

PHASE 1: FOOD FESTIVE SUPERMARKET DATABASE ASSUMPTIONS & CHECKS

Draw an EER to accurately represent this set of requirements. This will be your Conceptual Design. Clearly specify any assumptions that you are making. You can use any tools (software) to draw the EER.

Assumptions:

1. A Person is either a Silver Customer or an Employee. There is no one in Person that is neither of these. (**Total Participation of Person**)
2. A Silver Customer can be an Employee, and an Employee can be a Silver Customer. (**Overlapping relation**).
3. Address attribute in Person is a composite attribute containing - **Street Address, City, State, Country and Zip Code** as its components.
4. Silver Customer must be either Online or Non-Online Customer. (**Total Participation of Silver Customer**)
5. **Order Relational Attributes** - Order Date, Order Amount and Order Number keeps track of all Online Transactions, and **Purchase Relational Attribute** - Date of Purchase, Bill Amount, Payment Method keeps track of non-online transactions made at the store. Both these are **separate relational attributes**. The Can Purchase Relation is a n-ary relation as shown in the diagram where M, N, P, Q denotes Many. (We could have maintained them in the same entity with a mode of transaction attribute denoting online transaction/non online transaction and check if there is a cashier who bills a non online transaction, however we chose to do this way.)
6. Online or non online Customers can buy multiple quantities of the same product and more than one product, in one order/purchase. They can also make multiple orders/purchases. They have to order a minimum of one Product. Also a Product might not have been Ordered/Purchased ever yet. A non online Purchase must happen from a Store.
7. Employees are either of these three - Manager, Cashier, Floor Staff. (Total Participation)
8. Every Employee has some history, that is even if they did not get promoted yet, their current designation is maintained in the Employee Designation Histories entity. And an employee can be promoted only twice - Floor Staff to Cashier and Cashier to Manager. So we can have at most 3 records for each employee.
9. Only floor staff will arrange products into aisles. One floor staff has to arrange a minimum of one aisle and can arrange any number of aisles. Similarly, an aisle can be arranged by minimum one floor staff and can be arranged by multiple floor staff.

10. An aisle can have a minimum of '1' and maximum of 'N' number of products. A product can be arranged only in one aisle on one day, they might be placed in a different aisle on any other day.
11. Each store has at least one employee.
12. A store might offer 0, 1 or multiple Sale. Sale has to be associated with a store. Sale is a weak entity, a Store is the identifying entity for Sale. Sale ID is the partial key. Sale is not associated with Products.
13. A Voucher can be issued by multiple stores and has to be issued by at least one store. A store may or may not issue one or multiple vouchers.
14. Promotion Discounts is a weak entity. Vouchers is the identifying entity for Promotion Discounts, and Promotion ID is the partial key.
15. One Voucher can be given to multiple Gold Customers or bought by multiple Non-Online Customers. Every gold customer is given at least one voucher.
16. Only Non-Online Customers and Employees or both are Gold Customers. (Union)
17. Products can only be of two types - Perishable & Non-Perishable. (Total participation)
18. Products are supplied by Suppliers. A Supplier might not supply any Product.
19. We do not take any separate key for Silver Customer, Employer, Manager, Floor Staff, Cashier, Online, Non Online or Gold Customer since we already have the key Person ID that is inherited by these subclasses from the superclass Person.

Check Constraints:

1. Every Person must be 16 years or older. (Check Date of Birth).
2. Person ID column must be checked to be of the format PXXX - where X is a number from 0-9.
3. Only online customers can order products online.
4. Combination of Date, Employee ID, and Store ID must be unique.
5. Non - Online Purchase Billing must be done only by a Cashier.