

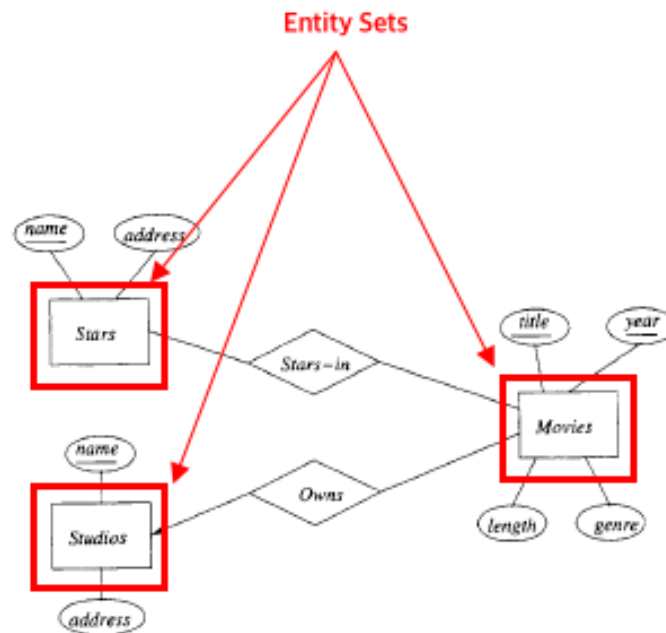
# CSC343 Worksheet 14 Solution

July 7, 2020

## 1. Notes:

- E/R Model

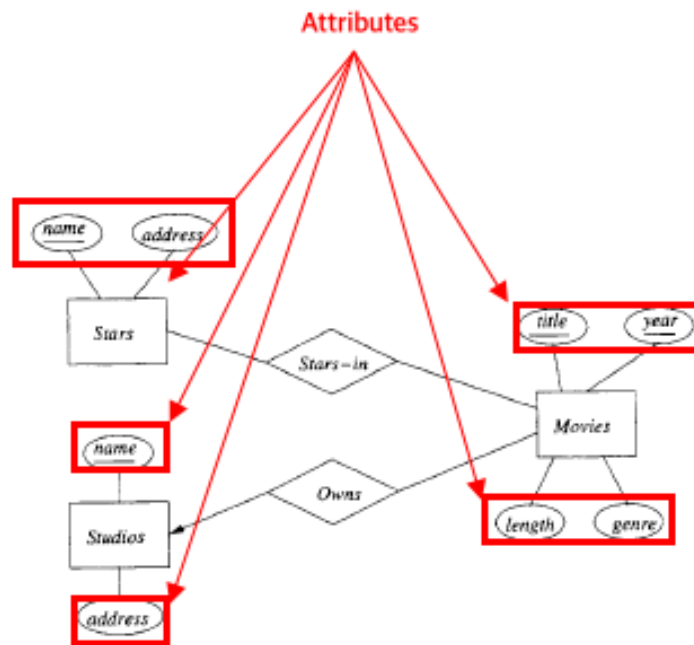
- Means **Entity Relationship Model**
- Entity Relationship Model(ER Modeling) is a graphical approach to database design.
- Is comparable to class diagram in UML
- Uses three principle element types:
  1. Entity sets
    - \* Is an abstract object of some sort (i.e. entity)
    - \* Is not used to represent class
    - \* Is represented by rectangles



