DATA AND APPLICATIONS PROJECT

SOFTWARE SPECIFICATIONS AND REQUIREMENTS DOCUMENT

TOPIC - SUPERMARKET

TEAM S&S

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1) INTRODUCTION

● DESCRIPTION OF THE MINIWORLD:

A supermarket is a self-service shop offering a wide variety of food,beverages and household products organized in different sections. Supermarkets typically are chain stores, supplied by the different suppliers from different distribution centre and manufacturer manufactures the goods. The Supermarket system is a system required for the management and visualisation of the available goods in the store and employees. And also the Supermarket can have branches , suppliers supplying some specific goods,manufacturer producing specific goods and more than one owner (partnership).

● PURPOSE:

This system is designed to maintain details of goods, employees, branches, suppliers,manufacturers and partners and simulate some basic functionalities (like updating goods list, employee salary,etc).

● USERS:

There are multiple users(employees,partners) of the system and they can view their details.

2) DATABASE REQUIREMENTS

● ENTITY TYPES AND ATTRIBUTES

1) BRANCHES OF THE SUPERMARKET
   - Branch location
     -> Street name and locality
     -> City
     -> District
     -> State
     -> Pincode
   - Dealer / Partner dealing with the branch
   - Suppliers who supply goods to the branch

2) GOODS
   - Good type (Cosmetics , Household , Grocery)
   - Brand
   - Maximum Retail Price
   - Manufacture Date
   - Expiry Date (or) Best Before
   - Net weight
   - Trademark owned and marketed by (MKTD by)
   - Manufactured by and address of supplier (MFG)
     -> Name of the company
     -> Street name and locality
     -> City

-> District

-> State

-> Pincode

- Bar code
- Branches in which it is available
- Suppliers who gets the good from the manufacturer

3) <u>MANUFACTURER (Manufactured by - MFG and Manufactured at - MFG at)</u>
    - Factory name (Example : Herbal Concepts Health Care PVT.LTD)
    - Address
        -> Building Number , Street name and locality

        -> City

        -> District

        -> State

        -> Pincode
    - Suppliers to which the goods are supplied
    - Goods produced

4) <u>SUPPLIER (Transports the goods from manufacturer to the supermarket)</u>
    - Name
    - Goods(he receives from the manufacturer and supplies to supermarket)
    - Received from
        -> Factory name

        -> Address
    - Supplied to (List of the branches to which he supplies)

5) OWNERS / PARTNERS OF THE SUPERMARKET
   - Name
   - Mobile Number
   - Branches he/she is dealing with

6) EMPLOYEES
   - Name
     -> First Name
     -> Last Name
   - Mother's name
   - Father's name
   - Employee ID Number
   - Residential Address
     -> Street name , locality
     -> City
     -> District
     -> State
   - Qualification
   - Mobile Number
   - Date of Birth
   - Age
   - Date of recruitment
   - Experience
   - Rank (given based on the experience)
   - Employee type (Manager / Worker)
   - Workers working under the employee

7) MEMBERSHIP ENTITY

- Customer ID of the customer who is given membership
- Mobile Number
- Type of Membership (based on amount paid by the customer annually)

(Example: If Rs 1000/- is paid annually by the customer , he / she gets a membership and a discount of 10% each time he gets something from the supermarket. Whereas if he pays Rs 5000/- per year he / she gets a discount of 20% each time they buy.)

8) DISCOUNT ENTITY
   - Customer ID
   - Discount amount (Everytime the customer makes a bill)

(If the customer has the membership he gets the discount based on the type of the membership)

9) INCREMENT ENTITY
   - Employee ID
   - Increment each year

10) CUSTOMER ENTITY
   - Name
   - Mobile number
   - Membership (Yes / No)
   - Type of the membership
   - Customer ID

● WEAK ENTITIES

1. Discount Entity : (Discount entity depends on the membership entity)

   On Paying some X amount, the customer gets the membership card. Whenever the customer has a membership card he gets an additional discount on products.

2. Increment Entity : (Increment Entity depends on the Employee entity)

   Every year based on present rank and employee type of the employee the increment is given.

● RELATIONSHIP TYPES

1. Branch-Employee:

A one-many relationship exists between them . A branch will have multiple employees working there.

