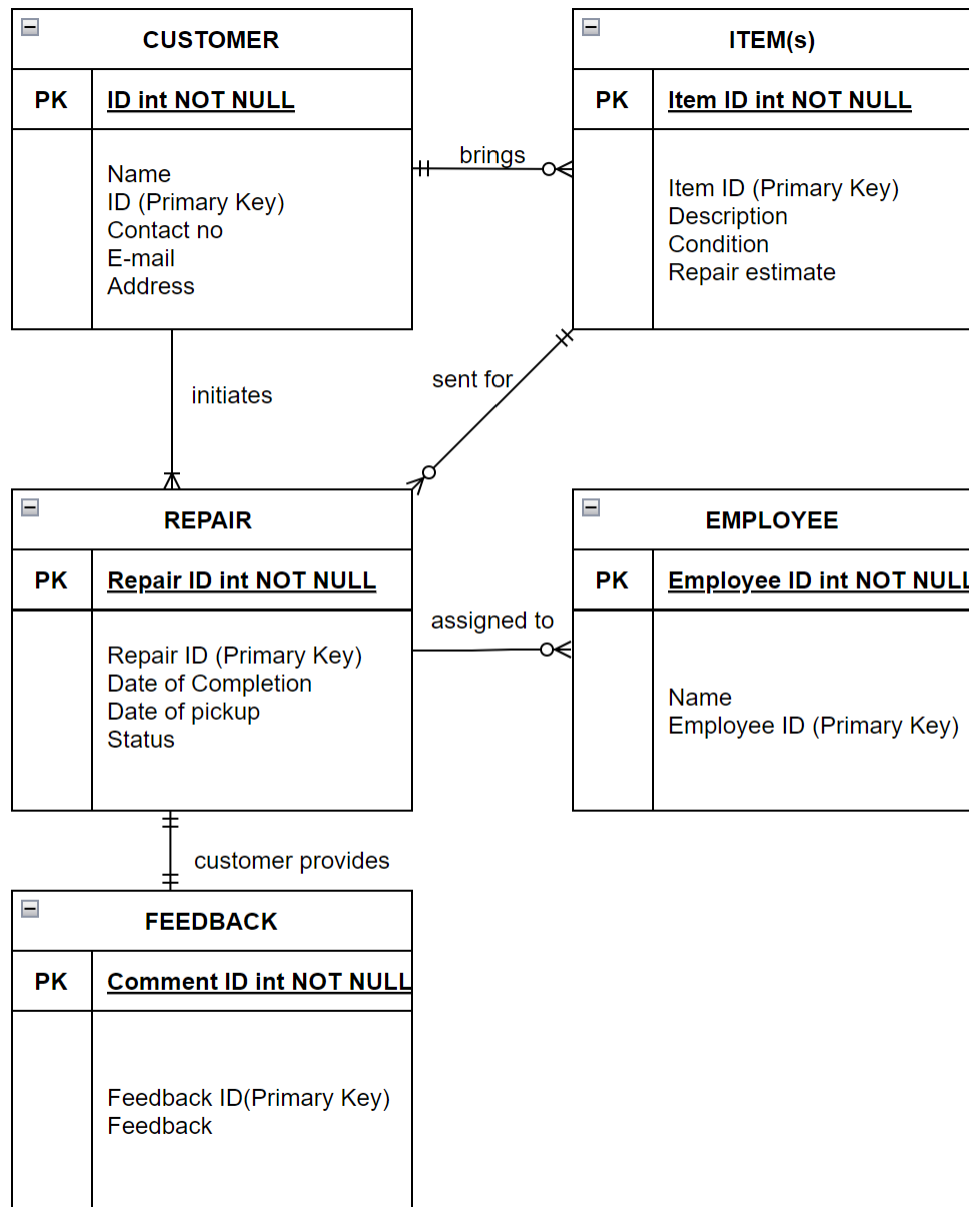# DATA MANAGEMENT AND DATABASE DESIGN
HOMEWORK: WEEK- 2

2-29
Sol:

ENTITIES:
Customer
Item
Repair
Employee
Feedback

RELATIONSHIPS:

- **Customer - Repair (One to Many)**

One customer can have several items for a repair

- **Repair-Feedback (One to One)**

One repair has one feedback

CARDINALITIES:

