**Database Coursework**

Objectives:

* learn to design and to implement a database.
* creating an E/R model for the application and converting the model into a relational model.
* create SQL tables and to insert data into the tables.

Background

A database contains information about ticket reservations for movie performances. To make a reservation you must be registered as a user of the system. In order to register you choose a unique user-name and enter your name, address, and telephone number (the address is optional).

When you use the system later, you just have to enter your user-name.

In the system, a number of theaters show movies. Each theater has a name and a number of (unnumbered) seats. A movie is described by its name only. (In a real system you would, naturally, store more information: actor biographies, poster images, video clips, etc.)

A movie may be shown several times, but then during different days. This means that each movie is shown at most once on any day.

You can only reserve one ticket at a time to a performance (If you want several tickets for the same performance you must make several separate reservations.) and cannot reserve more tickets than are available at a performance. When you make a reservation you receive a reservation number that you will use when you pick up the ticket

Assignments

1. Develop an E/R model for the database that is described above. Start by finding suitable entity sets in the system. For this, you may use any method that you wish, e.g., start by finding nouns in the requirements specification and after that determine which of the nouns that are suitable entity sets.
2. Find relationships between the entity sets. Indicate the multiplicities of the relationships.
3. Write SQL statements for the following tasks, and execute the statements in mysql:
4. Create the tables. Don’t forget primary keys and foreign keys. Insert data into the tables. Invent your own data with real-world movie names and theater names. Use the data type date for dates. Dates are entered and displayed on the form ‘2014–12–24’. A. write the SQL statements in a text file with the extension .sql .
5. Write queries to Check that the key constraints that you have stated work as intended