## 2. Attributes

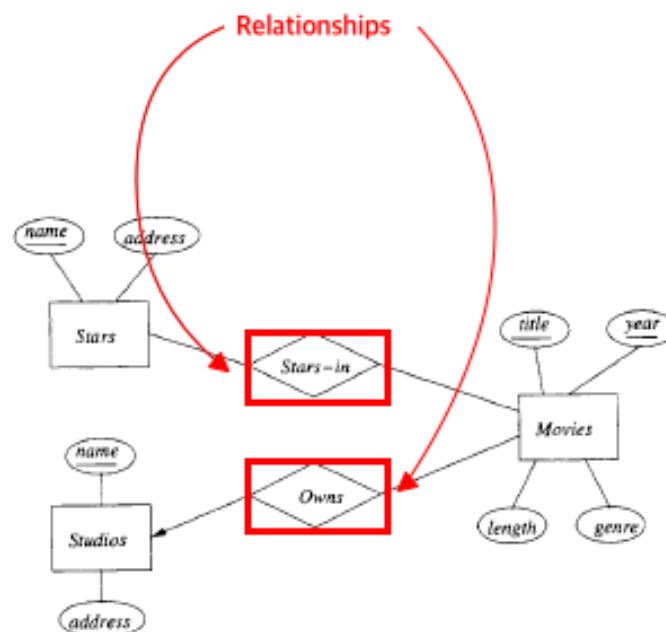
- \* Are properties of entities in a set (i.e. column name)

- \* Each has its own primitive data types (e.g. String, integers, Reals)
- \* Is represented by ovals

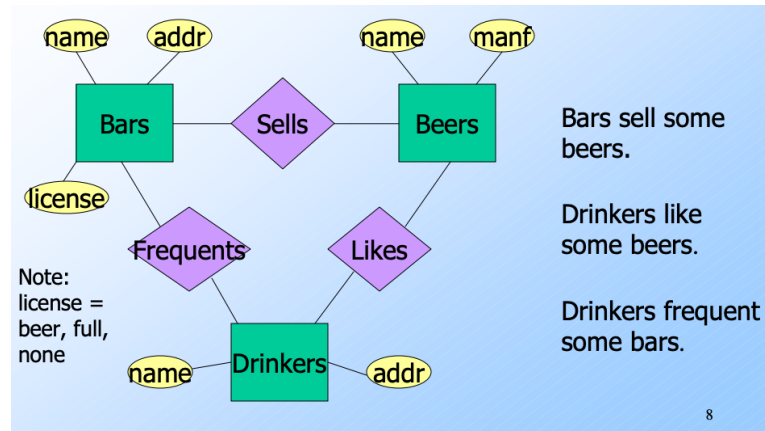


### 3. Relationships

- \* Are connections among two or more entity sets (e.g. intermediary Relations like Stars In)
- \* Is represented by diamond

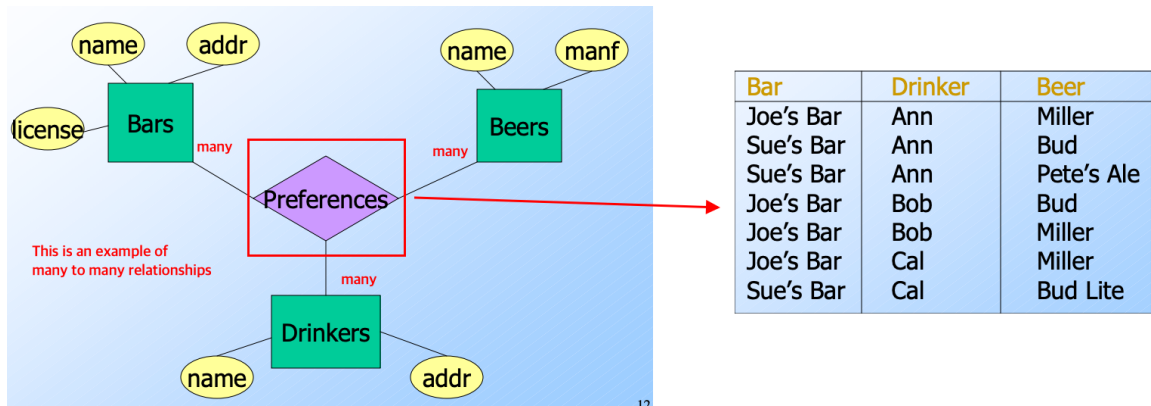


Example:



