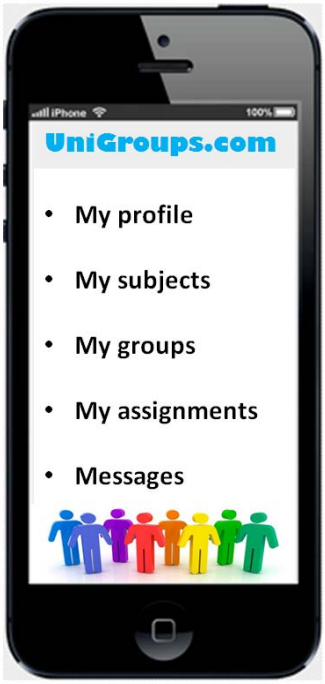
Assignment One – Data Modelling

INFO90002 2017 sem2

UniGroups.com



You are the data modeller 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 in order 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, their self-rated skills, and their hours of availability to work on the project.

Self-rated skills: Each student rates themselves with regard to a small set of skills that includes for example "project management", "report writing", and "public speaking". Ratings are from 1 (bad) to 5 (good) stars (no fractions). The system may include more skills later, but we think there will never be more than ten of them.

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.

	Mon	Tue	Wed	Thu	Fri
9		■			
10		■			
11					
12					
13	■		■	■	
14					
15					
16					■
17					■
18	■		■		■
19	■			■	■

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).