Assignment 1

1. Express the relationship(s) graphically with an E-R diagram (show degree and cardinality)

A book is identified by its ISBN number and it has a title, a price, and a date of publication. It is published by a publisher, which has its own ID number and a name. Each book has exactly one publisher, but one publisher typically publishes multiple books over time (pg. 102).

1. Develop an EER diagram for this situation

You are working for a large country club. This country club wants to keep a database on its members and their guests. For each member, the club keeps mail and telephone contact information, name, and membership number. When you join this club, you can join as a social member (which allows you 2 rounds of golf a year as well as privileges to the swimming pool and weight room), a tennis member (which allows you all the privileges of a social member as well as use of the tennis courts and 4 rounds of golf), or a golfing member (which allows you all the privileges of a tennis member and unlimited use of the golf course).

1. For a library, the entity type HOLDING has 4 subtypes: BOOK, AUDIO BOOK, DVD, and SOFTWARE. Draw a separate EER diagram segment for each of the following situations (put each diagram under the letter/instructions you are diagraming for):
2. At a given time, a holding must be exactly one of these subtypes.
3. A holding may or may not be one of these subtypes. However, a holding that is one of these subtypes cannot at the same time be one of the other subtypes.
4. A holding may or may not be one of these subtypes. On the other hand, a holding may be any two (or even four) of these subtypes at the same time.
5. At a given time, a holding must be at least one of these subtypes.
6. Use the below figure to complete the following steps:
7. Transform the EER diagram to a set of relations and develop a relational schema
8. Diagram the functional dependencies and determine the normal form for each relation
9. Convert all relations to third normal form, if necessary, and draw a revised relational schema
10. Suggest an integrity constraint that would ensure that no property is rented twice during the same time interval.

