# Database Management System (5th Semester Project), 2019
# IIEST Shibpur (Information Technology)

Group No. - 2

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Problem Statement :-

A customer can purchase one or more items in different quantities. The item can be of different categories. Based on the quantity the price of the item and discount(if any) on purchased items, the bill will be generated. Requirements other than above can be added.

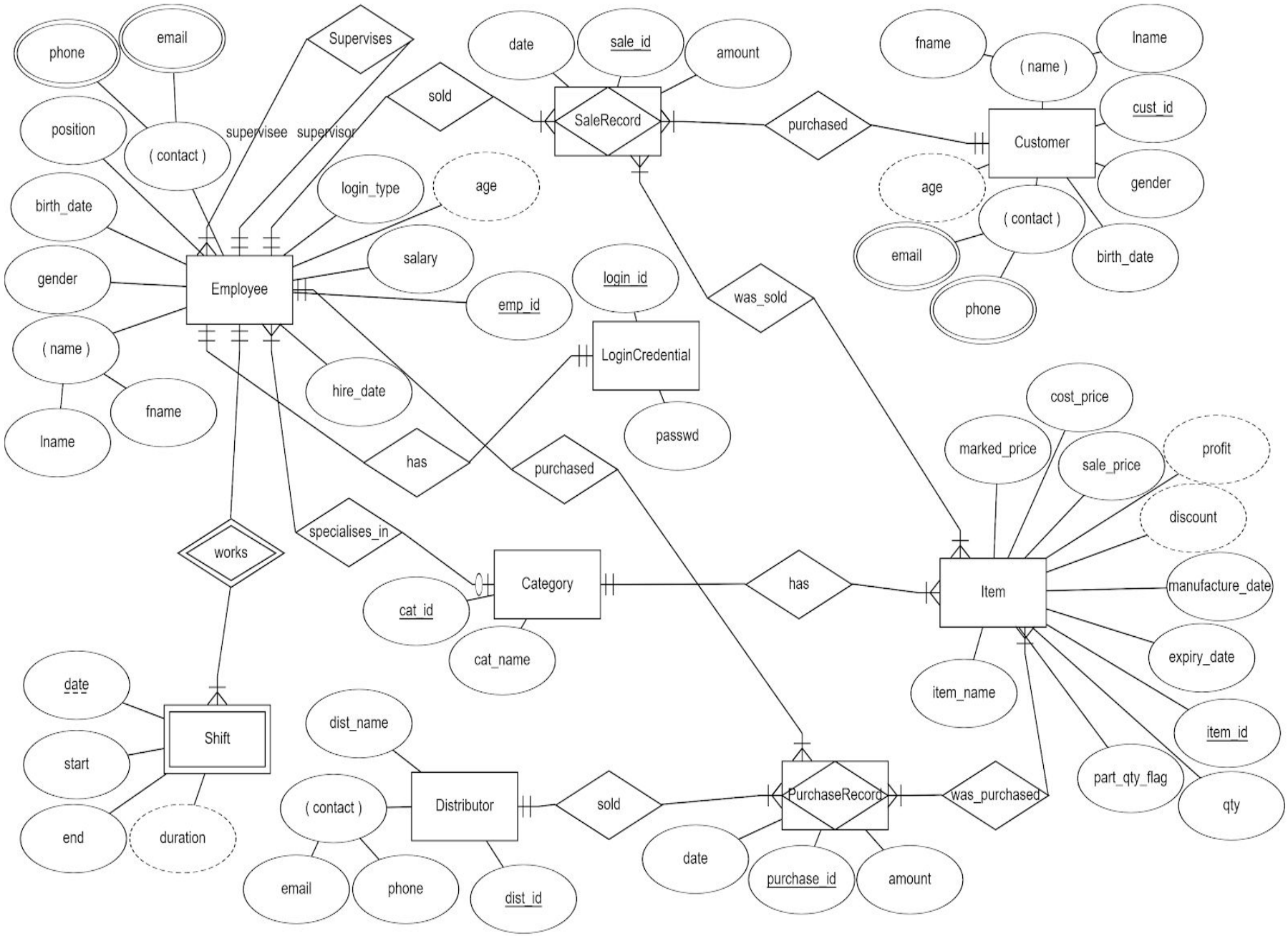
Expanded Requirement Analysis :

A database needs to be designed for a retail management system with the following requirements :-

