

Introduction to Database Systems CSC 675/775



Project Name

Store Inventory Database

Team Details / Section 01

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1. Project Description

This is a Convenience Store Sales and Inventory System Database Design Project which focuses on the store's sales and inventory system.

Below are few cons of an existing store system,

- Since they are using the manual recording of transactions, sometimes they forget to record the transaction of some customers.
- Using a manual recording, there's a high possibility of errors and miscomputations of sales like the record being lost because of the busyness of the staff or the assigned personnel.

And below are few advantages of using our database system,

- Since this system is a computerized one, it can be easy for the owner to manage the activities in their business.
- Thus, this system can lessen the paperwork in this area and it won't be time-consuming to the owner and staff.
- This system was created to be used in tracking the sales and inventory of the store. It gives you the ability to check on your products, manage suppliers and many more.
- It enables users to create, update and store products and transactions that are happening.
- In this system, a single transaction entry records necessarily details of the customer, products purchased, price and date while also updating inventory levels. It is helpful to those who have a convenience store and that are using manual recording of the transaction.
- It also provides a computerized system for maintaining records of the products and the clients. It is more efficient and reliable to use.
- Using this system, you can avoid human errors, data manipulations, and especially data inconsistency and redundancy. It is user-friendly and it is used to improve efficiency in recording for each transaction.
- Instead of maintaining separate record-keeping processes for the payment and inventory adjustment, you can manage each aspect with a single entry.
- Every time there is a sales transaction, the sales and inventory system automatically updates the store's database to reflect the corresponding requirement in terms of inventory and finance.

This project will be on a Store Inventory Database for a chain of stores. The tables required for the store are shown below.

1. The **Customer table** has a record of all the customers that bought anything from the chain store.
2. The **Employee table** holds the records/information of all employees that work at the store. The **Full-Time Employee** table contains all the records of the employee who works full time at the store. The **Part-Time Employee** table records the information of employees who work part time in the store.
3. The **Product table** holds all the products which are available for purchase at the store.
4. The **Supplier table** holds a record of all suppliers provided for the store.
5. The **Store Branch** table holds the record of an exact branch.
6. The **Logistics Provider table** holds all the information that a logistics service provides which is also known as a third-party logistics provider, which could be a company that specializes in offering services to help manage the supply chain including warehouse management, order fulfillment, and shipping orders.

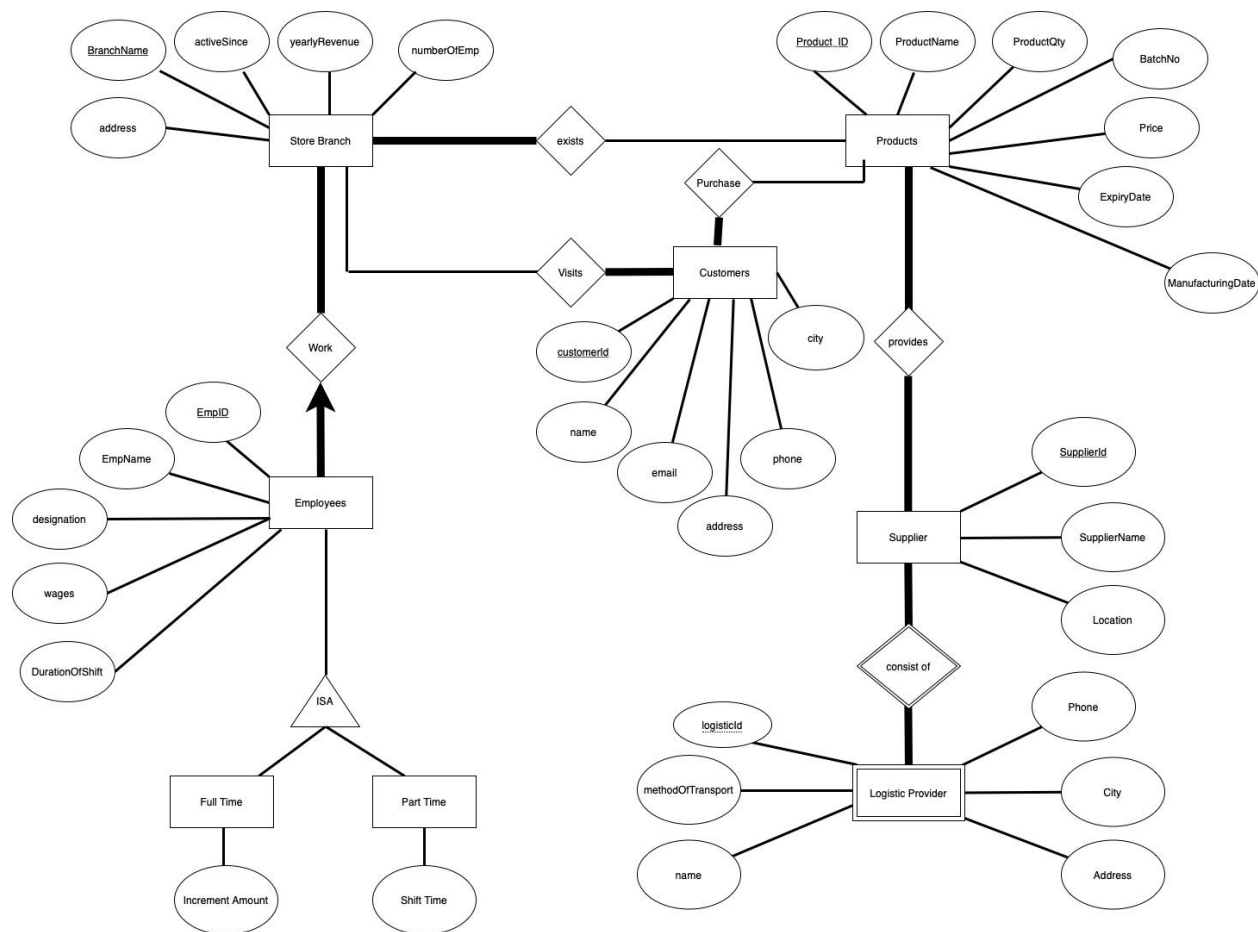
The relationship between each of the above tables are collected as part of requirement analysis and is shown here for designing an appropriate database,