- **Customer - Item (Mandatory One to Optional Many)**

One customer must have at least one item to repair and can additionally have many more items to repair

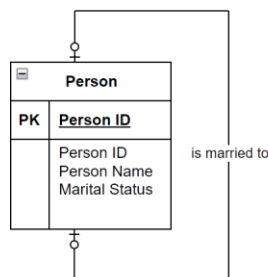- **Repair to Employee (Optional One to Optional Many)**

One employee can have multiple repairs or have nothing at all
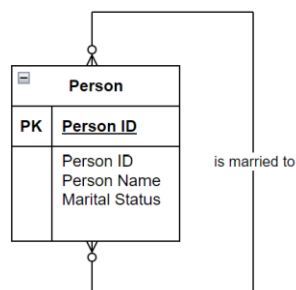
- **Item - Repair (Mandatory one to Optional Many)**

One item should have one repair and can have multiple repairs

2-34

a) **Sol:** In this case a person is married to at most one person or may not have been married at all.
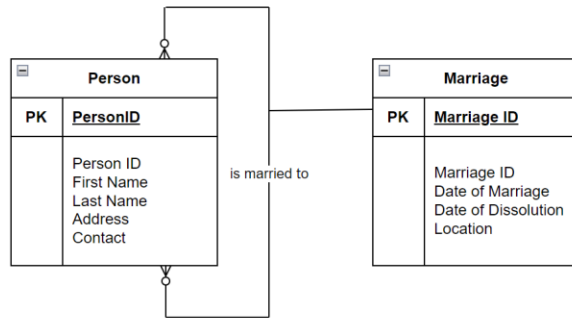

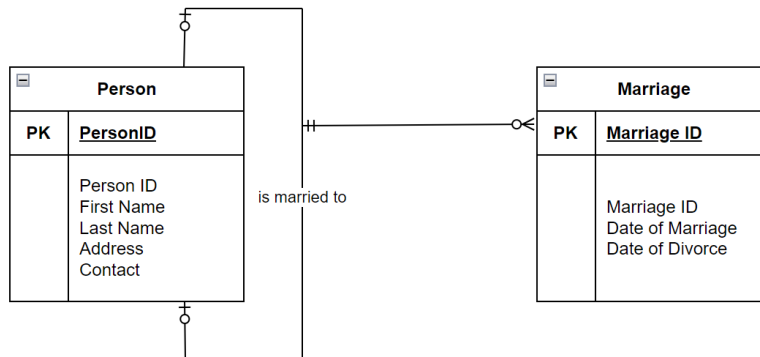b) **Sol:** In this case a person could have been to at most one person or may not have been married at all.
`

c) We need to know who a person has ever been married to, if anyone, as well as the date of their marriage and the date, if any, of the dissolution of their marriage.
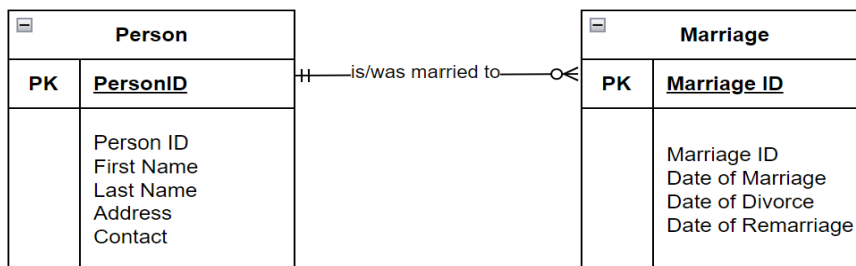
Sol:

