CSC343 Worksheet 14 Solution

July 8, 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. 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





















3.





4. a)



b)

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

Notes:

 $\bullet\,$ I should ask professor about this :'(



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6.





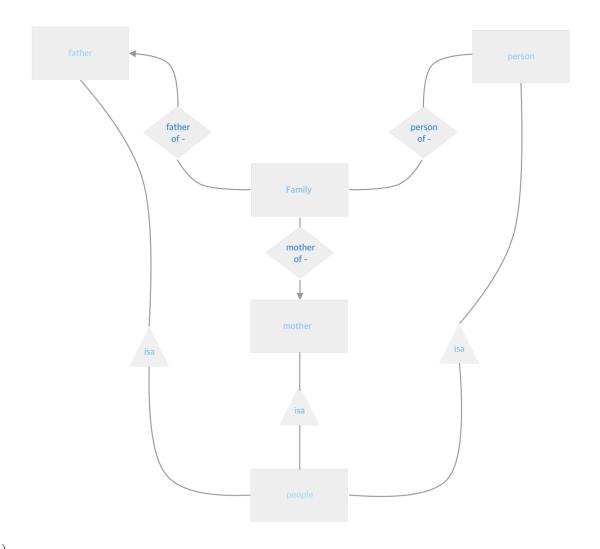
7.

Notes:

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



8. a)



b)

Notes:

• I need to clarify with professor on one-to-many relationship.

Is it correct that the 'one' side of 'one-to-many' relationship represent foreign key in terms of SQL?

But how about the many side? What does it mean it to be many? so for example, ('Josh', 'Neville the father', 'Mary the mother'), ('Jay', 'Neville the father', 'Mary the mother'), is this one to many relationship?

In tabular terms / example what does one-to-many relationship represent in this context?