Databases: Database design

Exercise no.2

Design a database for the management of some activities for a film maker.

- The film maker employees are identified by SSN number and characterized by name, surname, date of birth, nationality, and possibly the phone number. Employees can be classified in actors and technical employees. For actors a list of spoken languages is known. Technical employees may be employed in the making of several different movies.

- Equipment is characterized by a code and a brief description. It may be classified in technical equipment (e.g., recording devices) and scene equipment. Model, maker, category, type of zoom, and zoom diameter are known for technical equipment. The database stores in which scene the scene equipment is used and in which period of time (i.e., start day and end day). The same scene equipment can be used for many different scenes in different days. A given scene may exploit many scene equipments at the same time.

- A movie is identified by a code number and characterized by movie title, director name, duration, and movie plot description. A movie is composed by a set of scenes, each of which is identified by a code number with respect to the movie. The list of actors is also known.

- The same scene may be recorded many times. Recording of each scene is characterized by a unique number with respect to the scene. For each recording the date in which it is shot, the duration, and the recording device used are also known. The same recording device can be exploited for many recordings.

- A contract, signed by an actor which plays in a given movie, is characterized by a number and the date in which it is signed. The start date, end date, a brief description, and the signing actor are recorded for each contract. Different contracts may be signed for the same movie, but a contract is signed for a single movie.

1. Describe the conceptual schema of a database for the above application by means of an ER diagram.

2. Derive a normalized relational logical schema for the same database.

3. Define referential integrity constraints for 3 relations of your choice among those defined in the conceptual schema.