# P2 Database Design, Initial ERD

## GROUP No 6

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Course: DAMG 6210 Data Management and Database Design

## Topic: Retail Management System

## Background

A Retail Management System (RMS) is a comprehensive tool created to assist retailers in effectively managing a variety of company activities. It is essential to automate and simplifying retail operations since doing so boosts output, customer satisfaction, and overall profitability.

## Objectives

- Gathering and archiving client data for account setup and customization.
- Keep a database of items that includes information on their name, description, cost, and availability.
- Keep track of the things that clients choose to buy or check out later.
- Manage customer orders, including order creation, status tracking, and order history
- Control client orders, including their creation, tracking of their progress, and order history.
- Monitor product stock levels to avoid instances where there are too many or too little supplies.
- Process transactions and payment information securely.
- Gather and show customer feedback and product ratings
- Manage promotional offers, discounts, and coupons for customers
- Coordinate the shipment and delivery of products to customers

## Entities

1. Employees
   - Employees are associated with a specific Store, as they work in particular retail locations.
   - Employees may have roles or positions within the Department of the store.

2. Department
   - Departments are part of a Store and are managed by Employees.
   - Departments may be responsible for specific categories of Products.

3. Suppliers
   - Suppliers provide Products to the Stores.
   - Suppliers can have relationships with multiple Stores.

4. Supplier Type
  - Supplier Type can be linked to Suppliers to categorize them based on their business nature (e.g., manufacturer, distributor).

5. Store
  - Stores can have multiple Employees, Departments, and Customers associated with them.
  - Stores can also have a Store Region, which can be important for inventory and logistics management.

6. Store Region
  - Store Regions can help in organizing and managing Stores geographically.

7. Store Billing
  - Store Billing can be related to specific Stores and represent the financial transactions of the Store.

8. Store Billing Details
  - Store Billing Details can provide a breakdown of the expenses or revenue within a specific billing, linking to Products, Suppliers, and other relevant entities.

9. Customer
  - Customers are associated with specific Stores, as they make purchases there.
  - Customers can have different types (e.g., regular, VIP) based on their loyalty or purchasing behavior.

10. Customer Type
  - Customer Types categorize Customers based on their loyalty or purchasing behavior.

11. Products
  - Products are sold in Stores and are provided by Suppliers.
  - Products belong to specific Brands and Categories.
  - Products have various attributes like name, description, cost, and availability.

12. Order
  - Orders are created by Customers and processed by the Stores.
  - Orders can be related to Customers, Employees, and Products.

13. Tracking Info
  - Tracking Info can be associated with Orders to monitor the shipment and delivery of Products to Customers.

14. Inventory
- Inventory is related to Products and helps in monitoring stock levels to avoid overstock or understock situations.

## Key Design Decisions:

- The inclusion of Supplier Type allows for categorizing Suppliers, which can be useful for managing relationships with different types of suppliers.
- Store Region is included to facilitate geographical organization, which can be important for distribution and logistics.
- Customer Type helps in segmenting and customizing services for different types of Customers.
- Tracking Info allows for tracking and monitoring the delivery process, enhancing customer service and order management.

## Initial ERD