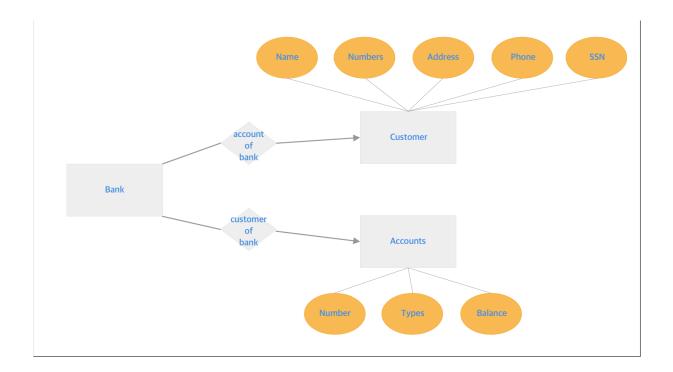
# CSC343 Worksheet 14 Solution

July 7, 2020



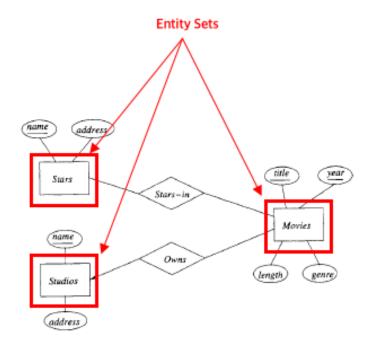
1.

# Correct Solution:



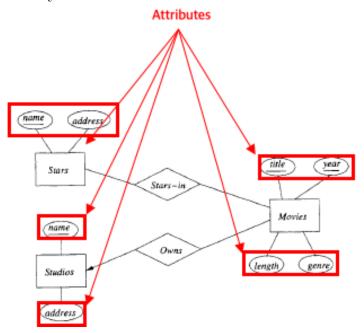
#### Notes:

- 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. entitiy)
      - \* Is not used to represent class
      - \* Is represented by rectangles



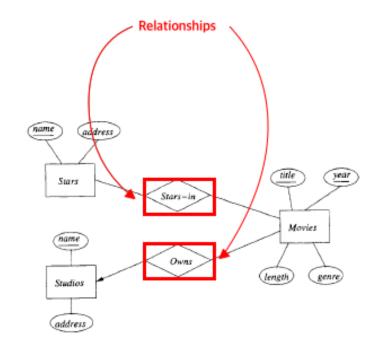
#### 2. Attributes

- \* 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

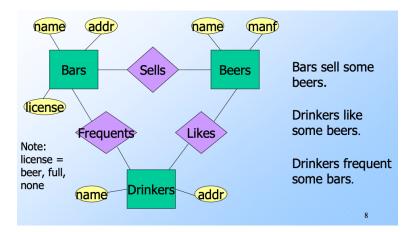


#### 3. Relationships

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

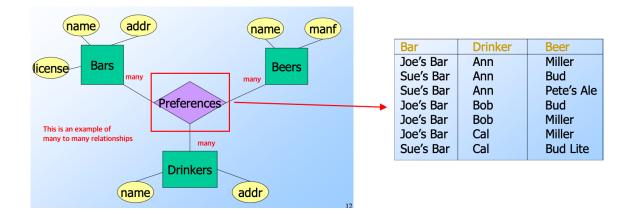


# Example:



#### • Multiway Relationships

- Connects more than two relationship sets
- Enables to represent relationships that otherwise is difficult in binary relationship
- Arrow  $\rightarrow$  'one'
- No arrow  $\rightarrow$  'many'



#### 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 sementics of relationship

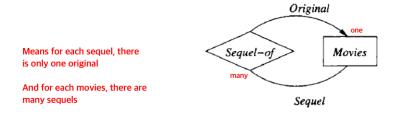


Figure 4.5: A relationship with roles

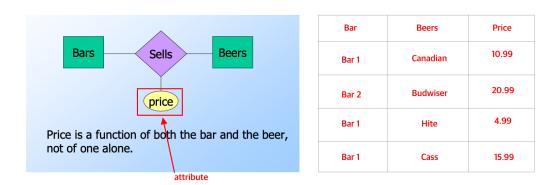
#### Example 2:

Stars Movies many This means for each combination Contracts Has columns (Studio of Star, Studio of Movies, Stars, Movies) of stars and movies, there can be a one stduio for star, and one Studio Producing studio for movie of star studio one one Studios

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:



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



• Conversting Multiway Relationships to Binary

# Example:



- Subclasses in the E/R Model
  - Has its own special attributes and/or relationships
  - All 'isa' relationship is one to one
  - Is represented by triangle with label 'isa' followed by entity set