Person				Marriage	
PK	PersonID		PK	Marriage ID	
	Person ID First Name Last Name Address Contact			Marriage ID Date of Marriage Date of Dissolution Location	

is married to

d) The same situation as in c, but now assume (which you likely did not do in c) that the same two people can remarry each other after a dissolution of a prior marriage to each other.
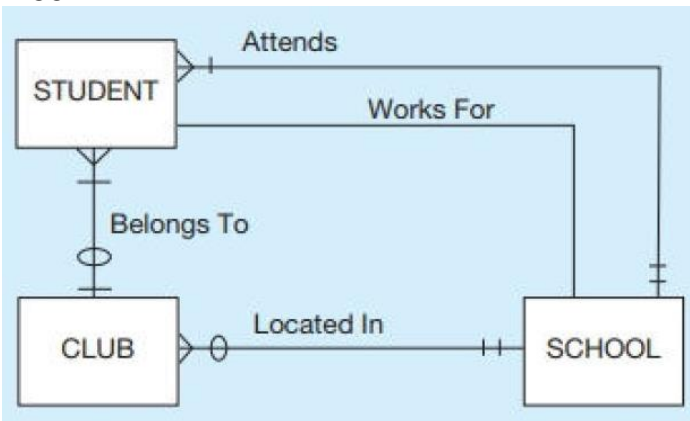
Sol:

Person				Marriage	
PK	PersonID		PK	Marriage ID	
	Person ID First Name Last Name Address Contact			Marriage ID Date of Marriage Date of Divorce	

is married to

e) In history, and even in some cultures today, there may be no legal restriction on the nun1ber of people to whom one can be currently married. Does your answer to part c of this Problem and Exercise handle this situation or must you make some changes (if so, draw a new ERD).

Sol:

Person				Marriage	
PK	PersonID		PK	Marriage ID	
	Person ID First Name Last Name Address Contact			Marriage ID Date of Marriage Date of Divorce Date of Remarriage	

is/was married to

2-35.

Sol:

a) **UNDERSTAND WHAT BUSINESS RULES ARE REPRESENTED:**

SCHOOL/WORK ENROLLMENT AND CLUB REGISTRATIONS:
1. Students should be enrolled in the school they attend
2. Proper documentation of employment must be submitted by the student
3. Students should be registered with the respective clubs they belong to.

ATTENDANCE AND SCHEDULES:
1. Minimum attendance hours should be met by the students
2. Working hours must not exceed the minimum number of hours mentioned by the school.
3. Work and School activities should not interfere with each other.
4. School and club activities must not collide with each other.

ACADEMIC PROGRESS:
1. Work or club activities must not affect the student's academics negatively
2. School must provide additional support in order to ensure the students succeed academically

STUDENT SUPPORT:
1. Counsellors should be appointed in order to make sure that the students do not get overwhelmed with multiples commitments.
2. Any conflicts that might arise for a student between work, club and academic schedules should be taken care of and resolved.
3. Care should be taken care such that students mental and physical well-being should be prioritized

COMMUNICATION CHANNELS:
1. Clear communication must be established between school, employers and clubs in order to keep informed about student activities
2. Parents/guardian must be informed of the involvement of their ward in employment/club related activities and academic progress.

b) HOW TO DETERMINE WHICH SCHOOLS DO NOT HAVE ANY OF THEIR STUDENTS BELONGING TO ANY CLUB IN THAT SCHOOL:
In order to determine which schools d not have any of their students belonging to any club in the school,
a) Data about club enrollments must be collected from time to time
b) Previous club records must be removed and stored elsewhere for future reference. It should be made sure that new additions are made from time to time and duplicates are being removed.
c) Group school name and related club data to find out if any of the school has null club membership details.
d) Generate a report to identify which school has no club participation. Cross verifies the same with the school management
e) Take actions and share relevant information to school management in order to establish more clubs or motivate students to join existing clubs.

c) HOW TO REPRESENT WHETHER A STUDENT WORKS FOR THE SCHOOL SHE ATTENDS IN SOME OTHER WAY.
According to the above represented diagram, the relationship between a student working for the school is optional one to optional many.
All possible scenarios that can be represented for the relationship is as follows:
a) Student does not work in the school
b) Student works for the school he/she attends
c) Many students work for the school they attend.

d) IS IT POSSIBLE FOR A STUDENT TO BELONG TO A CLUB LOCATED IN A SCHOOL THAT THE STUDENT DOES NOT ATTEND?
According to the business rules for the above given diagram,
a) One or many students can be registered in a at most one club
b) The club mandatorily need to be in the school
c) Attendance to school is mandatory

This explains that if a student is enrolled in a club, it must be inside the school the student attends. That concludes that a student cannot belong to a club located in a school that the student does not attend.