from another student's assignment with the knowledge of the other student.
- **Verbatim Copying:** Material copied verbatim from text without in-line acknowledgement of the source.
- **Recycling:** Same assignment submitted more than once for different subjects.
- **Ghost Writing:** Assignment written by third party and represented as own work.
- **Purloining:** Assignment copied from another student's assignment or other person's papers without that person's knowledge.

The Case

UniGroups.com

You are the data modeler for a startup creating a new system that supports university project group work. UniGroups.com consists of a database, website and phone app that offers university staff and students the features described below. Your job is to design the database.

Not all tables and columns are necessarily described explicitly in this document: you will need to think carefully how the system works to deduce the complete data model.

Subjects and assignments

The system will be used by one university. We must store, for each of the university's 6,325 subjects, a subject code and description (e.g. "INFO90002" and "Database Systems and Information Modelling").

A given subject may set several assignments for its students. About each assignment we need to record a short title (max 10 words), a long description (max 500 words), the year and semester, the due date, and the maximum number of students in a group (which the University mandates can never be higher than ten).
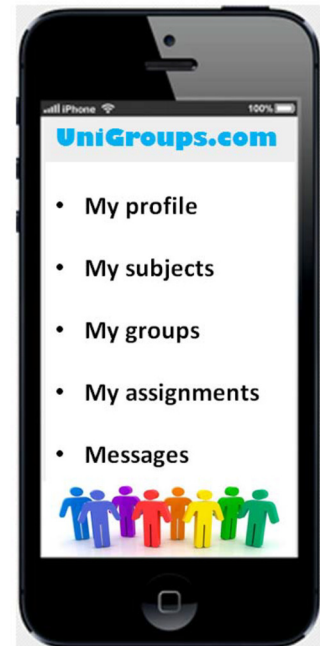
Student profiles

We must record all of the university's 10,000 students in the system, along with the subjects that each student is taking. Each individual student must set up a profile, which must include their student number, first and last name, whether they are full or part time and their hours of availability to work on the project.

Hours of availability: Students are presented with a grid showing the days of the working week along the top, and hours of the day down the left-hand side, from 9am to 8pm. The student clicks to indicate the hours that they are free to work on projects.

Forming groups

After students have entered their data, the server automatically runs software which searches through profiles to find groups of compatible students who are taking the same subject.

When such a potential group is found, an offer is sent to each prospective member, to ask whether they agree to set up this group. Each recipient of the offer can respond "accept" or "reject". If any of the members responds "reject", the offer is cancelled and the group is not formed: these students will have to form other groups. If the members all "accept", the group is registered: the members can then give their group a name.

Since most students take multiple subjects, an individual student might be in several groups.

Messaging

While a group is working on their assignment, the members can send messages to each other. A message contains 140 characters or less, and is sent by one member and seen by all the members of their group. It is important to store these messages for later auditing.

Submitting the assignment

Eventually, groups submit their work. They may submit several versions, and these must all be stored, though only the most recent will be marked.

A submission consists of one or more files. Because multiple files with the same filename might be uploaded by different students, each file when uploaded is renamed to a sequence number (thus "MyAssignment.doc" might become "12345"). We store the renamed file in the file system and track it in the database.

University staff will for each group record both a result (out of 100) and a comment.

Ratings and testimonials

After the project is over, each group member can rate the performance of each of the other members (1 to 5 stars) and if they wish, write a short testimonial about each (no more than 100 characters). This is voluntary. A student can rate each fellow group member only once (though may group with the member again on a different assignment, in which case they can rate them again).