

ERDs

- 1) Farmer Bob, Farmer Jane and Farmer Jose run a cow farming co-op. For every cow they keep the cow's name, age (or date of birth), breed and numbered plastic ear tag. The each of the three farmers own many cows and share some of the cows with one another.
- 2) An art researcher has asked you to design a database to record details of artists and the museum in which their paintings are displayed. For each painting, the researcher wants to know the size of the canvas, year painted, title, and style. The nationality, date of birth and death of each artist must be recorded. For each museum, record details of its location and specialty, if it has one.
- 3) A hamburger shop makes several types of hamburgers, and the same ingredient can be used with several types of hamburgers. This does not literally mean the same piece of lettuce is used many times, but that lettuce is used with several types of hamburgers.
- 4) A country can have many official languages and a language can be the official language in many countries. Each language belongs to a language group.
- 5) A dairy farmer, who is also a part time cartoonist, has several herds of cows. He has assigned each cow to one and only one herd. Each herd is in a specific location and has a unique name. In each herd, the farmer has one cow that is featured in the cartoon (and the farmer needs to know which cow it is). The cows all have names, plastic ear tags and breeds.

A few cows decide that they do not agree with the farmers choice of favorite cow and they elect their own leader. We want to track this as well.

- 6) You are hired to create a database for Maggie's clothing. There are three levels of associates in the Maggie's clothing pyramid structure (gold, silver, and bronze). The bronze associates report to one and only one silver associate (who typically has 5-10 bronze associates reporting to her), and the silver associate reports to a gold associate in the same fashion. For each associate you need to know what level they are on, their name and contact information.
- 7) A travel agency is frequently asked questions about tourist destinations. For example, customers want to know details of the monthly climate (avg temp, humidity and precipitation for each month), population, and languages spoken in each location. They also often request fly time and distance between two cities.
- 8) The president of a book wholesaler has told you that she wants information about the publishers, authors and books that she carries. She knows that publishers publish many books and books can be written by one or more authors (obviously authors can also write more then one book). In order to track accurate information about the publisher the wholesaler want to know the publishers name, their phone number and their address. They also want to know who to call when they need to contact the publisher. The wholesaler also wants to know the book titles, the ISBN number, the date it was published, the genre, and the author of the book. She also wants some basic information about the authors.
- 9) A university has many subject areas (e.g. MIS, History, Geography). Professors teach in only one subject area but the same subject area can have many professors. Professors can teach many different courses in their subject area and a course can be taught by many professors. Of course the offering of a course (ISM 4214 -01) is taught by only one professor at a particular time. The university wants to track information about the location and phone number of each subject area, the name of the courses offered and what their

prerequisites are, when each section is taught, where it is taught and who it is taught by. They also want to know how to find the teacher of each section.

10) You are working for a consulting company and want to create a very simple database. This database will be used to track problems clients are having and the consultants who are working on them. Each client can have many problems and many clients can be facing the same problems. Each time a client reports a problem you want to track the client, what their problem is, the consultant who is working on it and the date it was logged into the system, its status and the date the problem was solved (note this is blank for pending problems). Consultants also work on many problems at any given time. For each type of problem there is one consultant who is considered the expert on this problem. A consultant can be an expert on many different types of problems.

11) A university gymnastics team is interested in maintaining information about its current schedule and meet performance. The team is made up of 10 gymnasts. Gymnast information includes name, major, and hometown. The team competes in meets many times during the season. Meet information includes date, location, opponent, and score. A meet can have one or more opponents. The team faces each opponent only once during the season. Meets consist of four events: vault, beam, floor, and uneven bars. A gymnast can compete in all or some of these events, though the team is limited to 5 participants in each event. Gymnasts can only compete in events for which they are prepared.

12) You want to track information about 10 departments in your company. Each department has a unique name, is located on a specific floor and has a phone number. Within each department there is a department head and a range of additional employees. For all employees we want to track their name, who their boss is, their salary as well as the unique employee number each had assigned to them when they started the company. Each employee also has a set of skills. You need to track this set of skills so you can locate employees with the right skill set to be part of various cross department project teams. You need to also track information about all of the projects that are under taken by these various departments. Each project has a unique id, a name, a start date, and at least 3 employees on it. All teams have a project leader and a project coordinator. Any employee can be a project leader but they can only lead one project. Furthermore any employee can be a project coordinator and they can coordinate any number of projects.