- Multiway Relationships
  - Connects more than two relationship sets
  - Enables to represent relationships that otherwise is difficult in binary relationship
  - Arrow → 'one'
  - No arrow → 'many'

### Example:



### Example 2:

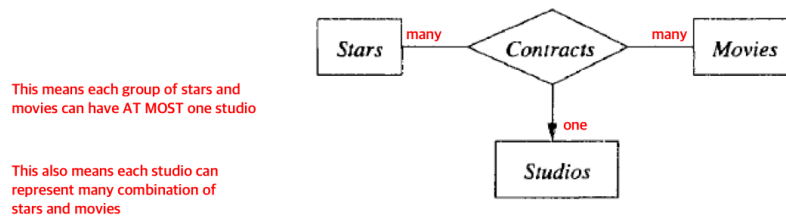


Figure 4.4: A three-way relationship

- Roles in Relationships
  - Is the label of edges between the entity set and relationship
  - Are used to clarify the semantics of relationship

### Example:

Means for each sequel, there is only one original

And for each movies, there are many sequels

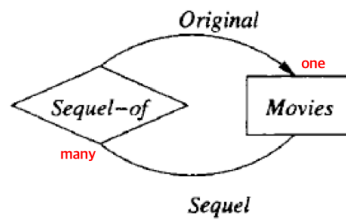


Figure 4.5: A relationship with roles

### Example 2:

This means for each combination of stars and movies, there can be ; one studio for star, and one studio for movie

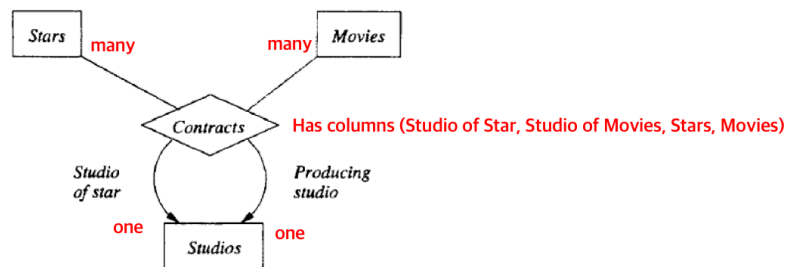
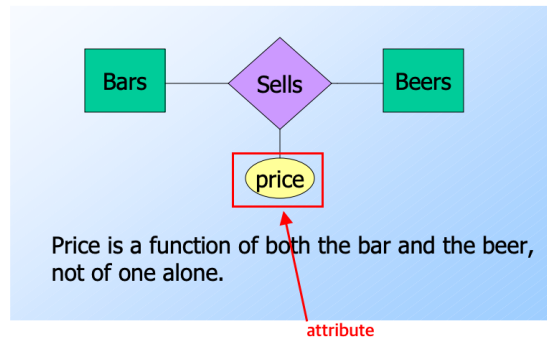


Figure 4.6: A four-way relationship

- Attributes on Relationships
  - can be thought as a property of tuples in the relationship set (i.e. String, Integer, Float, Boolean)

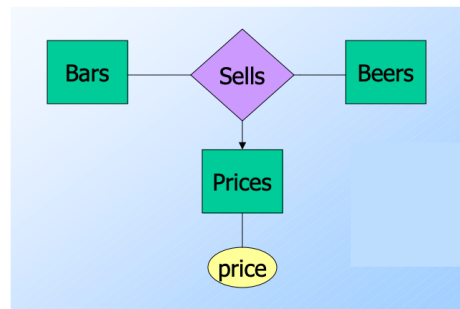
### Example:



Bar	Beers	Price
Bar 1	Canadian	10.99
Bar 2	Budwiser	20.99
Bar 1	Hite	4.99
Bar 1	Cass	15.99

- Can be removed by creating an entity set with the attribute

### Example:



- Converting Multiway Relationships to Binary

### Example:

