

Database System

Case Study:

You are asked to develop a database that would handle inventory data in a store. Because the shop is small, there are several special warehouses to store product stock. The data that will be handled are: data of product, data of supplier, data of purchase from suppliers (purchase receipt), and warehouse data where the product is stored. The same product can be stored in several different warehouses, and of course each warehouse stores a variety of products. In the database, there must be any data regarding the remaining stock in each warehouse for all products.

Solution:

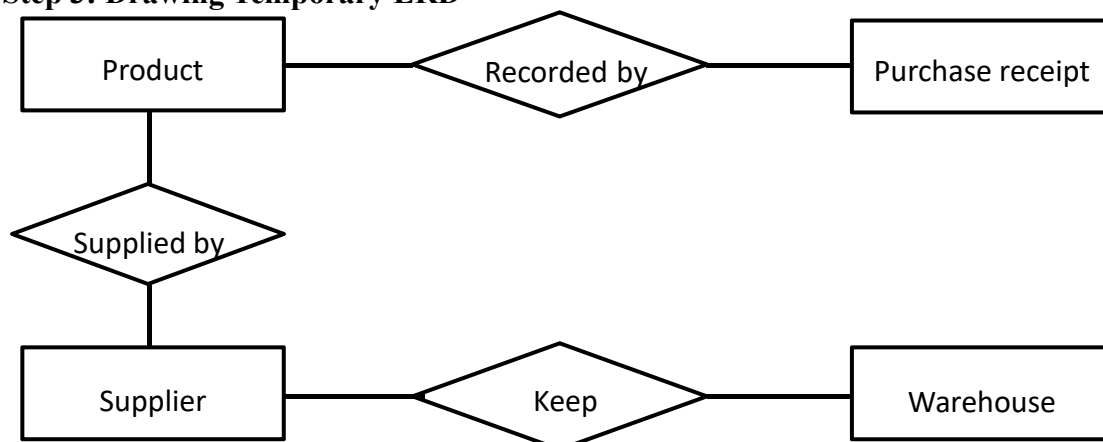
Step 1: Define Entity

The entities need are: Product, Supplier, Purchase receipt, and Warehouse.

Step 2: Determine the Relationship with the Relation Matrix

	Product	Supplier	Purchase receipt	Warehouse
Product		Supplied by	Recorded	
Supplier	Supply			Keep
Purchase receipt	Take notes			
Warehouse		Store		

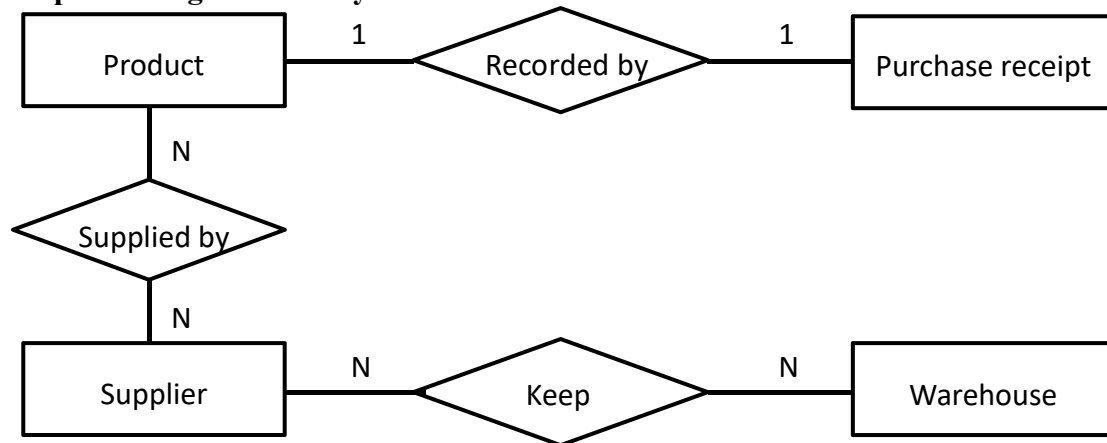
Step 3: Drawing Temporary ERD



Problem Description:

- Each product recorded by only one purchase receipt
- A purchase receipt is only recorded one product
- Each product has at least one supplied by supplier
- Each supplier supply at least in one product
- Each warehouse is place of store by at least one supplier
- A supplier can keep the product in warehouse

