Database Modelling Exercises… Back 2 Basics

1. For each of these situations draw an Extended ERD but only include the primary and foreign keys – ignore all the other attributes. Where there is a many-to-many relationships ensure these are resolved.

   a) A department employs many persons. A person is employed by, at most, one department.

   b) An author may write many books. A book can be written by many authors.

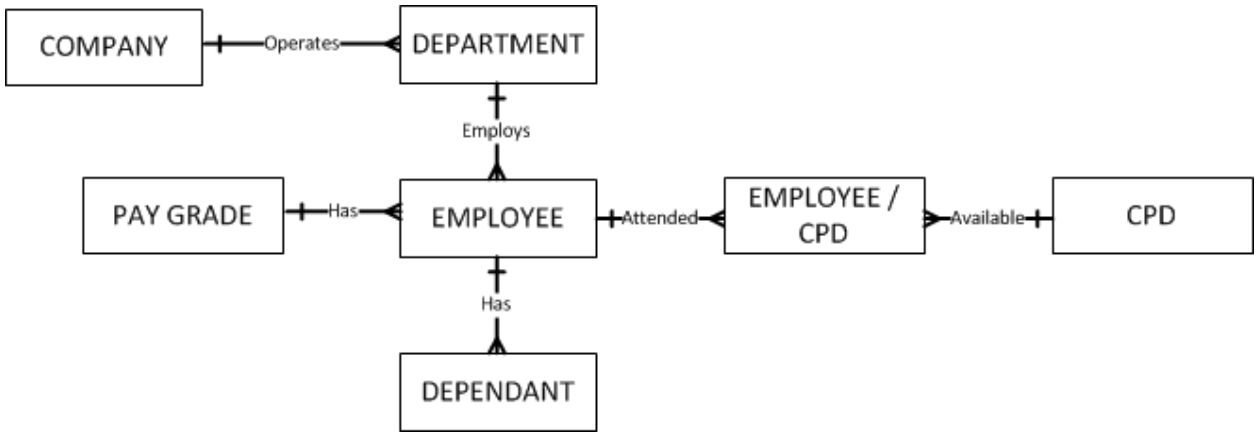
   c) A team consists of many players. A player plays for only one team.

   d) A flight-leg connects two airports. An airport is used by many flight-legs.

   e) A purchase order may be for many products. A product may appear on many purchase orders.

   f) A customer may submit many orders. An order is for exactly one customer.

3. Consider the following ERD



   Produce an extended ERD showing for each *entity* its *primary keys*, foreign keys, and any other *key attributes* you can think of. For each attribute ensure you select an appropriate data type and size.

3. For each of these situations draw an extended ERD showing the primary keys, foreign keys and any other key attributes you can think of. Where there is a many-to-many relationships ensure these are resolved.

   a) A university has a large number of courses listed within its prospectus. Each course may have a minimum grade within specific A-Levels as prerequisites of joining the course.

   b) A college runs many classes. Each class may be taught by several tutors, and a tutor may teach several classes. A particular class always uses the same room however many classes are timetabled in the same room at different times.

   c) An invoice is written by one sales person but a sales person can write many invoices. A vendor sells many products but a product is bought from one vendor. An invoice has one or many products and a product is found on zero, one or many invoice.

4. The following situation has 7 different entities including any many-to-many resolves. Draw an extended ERD showing the primary keys, foreign keys and any other key attributes you can think of to correctly model this situation.

   Menus within a restaurant change twice a year. Each menu consists of different food items with new and old favourites being used on each one. Each food item has a category (e.g. starter, main, fish, dessert), dish title, description, price and ethnicity (e.g. Asian, British, French, Italian, Indian). Allergens are also recorded for each food item.