

Tutorial 02

ICT 206 1.5

Submit before 17th 8 am.

1. Describe the issues in file system in contrast to database systems?
2. Describe following terms.
 - a. Data modelling
 - b. Data model
 - c. Database model
3. What are business rules?
4. Describe entity type, entity sets, relationship type, relationship sets.
5. What is an identifying relationship type and identifying entity type?
6. Why do we need cardinality ratio and existence dependency constraint?

Problem 7

Consider a MAIL_ORDER database in which employees take orders for parts from customers. The data requirements are summarized as follows:

- The mail order company has employees, each identified by a unique employee number, first and last name, and Zip Code.
- Each customer of the company is identified by a unique customer number, first and last name, and Zip Code.
- Each part sold by the company is identified by a unique part number, a part name, price, and quantity in stock.
- Each order placed by a customer is taken by an employee and is given a unique order number. Each order contains specified quantities of one or more parts. Each order has a date of receipt as well as an expected ship date. The actual ship date is also recorded.

Design an entity–relationship diagram.

Problem 8

Consider a MOVIE database in which data is recorded about the movie industry. The data requirements are summarized as follows:

- Each movie is identified by title and year of release. Each movie has a length in minutes. Each has a production company, and each is classified under one or more genres (such as horror, action, drama, and so forth). Each movie has one or more directors and one or more actors appear in it. Each movie also has a plot outline. Finally, each movie has zero or more quotable quotes, each of which is spoken by a particular actor appearing in the movie.

- Actors are identified by name and date of birth and appear in one or more movies. Each actor has a role in the movie.

- Directors are also identified by name and date of birth and direct one or more movies. It is possible for a director to act in a movie (including one that he or she may also direct).

- Production companies are identified by name, and each has an address. A production company produces one or more movies.

Design an entity–relationship diagram for the movie database

Problem 9

Consider a CONFERENCE_REVIEW database in which researchers submit their research papers for consideration. Reviews by reviewers are recorded for use in the paper selection process. The database system caters primarily to reviewers who record answers to evaluation questions for each paper they review and make recommendations regarding whether to accept or reject the paper. The data requirements are summarized as follows:

- Authors of papers are uniquely identified by e-mail id. First and last names are also recorded.

- Each paper is assigned a unique identifier by the system and is described by a title, abstract, and the name of the electronic file containing the paper.

- A paper may have multiple authors, but one of the authors is designated as the contact author.

- Reviewers of papers are uniquely identified by e-mail address. Each reviewer's first name, last name, phone number, affiliation, and topics of interest are also recorded.

- Each paper is assigned between two and four reviewers. A reviewer rates each paper assigned to him or her on a scale of 1 to 10 in four categories: technical merit, readability, originality, and relevance to the conference. Finally, each reviewer provides an overall recommendation regarding each paper.

- Each review contains two types of written comments: one to be seen by the review committee only and the other as feedback to the author(s).

Design an entity–relationship diagram for the CONFERENCE_REVIEW database.