CS130 DATABASES

Laboratory Assessment Sheet

Lab 1

<u>You should finish the following two questions on paper or in WORD, submit your solutions and answer a number of multiple choice questions about your answers on Moodle. The Moodle quiz is your main assessment. Failure to submit the documents will result in marks deducted.</u>

QUESTION 1

Using the lecture material provided in the lectures you are asked to illustrate a simple conceptual data model (like that of the Student, Module, Degree example) for the following real world data modelling problem. You have been asked to create a conceptual data model for an international shipping company.

The shipping company has a large number of ships or vessels. Each ship or vessel has a unique registration, a captain, a country of origin, a maximum cargo weight and a home port. All of these ships or vessels transport or carry containers.

To help with the logistical management of transporting goods around the world every shipping container has a unique identification number, a capacity size, colour and type (large, medium, small).

This shipping company only transports a limited set of cargo items or goods. It only transports CARS, TVS, COMPUTERS, MICROWAVES and MOTORCYCLES.

Each cargo item has an unique cargo identification number. So for example 4 cars in the same container will be considered as ONE cargo item with a unique cargo identification number. A container can contain a mixture of these items - for example CARS, TVS, COMPUTERS.

You do not have to consider how many items are included. This is not required for our simple example.

TASK 1: Draw an Entity-Relationship diagram to illustrate the relationships between these objects, showing the attributes of each entity and relationship, underlining the key attribute.

TASK 2: Draw a relational schema derived from your diagram.

TASK 3: Draw the resulting tables with a few lines of appropriate data.

QUESTION 2

A local taxi company has a database of information on all of their drivers and cars stored in Excel. Unfortunately, this is very difficult to update and maintain.

The table below lists all of the drivers in the company. Each driver has a unique ID. It also lists all of the cars that the drivers are allowed to drive during work. Each car has a unique Registration.

TASK: Can you rearrange this data into a conceptual model to allow for an EMPLOYEE-DRIVES-CAR relationship?

Your new conceptual model should make it easy for new drivers to be assigned to cars, drivers to be removed, cars to be deleted, new cars to be added etc.

You should rearrange the data in the Excel table below to fill tables involved in the EMPLOYEE-DRIVES-CAR relationship. Examples were provided in Lectures 1 and 2

driver_id	gender	first_name	last_name	email	car_reg	car_make	car_model	car_yea
645	F	Sheryl	Linsey	slinsey0@zdnet.com	xyz	Mercedes-Be	E-Class	2005
905	F	Stormie	Kinnin	skinnin1@dailymail.co.uk	abc	Acura	CL	2002
645	F	Seana	Hudd	shudd2@ox.ac.uk	ddef	Volkswagen	GTI	2017
87	M	Gibby	Snarr	gsnarr3@pagesperso-orange.fr	efg	Jeep	Liberty	2011
980	F	Nicoline	Kleinplac	nkleinplac4@google.nl	hjk	GMC	Suburban 250	2008
887	F	Karina	Digweed	kdigweed5@umich.edu	123edf	Acura	Legend	2016
566	M	Thane	Viccars	tviccars6@ted.com	def	Ford	E150	2009
445	F	Jerrie	Chidzoy	jchidzoy7@senate.gov	4rftg	Land Rover	Range Rover	2009
645	F	Sheryl	Linsey	slinsey0@zdnet.com	ffrt	Ford	E150	2009
905	F	Stormie	Kinnin	skinnin1@dailymail.co.uk	abc	Acura	CL	2002
645	F	Seana	Hudd	shudd2@ox.ac.uk	ddef	Volkswagen	GTI	2017
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