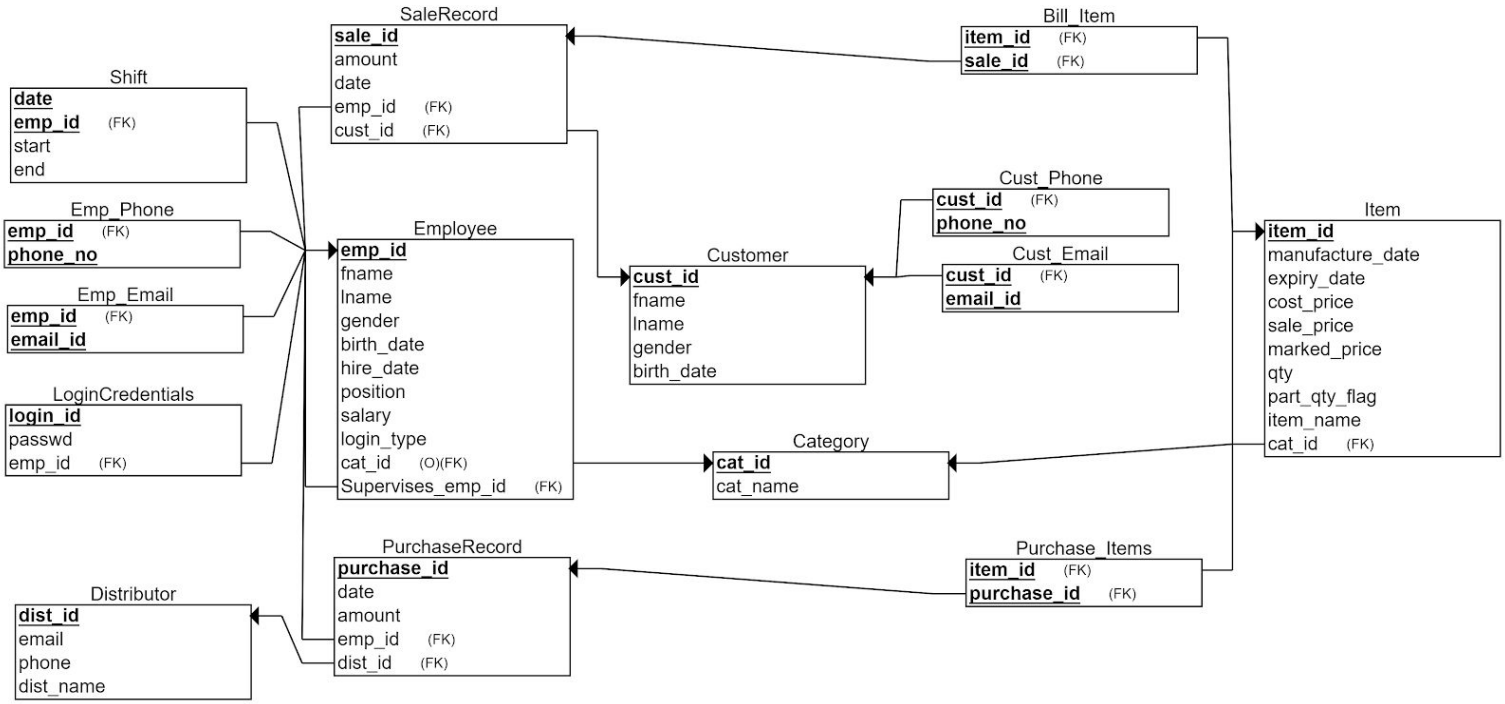
- The database must provide for Employees to be added along with their personal details. Also to be included are professional details like position, salary etc.
    - ➢ The Employee details includes first name, last name , date of birth, hire date, salary,
    - ➢ The Employee may be from admin(s) , cashiers, purchase department or store employee.
    - ➢ The employee would get a login id and password which would enable them to carry out tasks as per their roles.
    - ➢ Some employees may specialise in a particular kind of product.
    - ➢ Every employee will have a record of their duty time on each working day logged in a separate table.
    - ➢ The Employees also have a supervisor-supervisee relation among themselves.
- The item will have the attributes like name , manufacture date , expiry date , cost price, selling price , marked price.
    - ➢ Note that the item belongs to a certain category.

    - ➢ Some items like those which comes packed are to be sold in whole numbers whereas loose items like rice or dal may also be sold in fraction by weight
    - ➢ The item database can be accessed by the purchase department, cashiers and the admin; the purchase department can only add to the database; the cashier can only subtract and the admin shall have privileges to correct mistakes(if any).
    - ➢ The record for every purchase and sell must be logged along with details such as date and amount.
- For purchasing and selling, a list of distributors and customers must be maintained.
    - ➢ The Customer details must be filled in if the customer is new and a new id must be generated. Note that fields other than phone_no and name should not be made compulsory
    - ➢ For distributors we only maintain the name along with the id and contact details.
- Also it should be possible to assign a unique login id to the employees which would be required to log into the system and have different access privileges.
- The Distributor is to be assumed to have a single email and phone number; however customers and employees are to be allowed to have more than one email or phone number.

Keeping in view the above requirements the following ER diagram is proposed:-


phone
email
Supervises
date
sale_id
amount
fname
( name )
lname
position
( contact )
supervisee
supervisor
sold
SaleRecord
purchased
Customer
cust_id
gender
birth_date
login_type
age
salary
age
( contact )
email
birth_date
gender
Employee
emp_id
login_id
was_sold
phone
( name )
LoginCredential
hire_date
passwd
fname
lname
has
purchased
cost_price
marked_price
sale_price
profit
discount
specialises_in
works
Category
has
Item
manufacture_date
cat_id
cat_name
expiry_date
item_name
item_id
date
Shift
dist_name
start
part_qty_flag
qty
( contact )
Distributor
sold
PurchaseRecord
was_purchased
end
duration
email
phone
dist_id
date
purchase_id
amount

After this the ER diagram was converted to the following Normalised RDBMS tables with arrows showing relation between Primary Keys and Foreign Keys.




Now after the database creation, we require a frontend and a backend to provide functionality.

- The front page would be a login page; determined by the login_type of the user, different, they would be directed to different pages.
- For purchase departments, the following functionalities would be available :-
  - ➢ Adding a new distributor.
  - ➢ Removing a distributor.
  - ➢ Make a purchase.
  - ➢ View stock details.
  - ➢ Add or update or remove items
- For the cashiers' department, the following functionalities would be available :-
  - ➢ Adding new Customer
  - ➢ Perform Sales
  - ➢ Generate Bills
- For Admin, many types of privileges are available :-
  - ➢ Add or remove employee
  - ➢ Add or remove items
  - ➢ See all employee details
  - ➢ view stock details
  - ➢ Assign a login id
  - ➢ Monitor sales and purchase record

    - ➢ Apply filters to generate reports

  The points mentioned above are not exhaustive.
- All the employees would have privilege to view his/her own details and mark their attendance.
- All the queries would be accepted in forms from the user.
- The backend would use MySQL for creation and querying of database.