**Retail Data Management System**

Team-16

**Team Members:**

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**Database Purpose:**

This purpose of this database is to update and maintain the data generated by the managers, customers of the stores respectively, to manage inventory, orders, and returns to build competencies and customer interests, develop, and improve sales of merchandise, keep accountability and transactions made at the store to aid in efficient management.

**Business Problem Addressed:**

* Allow managers to update and maintain the inventory.
* Allow managers to manage all the employees working for the store in different departments.
* Allow managers to keep track of all the activities of the business-like orders, and planning.
* Allow managers to plan and enable the stock up of inventory when the inventory hits buffer line.
* Provide information on customers’ specific needs to expedite sales progress in the future.

Enable the managers to track the revenue generated across multiple stores.

* Maintain inventory as per the product demand across different stores.
* Track trends in product sales and make business decisions accordingly to expedite sales growth in future.

**Business Rules:**

* Each department can have one or multiple employees.
* Each employee will work for only one department.
* Each employee will be managed by one manager.
* Each store is managed by one manager.
* Each manager will work for only one store.
* Each store can have one or many departments.
* Each store can have one or many warehouses.
* Each warehouse will belong to only one store.
* Each warehouse can have one or many Stock Product information.
* Each Stock product will contain information of mandatory one product.
* Each product can be associated to one or many stock products and can vary with warehouses.
* Each product can have one or many order lines.
* Each order line will have mandatory one product.
* Each order can have one or many order lines.
* Each order line will be linked to mandatory one order.
* Each customer can place 0 or many orders.
* Each order will be placed by mandatory one customer.
* Each order will have mandatory one payment record.
* Each payment information will be linked to mandatory one order.

**Design Decision:**

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| **Entity Name** | **Why Entity included** | **How entity is related to other entities** |
| Employee | The Employee entity is included to work for departments of various stores. A manager is selected from the employee entity itself to manage the different employees establishing a self-relationship. | It is connected to department and store entities as all the data of this entity uniquely identifies the employees working for different departments. As. There is many to one(M:1) relationship between the employees and the store, one employee will not be working for more than one department. |
| Department | This entity contains all the necessary details required for the management of a department. We can store the department name, manager, and its respective store name in this entity. | This is a crucial entity as it will specify the department information, and which store it is linked to and who will be managing the department. One department cannot be linked to multiple stores. However, one store can have multiple departments. (E.g.- IT, Logistics etc.) |
| Store | The Store entity is created so that it can track the sales and financial benefit. It is also used to manage the inventory as it is linked to Warehouse entity. | This entity is directly related to Employee, Department and Warehouse entities. A store entity can have one or many warehouses to fulfill the stock requirement. The relationship with Employee is to decide for a manager of the store. The relationship with multiple departments is to know how many departments are working for a particular store. |
| Warehouse | This entity is where the details of the warehouses are stored. It can be used to manage the stock products available at a warehouse. | This entity is related to Store entity as a store can have multiple warehouses. However, one warehouse can supply to only one store. It is also linked to Stock product entity to check for the quantity of different products. |
| Stock Product | Stock product entity is essential to store the details of the product, quantity of the product and the warehouse id to which it supplies. | This entity is connected to product and warehouse entities as an associative entity due to the many to many relationships between them. |
| Product | Product entity is used to store all the details of the product like the product id, name, and price. We can use this entity to connect with Stock Product and hence with the warehouse to track how much of the product is being required by the warehouses of a store. | This entity is directly related to Warehouse entity via Stock Product associative entity. This is because a warehouse can request more than one product, and one product can be bought by many warehouses. |
| Order Line | Order Line entity is created to capture the details of the product bought by the customers. This entity is used to store the details of products brought and what order was it placed under. | Order line entity is directly related to product and order entity as it is containing the information of order, product, and the quantity of the products. One order can have one or many order lines and one order line should have mandatory one product associated with it. |
| Order | This is entity is crucial for a customer to maintain the information of the products ordered and the customer information, store it was ordered from and the payment record. | Order is connected to Order line, Customer, Payment, and store entities as it establishes the connection, as to which customer placed the order and from which store. Also, orders could also be used to specify how much of a product is being ordered from a particular store. |
| Customer | Customer entity is used to store the customer information (E.g. – name, age, dob, address, etc.) | A customer is linked to Order entity. A customer can place one or many orders. However, one order can be linked to only one customer. |
| Payment | Payment entity is used to record the payment details when an order is placed. | Payment entity is only linked to Order entity and has mandatory one relationship with it as one payment record can exist for only one order and vice versa. |