



## Assignment 4 Part 1

### 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 unique 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.

## Problem 2

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

- The firm has a number of sales offices in several states. Attributes of the sales office include Office\_Number and Location.
- Each sales office is assigned one or more employees. Attributes of employees 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 may have zero 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.