SCS1309/ IS1210 Database Management

Lab Sheet 02

Draw EER Diagrams for the following.

Activity 1

A university has several types of employees. Two common types of them are Academic staff and Non-Academic staff. However, one employee may belong to only one of these categories.

Activity 2

A bank has two categories of branches as Regional branches and super grade branches. Every branch in the bank should belong to only one type of these branches and a single branch can be recognized as only one of these categories. The bank does not allow further classification for the branches.

Activity 3

A garment factory has several employees working in it. These employees have an Employee ID, Name, Contact Number and an address. Some of the types of employees are managers, technicians and supervisors. Managers have a title and a specialization. Technicians have expertise and experience. Supervisors have the number of subordinates working under him/her as attributes. Since the company is focused on achieving maximum productivity using a minimum number of employees some of these roles are played by the same employees. For example, a technician can also be a manager or supervisor.

Activity 4

The type of students studying under UCSC falls into three categories as undergraduates, postgraduates and external degree candidates. Each student has a student ID, name, address, email, contact number and the stream he/she is following. The details of the A/L index number and school are maintained with regards to an undergraduate upon registration. The employment and the first degree are maintained for a postgraduate student and with regards to an external degree student the project type and the exam center are maintained. Some students who wish to achieve two qualifications at the same time have chosen to study both the undergraduate program and the external degree program

Activity 5

The following narrative describes a simplified version of the organization of Olympic facilities planned for the summer Olympics. Draw an EER diagram that shows the entity types, attributes, relationships, and specializations for this application. State any assumptions you make. The Olympic facilities are divided into sports complexes. Sports complexes are divided into one-sport and multisport types.

Multisport complexes have areas of the complex designated for each sport with a location indicator (e.g., center, NE corner, etc.). A complex has a location, chief organizing individual, total occupied area, and so on. Each complex holds a series of events (e.g., the track stadium may hold many different races). For each event there is a planned date, duration, number of participants, number of officials, and so on. A roster of all officials will be maintained together with the list of events each official will be involved in. Different equipment is needed for the events (e.g., goal posts, poles, parallel bars) as well as for maintenance. The two types of facilities (one-sport and multisport) will have different types of information. For each type, the number of facilities needed is kept, together with an approximate budget.

Activity 6

Design a database to keep track of information for an art museum. Assume that the following requirements were collected:

- The museum has a collection of ART_OBJECTS. Each ART_OBJECT has a unique IdNo, an Artist (if known), a Year (when it was created, if known), a Title, and a Description. The art objects are categorized in several ways, as discussed below.
- ART_OBJECTS are categorized based on their type. There are three main types: PAINTING, SCULPTURE, and STATUE, plus another type called OTHER to accommodate objects that do not fall into one of the three main types.
- A PAINTING has a PaintType (oil, watercolor, etc.), material on which it is DrawnOn (paper, canvas, wood, etc.), and Style (modem, abstract, erc.).
- A SCULPTURE or a STATUE has a Material from which it was created (wood, stone, etc.), Height, Weight, and Style.
- An art object in the OTHER category has a Type (print, photo, etc.) and Style.
- ART_OBJECTS are also categorized as PERMANENT_COLLECTION, which are owned by the museum (these have information on the DateAcquired, whether it is OnDisplay or stored, and Cost) or BORROWED, which has information on the Collection (from which it was borrowed), DateBorrowed, and DateRetumed.
- ART_OBJECTS also have information describing their country/culture using information on country/culture of Origin (Italian, Egyptian, American, Indian,etc.) and Epoch (Renaissance, Modem, Ancient, etc.).
- The museum keeps track of ARTIST'S information, if known: Name, DateBom (if known), DateDied (if not living), CountryOfOrigin, Epoch, MainStyle, and Description. The Name is assumed to be unique.
- Different EXHIBITIONS occur, each having a Name, StartDate, and EndDate. EXHIBITIONS are related to all the art objects that were on display during the Exhibition.
- Information is kept on other COLLECTIONS with which the museum interacts, including Name (unique), Type (museum, personal, etc.), Description, Address, Phone, and current ContactPerson.

Draw an EERschema diagram for this application. Discuss any assumptions you