

## Problem 2: Database Design

1) belongs to is a *many-to-one* relationship from Artist to Label

2)

Each album must be produced by at most one label.

Each album must have at least one song.

Each artist must sing at least one song.

Each artist can belong to at most one label.

Each label must have at least one artist.

3)

Produces(\_LabelName\_, \_AlbumName\_)

Sings(\_ArtistId\_, \_SongId\_)

AppearsOn(\_SongId\_, \_AlbumId\_)

Song(\_id\_, name, duration)

Album(\_id\_, name)

Label(\_name\_, address)

Artist(\_id\_, name, dob, label\_name)

- I combined the Artist and Belongs to entities because each artist can only belong to one label so an additional table is not needed here to represent that relationship. Instead the label an artist belongs to is represented by the label\_name introduced to the Artist entity.

- Each value of the label\_id attribute in Artist must match a value of the name attribute from the Label relation.