

CSC343 Worksheet 14 Solution

July 8, 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. 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

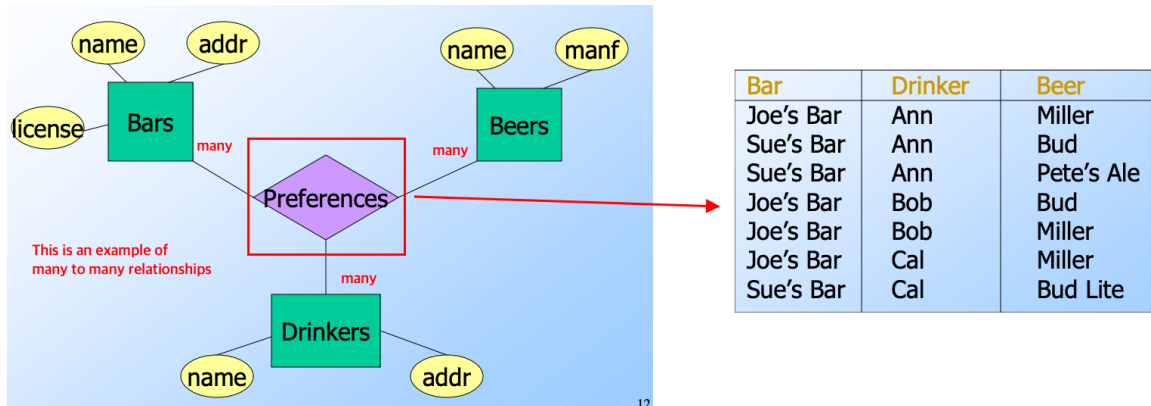


Example:



- 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:



Figure 4.5: A relationship with roles

Example 2:

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

Example:

- Converting Multiway Relationships to Binary

Example:



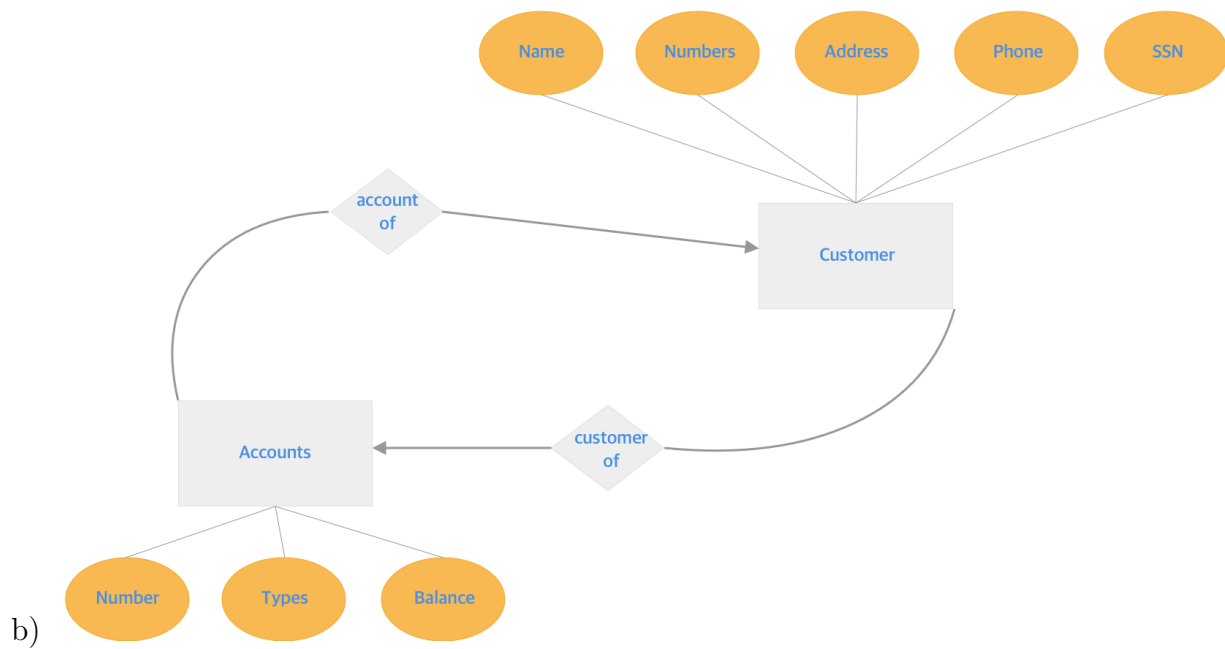
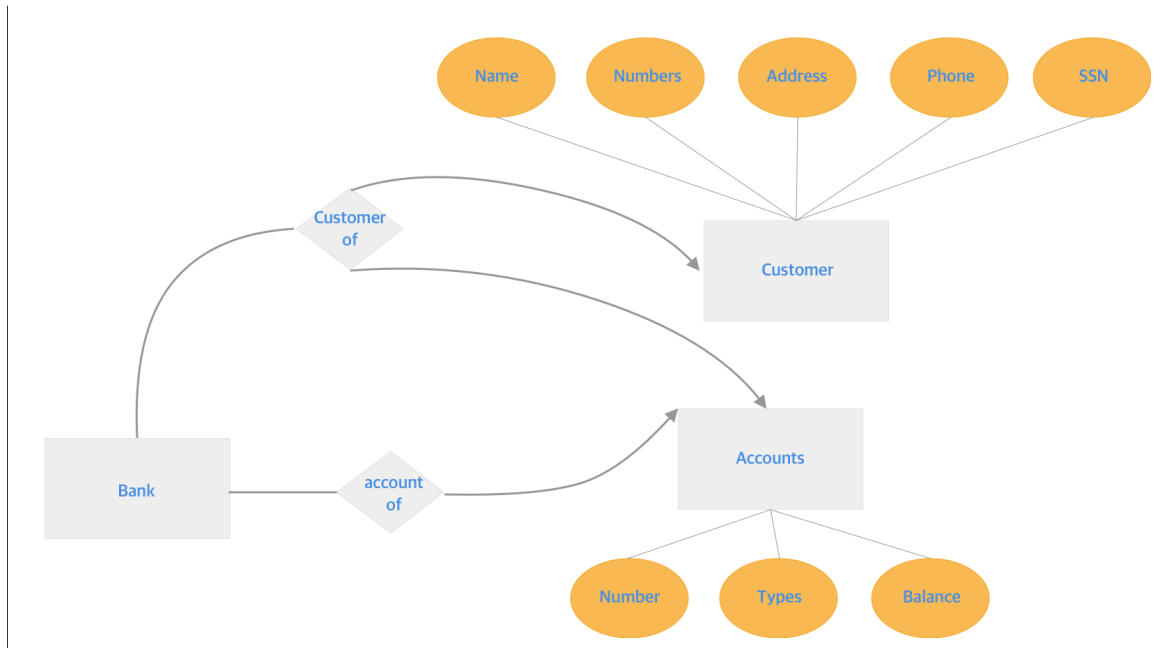
- Subclasses in the E/R Model
 - Has its own special attributes and/or relationships
 - All 'isa' relationship is one to one
 - Is represented by triangle with label 'isa' followed by entity set

