

GROUP 7: HOME DEPOT INVENTORY MANAGEMENT SYSTEM

Home Depot, a leading home improvement retailer, is looking to improve its inventory management system. They need an efficient way to track products, their quantities, suppliers, and sales transactions. We have designed an Entity-Relationship (ER) model for Home Depot's inventory management system

Home Depot stores the Warehouse ID, name and capacity of each warehouse. It also stores the contact information and address which is stored as city, state and zip code. Each warehouse has warehouse products which have their own unique product id. The product name, model number, category, variant and price is also stored for each product in the warehouse. The stock remaining of the warehouse products are also noted. For the stock, stock id, quantity remaining, unit price for each commodity and the total value i.e the quantity multiplied by the unit price is stored.

Orders are placed at the warehouse for the warehouse products. Each order has an order id, order date, order status, payment status, shipping address, shipping method and shipping date. Order details for specific orders are stored like quantity and total price of the order. Each order generates an invoice. In the invoice a unique invoice number is recorded. It also contains the creator of the invoice, invoice date, the billing address and the total amount for which the invoice is generated. Warehouse orders are fulfilled by delivery and each delivery has a tracking number. The delivery person and carrier is also recorded.

Information is recorded about the suppliers in the form of a unique supplier ID, name of the supplier, contact, address. The hours for which suppliers are available is also stored. Supplier can only supply products that are of a specific product type. Warehouse sends shipments to Home Depot stores. Each shipment has a unique shipment number. The date and time at which shipments are sent out is recorded. A shipment will come from exactly one warehouse and go to a single store. The address of the store along with the name of the receiver at the store is stored. A signature of the receiver is also required when order is received.

Employee information for each individual is stored by Home Depot. Along with a unique employee ID, the name, job title and hire date, the address, email id and contact number is also stored. Employee experience with home depot is derived from their hire date. Address is stored in the form of Flat number, city, state and zip code. There are multiple types of employees. Employees are supervised by multiple managers and a manager can supervise multiple employees. Warehouse Employees, as the name suggests, work at the warehouse. They manage the payments occurring at the warehouse. For each payment, information is recorded like payment ID, method of payment, amount, date of payment, type of payment, status and order status. Store employees consist of manager, attendant, cashier, etc. Each store has exactly 1 manager, 5-25 attendants and 2-10 cashiers. Stores are recognised by store ID. Home Depot also stores the address in the form of city, state and zip code and the reviews received by customers. Backend employees handle all the issues related to refunds.

Stores have products. Each product is differentiated by a product ID. The product name, price, variant, brand, weight, model number, stock information and description is stored by Home Depot. Warranty information and return policy is also stored for each product. Products have categories which contain category ID, description, access control and category name. Each category further has a sub category which has its own subcategory ID, name and in the store. Every product has a promotion campaign for which the promotion ID, title, discount amount, status, description of the promotion, start date and discount type is stored. The eligibility of the customer for the promotion campaign is also recorded here. A Promotional offer can be availed for at least 1 or for multiple Products while a product may or may not have any promotional offers. Products are also divided into online products and store products. Some products are available only in store, some online and some in both. Product tags and online exclusivity is recorded for online products while aisle placement, shelf placement and instore availability is stored for in person store products.

Home Depot stores information like customer ID, contact number, email, date of birth, age and gender of each customer. Address of the customer is recorded where in the flat number, street, city and zip code are stored. A customer can have multiple addresses. Customers place orders for the products required by them. For each order the order ID is tracked, with order

date, status and item. The order details are further tracked where the quantity and the total price of each product is tracked.

Customers make payments for each order. The payment information is recorded in the form of payment date, method, amount, status, type. Each payment transaction has a unique payment ID. Orders can be fulfilled by delivery where in the tracking number, carrier and delivery person is recorded. The delivery date and shipping address of the delivery is also stored. An invoice is generated for each order. The unique invoice number, invoice date, billing address and total amount is stored.

Orders also have a post order status which deals with returns and exchanges. For return/cancel there is a unique transaction ID and it stores the reason for return/cancellation. The type of modification request i.e. return or cancellation is also saved. For exchange, the exchange ID is tracked. Simultaneously the exchange reason, request date, method, status and resolution date is also stored by Home Depot. A return leads to the initiation of a refund and for a refund the refund ID, amount, status and date is recorded.