Step 4: Filling Cardinality

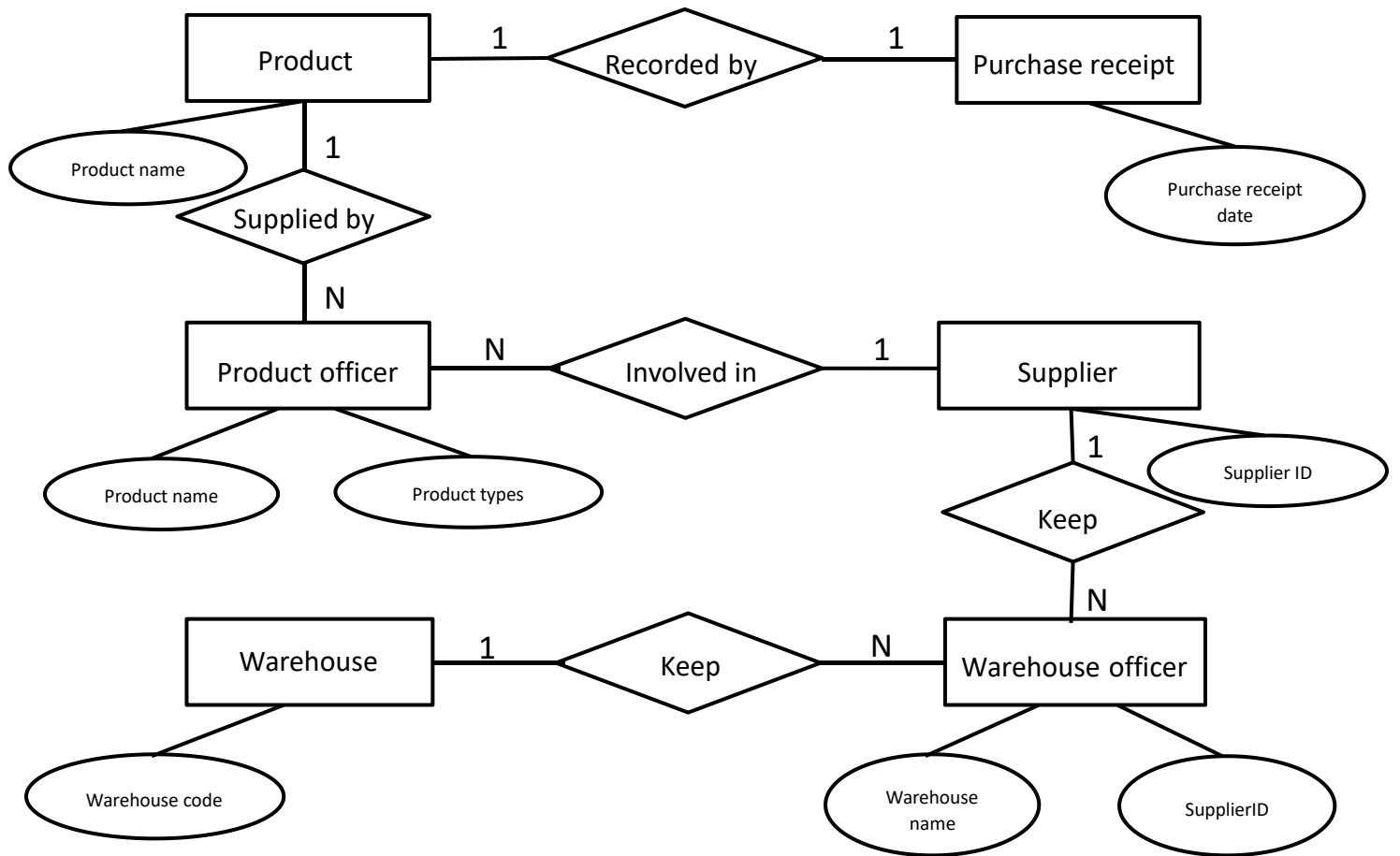


Step 5: Determine the Primary Key

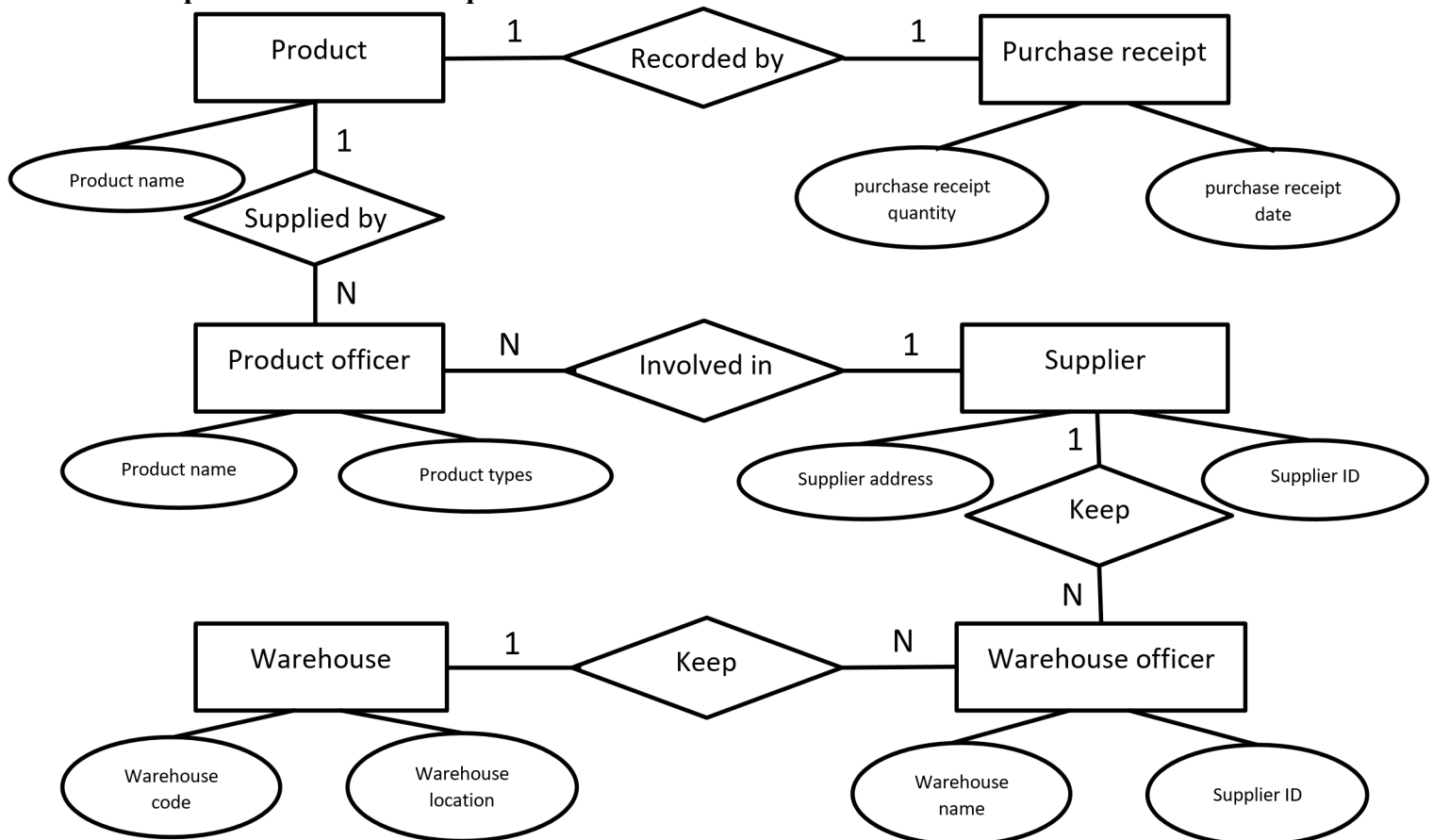
Primary Key: Product Name, Supplier ID, Purchase receipt date, Warehouse code.

Step 6: Describe ERD based on the key

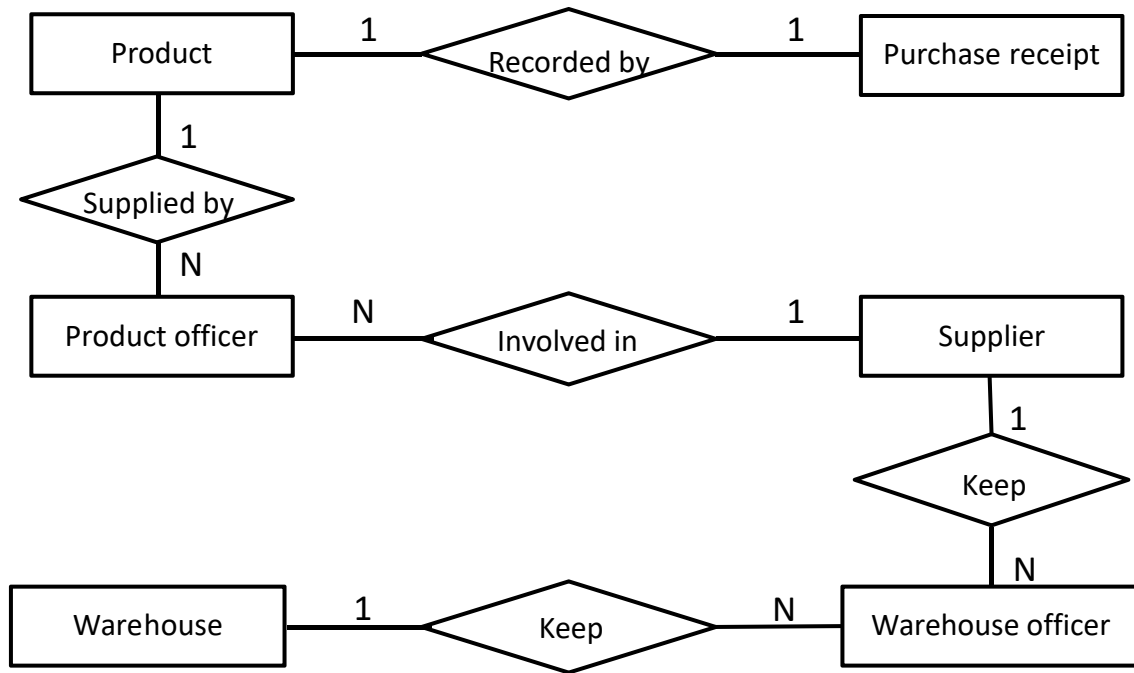
- Because of there are two N - N relationships in the temporary ERD (Product & Supplier, Supplier & Warehouse), so new entities were created, namely Product officer and Warehouse officer.
- The primary key of product officer is combination of product name and supplier ID.
- The primary key of Warehouse officer combination of supplier ID and warehouse code.



Step 7: Determine the required Attributes



ERD & LRS Transformation



LRS Formed:

