

CIS/CSC384

HomeWork 2 Solution

1. Design a database for FreeChecking Bank, including information about customers and their accounts. Information about a customer includes name, address, phone, and social security number. For each account, we know the account number, type (e.g., savings, checking) and balance. Also the information about which customer owns which account is stored. [3 pts]

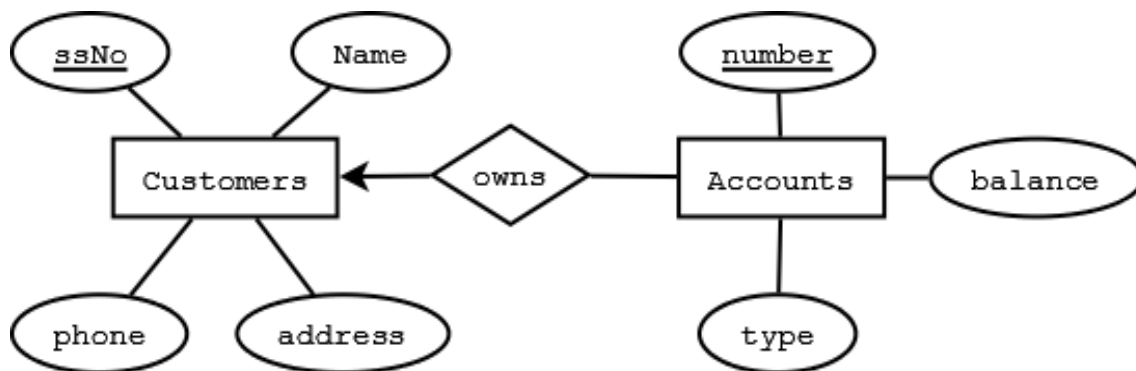
Answer the following questions?

- (a) What is a key for customer?
- (b) What is a key for account?
- (c) Can a customer own multiple accounts?
- (d) Can an account have multiple owners?
- (e) Using your answers above draw an E/R schema for your bank database.

Solution:

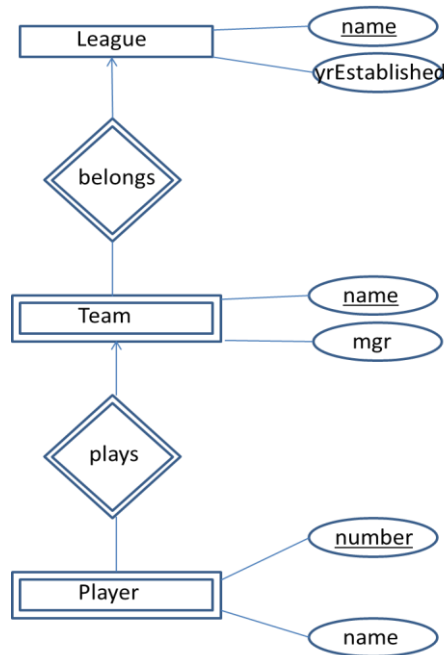
Answers for (a) – (d) are assumptions (realistic assumptions?). Other assumptions will lead to different E/R schemas.

- (a) Key for customer is social security number
- (b) Key for account is account number
- (c) A customer can own multiple accounts
- (d) An account can have only one owner
- (e) The E/R schema based on the above assumptions is given below:



2. Think of a real-life application where you need weak entity sets (come up with a different application than what was described in the slides). Describe your application requirements, and come up with the ER schema for this application. [2 pts]

Solution: I will keep the example we discussed in class.. (you are asked to come up with an alternate application).



3. MoneyMaking supermarket chain wants to build a central database for keeping track of its branches, its employees, its inventory, as well as its sales. Design an ER schema for this supermarket chain, given the following requirements. Make any additional assumptions, as you find reasonable. [5 pts]
- There are several stores that belong to the chain. For each store, we know the city where the store is located, and the address of the store. There is only one store in any city.
 - There are several employees who work at the supermarket chain. For each employee, we have a unique employeeID. We also know the employee's address, year of joining, salary and rank (manager, sales assistant I etc). Any employee works at exactly one store.
 - There are several products that the supermarket does business in. Each product has a unique name, also each product has a category (such as produce, canned item etc).
 - Any store has several products, also for each product, we know the quantity available at the store.
 - We also have a list of customers; every customer has "Advantage Card". For each customer, we know his/her unique advantage card number, and address.
 - We also record sales at every store. Each sale has a saleID (which is unique), and the date of the sale. Each sale happened at a particular store, and involved a particular customer. Each sale also involves one or more products, and the quantity that was bought as part of this sale.

