

Tutorial 1: ER Modelling

1. Consider the following relations which might form part of a database for a hairdressing salon:

Client(CNo,Name,Phone,FavouriteStylist)
Stylist(SNo,Name,Phone)
Treatment(TreatmentName,Price,Duration)
Booking(CNo,SNo,Date,Time,TreatmentName)

Indicate in each case all candidate keys, discussing any assumptions that you make. Choose a primary key for each relation. Identify any foreign keys.

2. The following Tutor and Student tables show tutors who are assigned to students. Each student's tutor is identified by the *tutorID* column of the Student table. The primary keys are underlined. Do these tables conform to the notions of *entity integrity* and *referential integrity*? State the reasons for your answers.

Tutor

<u>TutorId</u>	tutorName
21	Newman
34	Martin
56	Wright
78	Adams

Student

<u>studentID</u>	studentName	tutorID
990199	Young	56
990278	Fletcher	56
990445	Chung	45
Null	Cohen	21
990721	Kennedy	78

3. Draw an ER diagram representing the Tutor and Student example shown above.
4. A bakery uses a database system to record details about customers, products and orders. The system records customer details including the customer's name, address, and contact telephone number. A customer may place a number of orders, each of which requests various products. The system records the date on which each order was placed, the date the order is to be delivered, and the products requested. Each order is to be delivered to a unique customer, who may be different from the customer who placed that order (eg, a gift). Each product has a unique name and a unit price. Some products are made up of a combination of other products. For example, the "cocktail party selection" consists of 5 "cheese straws", 2 "sausage rolls", and 3 "vol au vents".

Construct an Entity-Relationship (E-R) diagram to model the entities, attributes and relationships described above. Ensure that you show the participation and cardinality constraints that apply to each relationship. Give a brief explanation of what each entity is intended to represent.

5. Use the techniques described in the lectures to convert your ER model (developed for question 4 above) into a set of relations. Underline the primary key of each relation and clearly indicate any foreign keys.
6. Examine the ER diagram below and think about what it represents. Once you have a reasonable feel for this, use the techniques described in lectures/textbook to convert the ER model into a set of relations for use in a relational database. Underline your primary keys and clearly indicate any foreign keys.

