

# 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:**

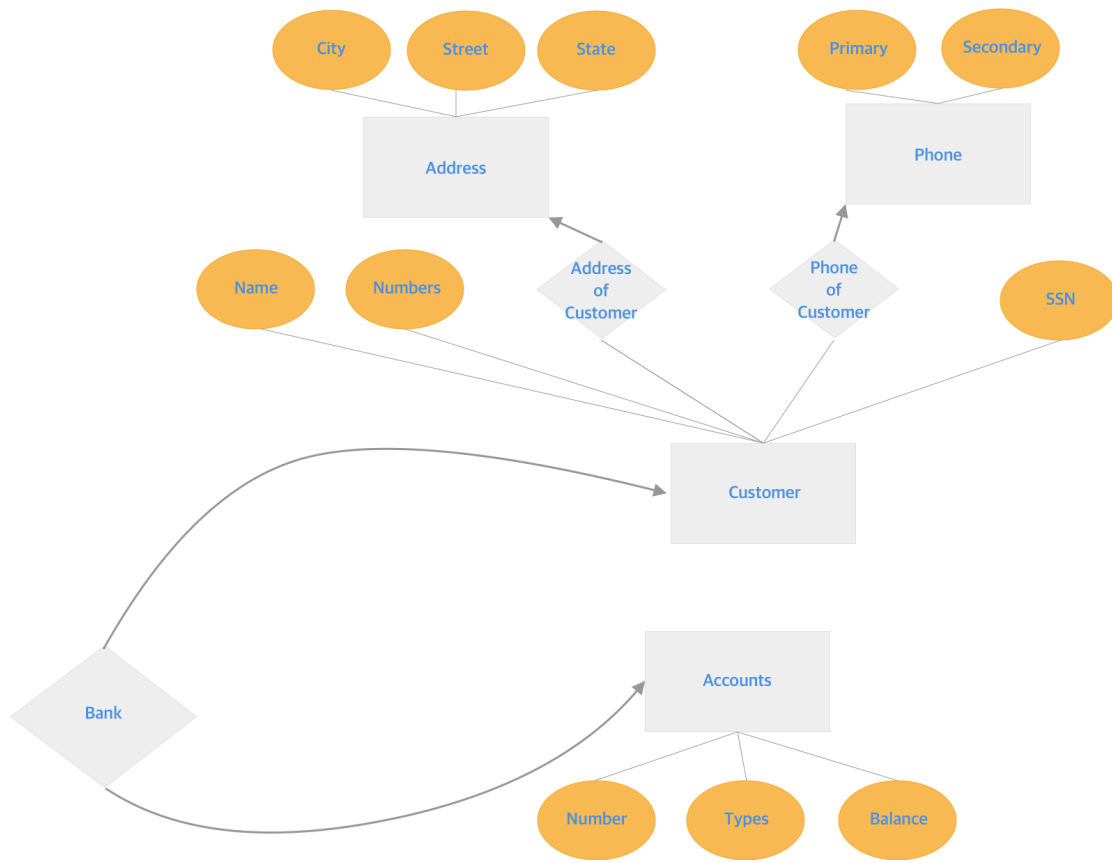




**Correct Solution:**



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 :'(

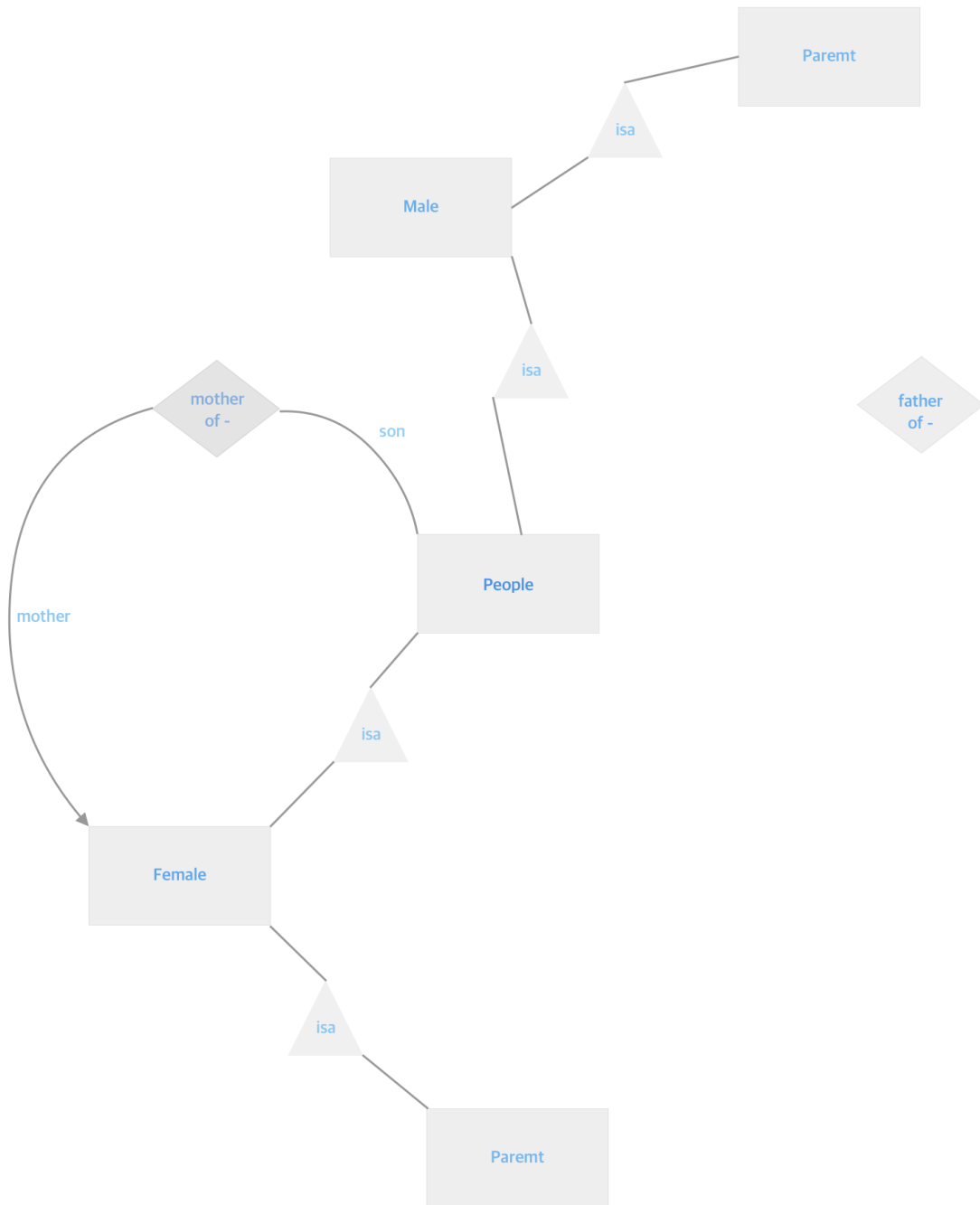


5.



6.

**Correct Solution:**



7.