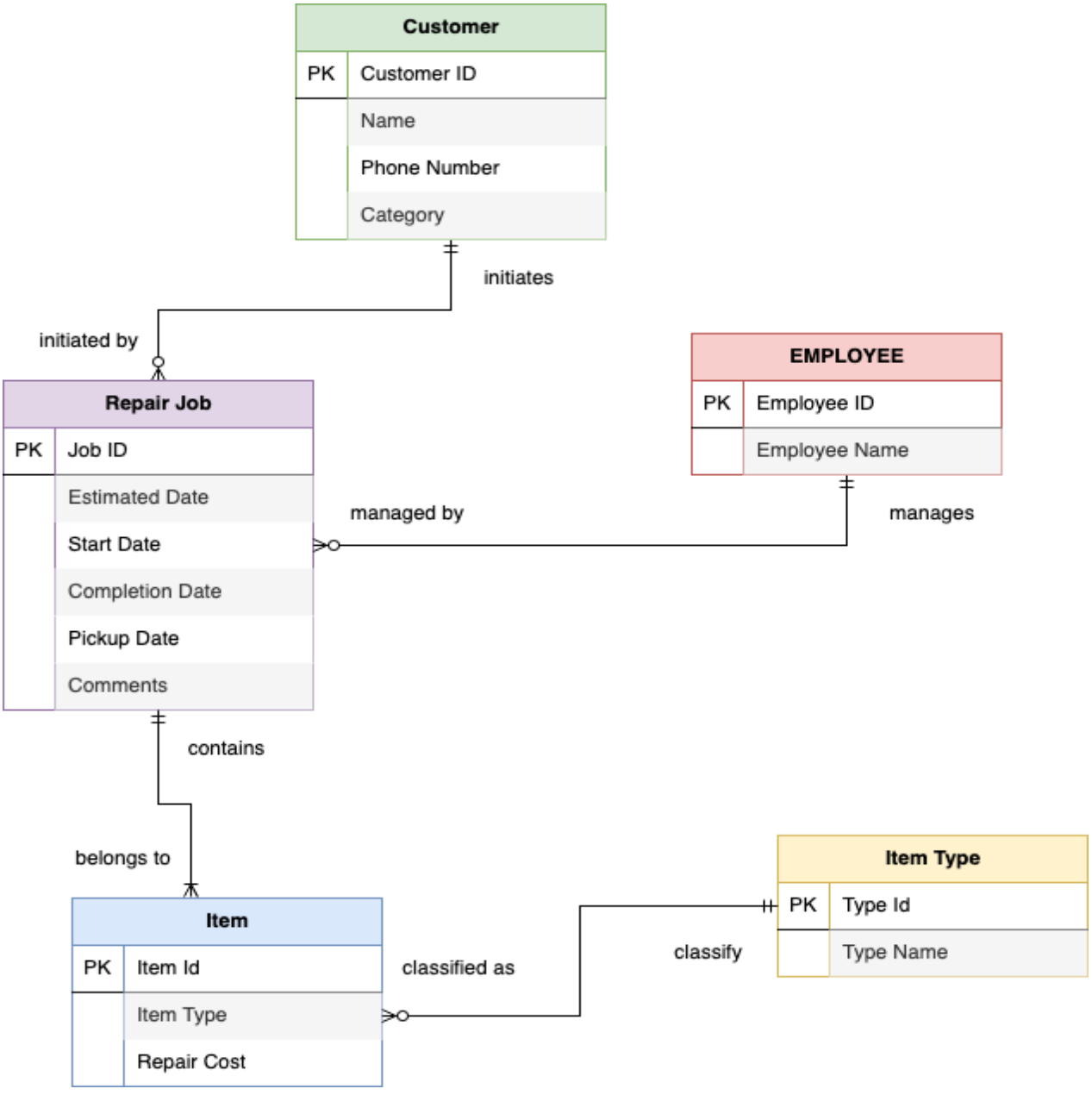
DAMG6210 - Data Management and Database Design

Homework 02

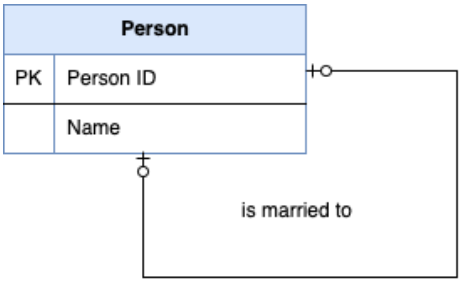
2-29.



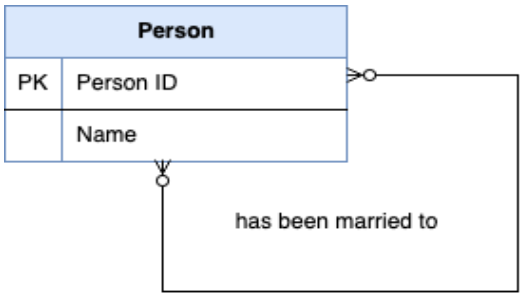
E-R diagram for ShinyShoesForAll (SSFA)

2-34. PERSON entity type and the Is Married To relationship different variations**:**

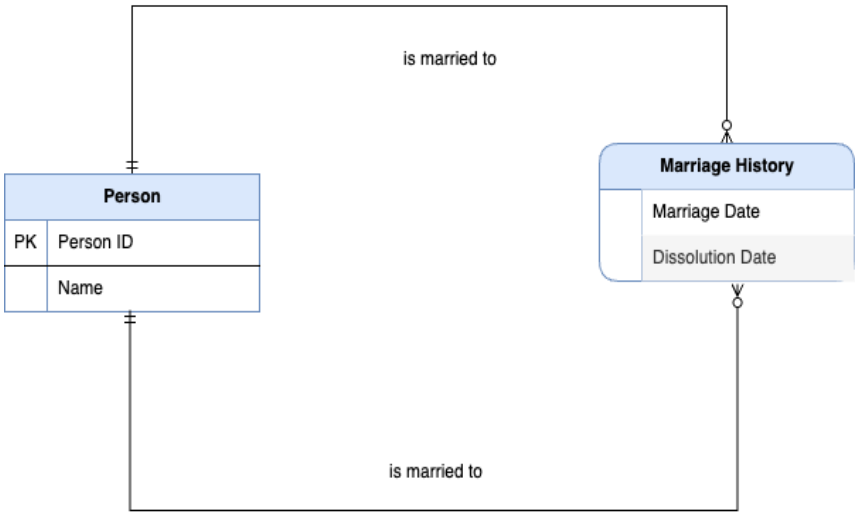
a. Current marriage only:



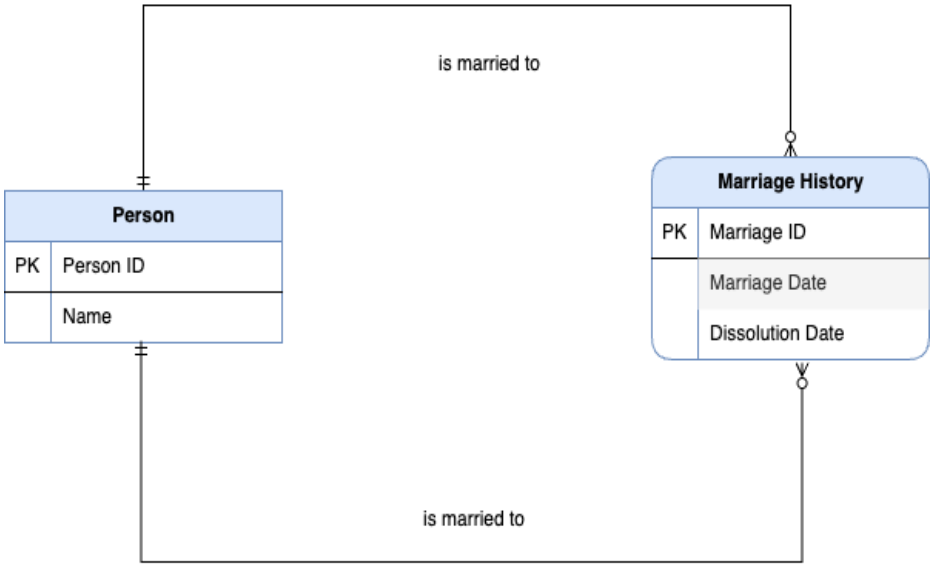
b. All Past Marriages



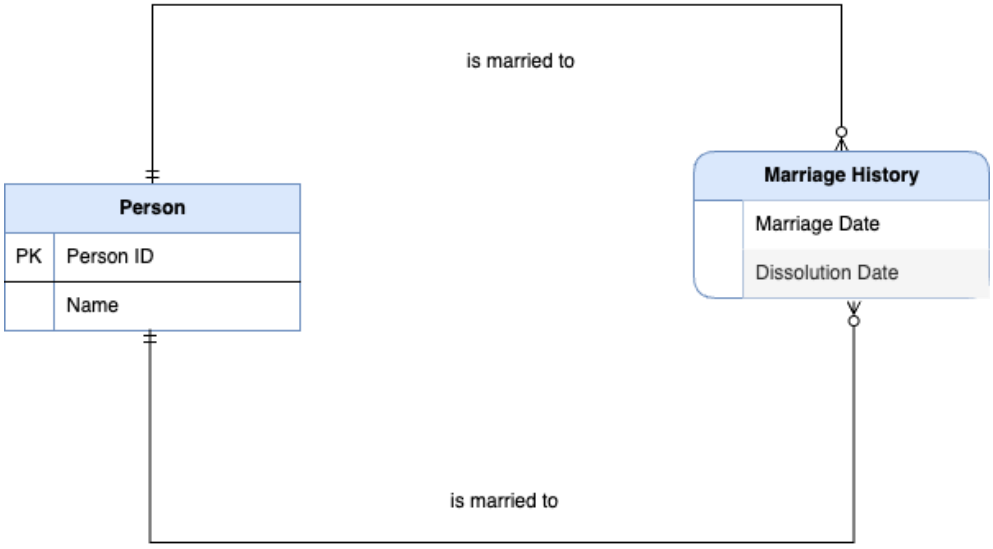
c. Past Marriages with Dates



d. Remarriages Allowed



e. No Legal Restriction on Number of Current Marriages

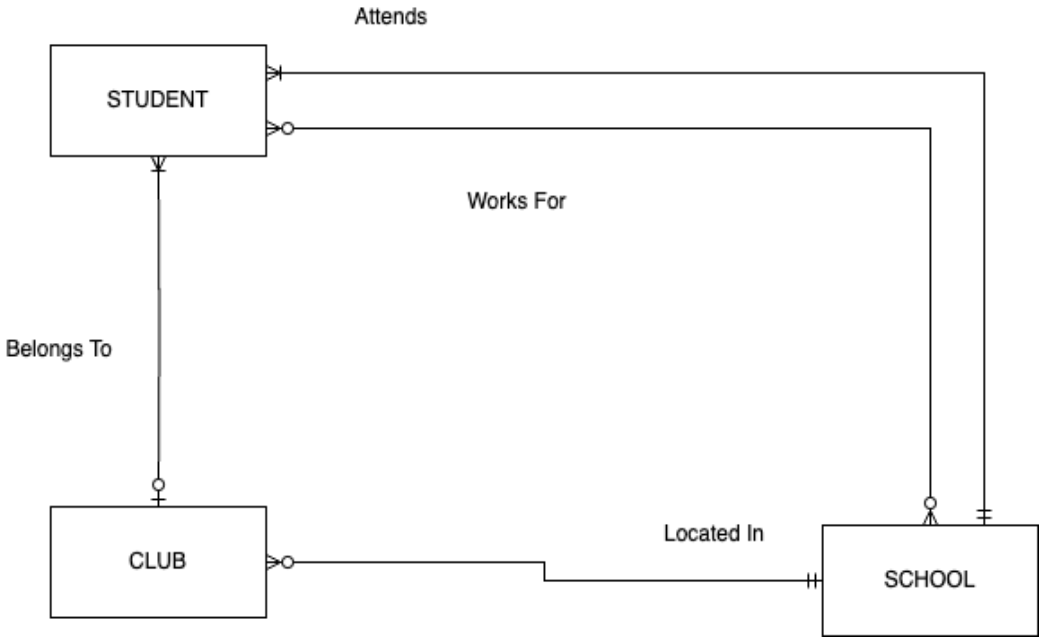


- This model is structurally like scenario C, but the interpretation and usage differ.
- The (0...*) cardinality allows for multiple current marriages per person.
- There's no restriction on the number of active marriages a person can have.
- This model accommodates cultures or historical contexts where multiple simultaneous marriages are permitted.

The key difference is in the interpretation and application of the model, not in its structure. Scenario E's model explicitly allows for multiple current marriages, while scenario C's model, although structurally similar, is typically interpreted to allow only one current marriage at a time.

2-35

a.



b. A business rule that would make the "Located In" relationship redundant could be:
"A club can only be located in the school where the students who belong to the club attend."
In this case, we could derive the location of a club by looking at the schools attended by its members.

c. The Works For relationship would no longer be necessary in this case. We could represent whether a student works for the school they attend by adding an attribute to the Attends relationship:
Student ---- Attends (with attributes is_employee) ---- School
The is_employee attribute (Boolean) would indicate whether the student works for that school they attend. This approach eliminates the need for a separate Works For relationship while capturing the required information within the existing Attends relationship.

d. Based on the rules of the ERD in Figure 2-27, it is indeed possible for a student to belong to a club located in a school that the student does not attend. This is because:

- The Belongs To relationship connects Students directly to Clubs
- The Located In relationship connects Clubs directly to Schools

- There's no direct constraint linking a student's club membership to the school they attend

This structure allows for a scenario where a student belongs to a Club, and that Club is located in a School that the student doesn't necessarily attend.

References

Hoffer, J. A., Ramesh, V., & Topi, H. (2016). *Modern database management* (13th ed.). Pearson.