2. Supplier-Goods

There is many-many relationship between supplier and goods. Each supplier gets different types of goods to the supermarket. A good can be supplied by different suppliers too.

3. Goods-branches:

There is many-many relationship between them. Multiple goods are available in a branch. A good is available in multiple branches.

4. Branches - Partner:

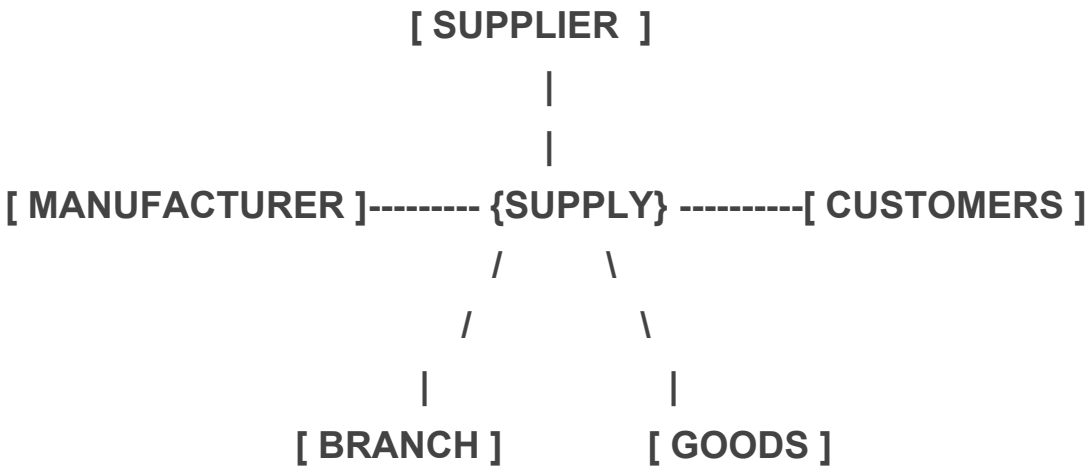
There is a many-one relationship between them. One of the partner (among the many) deals with multiple branches.

5. Supplier - Branch:

There is a many-many relationship between them. One supplier can supply to multiple branches. At the same time , One branch receive the supply from many suppliers.

- **n>3 RELATIONSHIP**

There is a relationship between CUSTOMERS ENTITY , GOODS ENTITY , ENTITY , SUPPLIER ENTITY AND BRANCH ENTITY. GOODS ENTITY is related to all the other 4 mentioned entities.



Manufacturer supplies goods to Supplier

Supplier supplies goods to branch

Branch supplies goods to customers

● SUBCLASSES

1. Employees :

Employees are divided into workers and managers. Special attribute is as follows.

- Employee ID of workers working under him/her.

  (For Workers the attribute will be NULL)

2. Customers :

Customers can be divided into the ones having membership and the ones not having it. The special attribute is..

- The type of membership given which is based on the amount paid by the customer annually.

  (The value of this attribute for the customers who don't have a membership is NULL)

● COMPOSITE DERIVED AND MULTIVALUED ATTRIBUTES

a) Composite attributes :

1. Address of the branches.
2. Address of the manufacturer on the good (Supplier).
3. Residential Address of the Employee.
4. Name of the employee.

b) Multi-valued attributes:

1. Branches in which the good is available.
2. Suppliers of the branch.
3. Goods supplied by the supplier.
4. Branches to which the supplier supplies.

c) Derived attributes:

1. Goods ranks(Depending on the number of sales of that product)
2. Employee ranks(Depending on no of years of experience)

3) FUNCTIONAL REQUIREMENTS

1. Insertion Data:

- New goods(when scope of sold goods increase)
- New Employee(when he joins for the first time)
- New branch(when a new branch is set up)
- New supplier(when deal is made with a new supplier)

2. Modify or Update Data :

- No of goods X type(When sold or loaded)
- Employee age,Salary(when incremented)

3. Delete Data:

- Goods(when sale of a particular good is stopped)
- Employee(when he leaves the organisation)
- Branch(When branch is removed)
- Supplier(when supplier stops supplying)

4. Reports to be generated:

- Every month about goods with number of sales in different branches.
- Every year no of employees with salaries and ranks(so as to decide increment).