Example:



2. a)

Correct Solution:



Correct Solution:



c)

Correct Solution:



Correct Solution:





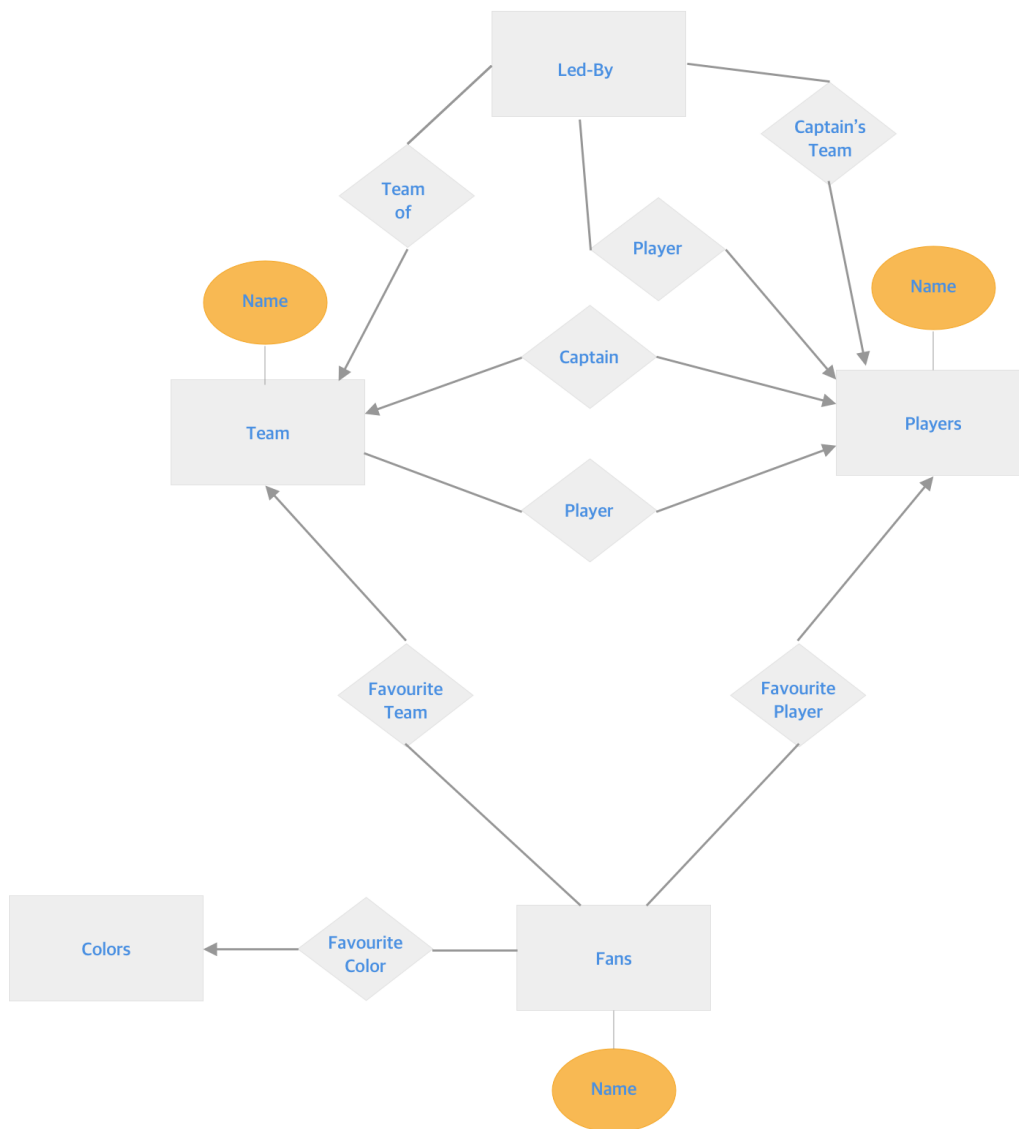
3.

Correct Solution





4. a)



b)

c) They are the same. (I need more work on providing reason).

Notes:

- I should ask professor about this :'(



5.



6.

Correct Solution:



7.

Notes:

- I feel the need to clarify with professor if two parent subclasses can exist
- I feel the need to ask professor whether this design is valid



8. a)