

## **Draw an E-R diagram for the following:**

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.
  - 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.

2. An intermediary car rental company has branches across the city; intended to construct a system to facilitate its transactions. You are asked to build an ER diagram and mapping based on the following information.

- The company has many offices to serve a big sector; each office has an ID, address and a contact no.
- The owner who is willing to provide his car/s for rent to the office needs to register his full name, national ID as unique identifier and the bank account number to which the company will transfer the money to.
- The owner must apply for car renting in only one office, but an office can have many owners.
- Data about car is ID, model (brand, model name, model year), copy of a valid license, rent amount and car status (Ex: the car status is booked, in maintenance or available)
- Owner can provide the office with one or more cars to rent. In addition, it is not allowed to save a car information that is not related to specified owner.
- In regard to the tenant (the person who pays rent for car usage); the system has to save information about his National ID as unique identifier, copy of a valid driving license to secure the car and a mobile number as a contact.
- A tenant should rent one or more cars and a car can be rented by many tenants.
- When a tenant orders a car, some information about this transaction must be recorded such as the start date for renting the car, the duration and payment method.