**Problem 1**

Musicana records have decided to store information on musicians who perform on their albums in a database. The company has wisely chosen to hire you as a database designer.

* Each musician that is recorded at Musicana has an ID number, a name, an address (street, city) and a phone number.
* Each instrument that is used in songs recorded at Musicana has a unique name and a musical key (e.g., C, B-flat, E-flat).
* Each album that is recorded at the Musicana label has a title, a copyright date, and an album identifier.
* Each song recorded at Musicana has a unique title and an author.
* Each musician may play several instruments, and a given instrument may be played by several musicians.
* Each album has a number of songs on it, but no song may appear on more than one album.
* Each song is performed by one or more musicians, and a musician may perform a number of songs.
* Each album has exactly one musician who acts as its producer. A producer may produce several albums.

Design a conceptual schema for Musicana. Be sure to indicate all keys and cardinality constraints and any assumptions that you make.

**Problem 2**

Prepare an E-R diagram for a real estate firm that lists property for sale. The following describes this organization:

* + The firm has a number of sales offices in several states. Attributes of sales office include Office\_Number and Location.
  + Each sales office is assigned one or more employees. Attributes of employee include Employee\_ID and Employee\_Name. An employee must be assigned to only one sales office.
  + For each sales office, there is always one employee assigned to manage that office.
  + The firm lists property for sale. Attributes of property include Property\_ID and Location. Components of Location include Address, City, State, and Zip\_Code.
  + Each property must be listed with one (and only one) of the sales offices. A sales office may have any number of properties listed, or may have no proper­ties listed.
  + Each property has one or more owners. Attributes of owners are Owner\_ID and Owner\_Name. An owner may own one or more properties. The system stores the percent owned by each owner in each property.

**Problem 3**

* A General Hospital consists of a number of specialized wards. Each ward is described by ward\_id, Name
* The system records the following details about patients: Patient\_id, name, Date\_Of\_Birth
* Each ward may host one or more patients and each patient is hosted by only one ward.
* Each patient is assigned to one leading consultant but may be examined by another consultant, if required.
* Each consultant may be assigned one or more patients and may examine one or more patients.
* Consultants are described by Consultant\_id, Name
* The system has to record all required data each time the Nurse gives a patient a certain drug with specified dosage at certain time.
* Each ward is under supervision of one nurse and a nurse may supervise only one ward .
* Each Nurse must serve in one ward
* Data about the nurse is recorded as her name and her number and her address.
* A drug has code number, recommended dosage and more than one brand name