1. One store can have one or many products and products can be in multiple zero or many stores.
2. A supplier provides one or many products and a product can be provided by one or many suppliers.
3. A customer can purchase one or many products and a product can be purchased by zero or many customers.

4. One customer can visit one or many store branches and a store branch can be visited by zero or many customers.
5. An employee can work in one and only one store branch and one store branch can have one or many employees.
6. A supplier has one or many logistic providers and a logistics provider can have one or many suppliers.

2. Conceptual Design

Below is the ER model for our Store inventory database system based on above details collected,



3. Logical design

Below is the logical design of the store inventory database, which is a translated version of the above conceptual model into relational schema,

Table Name: Products

Attribute Name	Data Type	Constraint
<u>Product ID</u>	INT	Primary Key
ProductName	VARCHAR (50)	
ProductQty	INT	
Price	FLOAT	
BatchNo	INT	
ManufacturingDate	DATE	
ExpiryDate	DATE	

Table Name: Supplier

Attribute Name	Data Type	Constraint
<u>Supplier ID</u>	INT	Primary Key
SupplierName	VARCHAR (30)	
Location	VARCHAR (30)	

Table Name: Employee

Attribute name	Datatype	Constraint
<u>Employee ID</u>	INT	Primary Key
Employee_Name	VARCHAR (30)	
DurationofShift	FLOAT	
Wages	FLOAT	
Designation	VARCHAR (30)	
Branch_Code	INT	Foreign Key

Table Name: FullTime_Employee

Attribute name	Datatype	Constraint
<u>Employee ID</u>	INT	Primary Key, Foreign Key
Increment_Amt	FLOAT	

Table Name: PartTime_Employee

Attribute name	Datatype	Constraint
<u>Employee ID</u>	INT	Primary Key, Foreign Key
Shift_Timing	VARCHAR (10)	

Table Name: Store Branch

Attribute Name	Data Type	Constraint
<u>BranchCode</u>	INT	Primary key
BranchName	VARCHAR (20)	
Address	VARCHAR (20)	
NumberOfEmp	INT	
Active Since	INT	
Yearly Revenue	FLOAT	

Table Name: Logistics Provider

Attribute Name	Data Type	Constraint
<u>LogID</u> Logistics Provider	INT	Primary key
LogName	VARCHAR (30)	
Phone	VARCHAR (20)	
City	VARCHAR (10)	
Address	VARCHAR (50)	
Method of Transport	VARCHAR (20)	

Table Name: Store_Product

Attribute name	Datatype	Constraint
<u>Product ID</u>	INT	Primary Key, Foreign Key
<u>Branch Code</u>	INT	Primary Key, Foreign Key

Table Name: Supplier_Product

Attribute name	Datatype	Constraint
<u>Product ID</u>	INT	Primary Key, Foreign Key
<u>Supplier ID</u>	INT	Primary Key, Foreign Key

Table Name: Customer_Product

Attribute name	Datatype	Constraint
<u>Product ID</u>	INT	Primary Key, Foreign Key
<u>Customer ID</u>	INT	Primary Key, Foreign Key

Table Name: Customer_StoreBranch

Attribute name	Data type	Constraint
<u>Customer Id</u>	INT	Primary Key, Foreign Key
<u>StoreBranch</u>	INT	Primary Key, Foreign Key

Table Name: Employee_StoreBranch

Attribute name	Data type	Constraint
<u>Employee Id</u>	INT	Primary Key, Foreign Key
<u>StoreBranch</u>	INT	Primary Key, Foreign Key

Table Name: Supplier_LogisticProvider

Attribute name	Data type	Constraint
<u>Supplier ID</u>	INT	Primary Key, Foreign Key
<u>LogID</u>	INT	Primary Key, Foreign Key