

# **Inventory Management System For Broma**

(A store that sells electronic products  
from various suppliers)

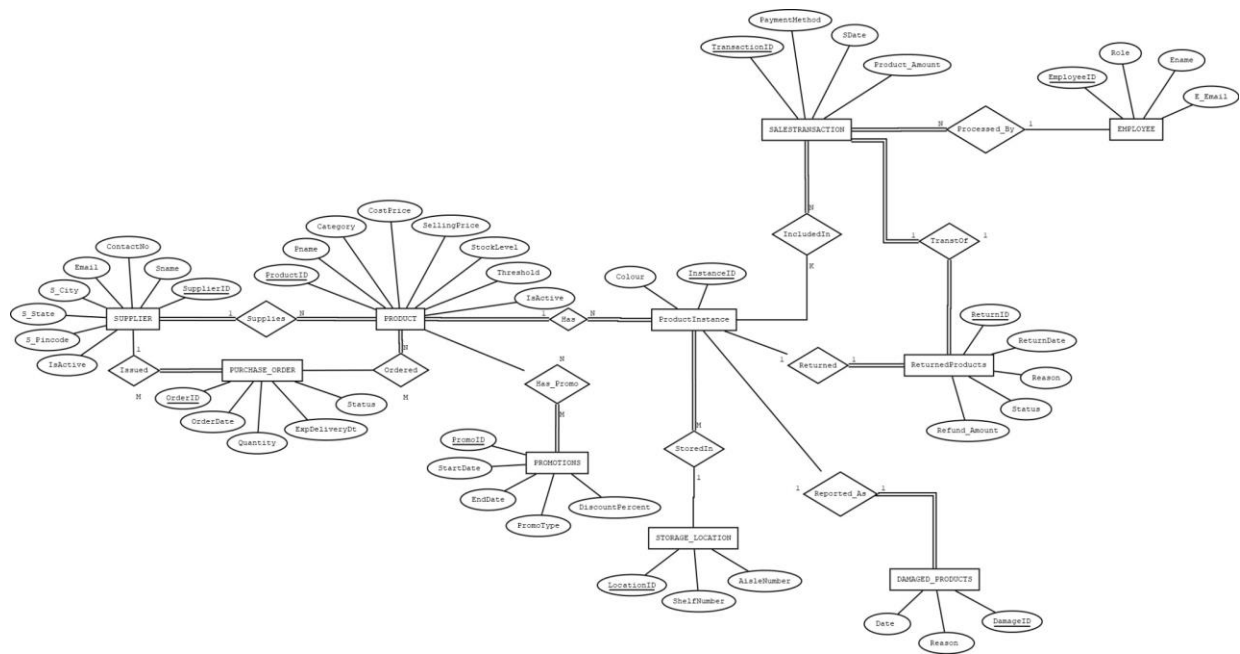
Course:-IT214 -Database Management System

Instructor:- Prof. P M Jat

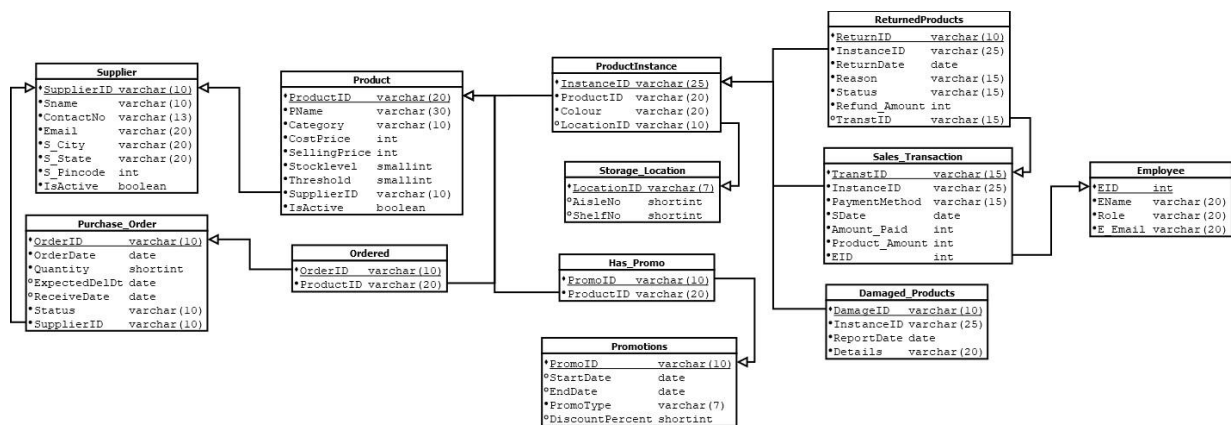
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## ER Diagram:



## Relational Schema:



**Proof that relations are in BCNF:**

1. **Supplier (SupplierID, Sname, S\_ContactNo, S\_Email, S\_City, S\_State, S\_Pincode, IsActive)**

**FDs:**

$\text{SupplierID} \rightarrow \text{Sname, S\_ContactNo, S\_Email, S\_City, S\_State, S\_Pincode, IsActive}$

**Key:** SupplierID

For all FDs in this relation, SupplierID is the superkey. So, the relation is in BCNF.

2. **Product (ProductID, PName, Category, CostPrice, SellingPrice, StockLevel, Threshold, SupplierID)**

**FDs:**

$\text{ProductID} \rightarrow \text{Pname, Category, CostPrice, SellingPrice, StockLevel, Threshold, SupplierID}$

**Key:** ProductID

For all FDs in this relation, ProductID is the superkey.  
So, the relation is in BCNF.

3. **Purchase\_Order (OrderID, Quantity, OrderDate, ExpDeliveryDt, SupplierID)**

**FDs:**

$\text{OrderID} \rightarrow \text{OrderDate, Quantity, ExpDeliveryDt, ReceiveDate, SupplierID}$

**Key:** OrderID

For all FDs in this relation, OrderID is the superkey. So, the relation is in BCNF.

**4. Ordered(OrderID, ProductID, Status)****FDs:**

OrderID  $\rightarrow$  ProductID, Status

**Key:** OrderID

Since OrderID is the superkey for this FD, this relation is in BCNF.

**5. Promotions (PromoID, StartDate, EndDate, DiscountPercent)****FDs:**

PromoID  $\rightarrow$  StartDate, EndDate, DiscountPercent

**Key:** PromoID

For all FDs in this relation, PromoID is the superkey.

So, the relation is in BCNF.

**6. Has\_Promo(PromoID, ProductID)****FDs:**

PromoID, ProductID  $\rightarrow$  PromoID, ProductID

**Key:** PromoID, ProductID

For all FDs in this relation, {PromoID, ProductID} is the superkey.

So, the relation is in BCNF.

**7. Product\_Instance (InstanceID, ProductID, Colour, LocationID)****FDs:**

InstanceID  $\rightarrow$  ProductID, Colour, LocationID

**Key:** InstanceID

For all FDs in this relation, InstanceID is the superkey. So, the relation is in BCNF.

**8. Storage\_Location (LocationID, ShelfNo, AisleNo)****FDs:** $\text{LocationID} \rightarrow \text{ShelfNo}, \text{AisleNo}$ **Key:** LocationID

For all FDs in this relation, LocationID is the superkey. So, the relation is in BCNF.

**9. Damaged\_Products(DamageID, InstanceID, ReportDate, Details)****FDs:** $\text{DamageID} \rightarrow \text{InstanceID}, \text{ReportDate}, \text{Details}$ **Key:** DamageID

For all FDs in this relation, DamageID is the superkey. So, the relation is in BCNF.

**10. SALES\_TRANSACTION(TranstID, InstanceID, PaymentMethod, SDate, Amount\_Paid, Product\_Amount, EID)****FDs:** $\text{TranstID} \rightarrow \text{InstanceID}, \text{PaymentMethod}, \text{SDate}, \text{Amount\_Paid}, \text{Product\_Amount}, \text{EID}$ **Key:** TranstID

For all FDs in this relation, TranstID is the superkey. So, the relation is in BCNF.

**11. Employee (EID, Ename, Role, E\_Email)****FDs:** $\text{EID} \rightarrow \text{Ename}, \text{Role}, \text{E\_Email}$ **Key:** EmployeeID

For all FDs in this relation, EmployeeID is the superkey.

So, the relation is in BCNF.

**12. ReturnedProducts (ReturnID, InstanceID, ReturnDate, Reason, Status, TranstID)**

**FDs:**

ReturnID  $\rightarrow$  InstanceID, ReturnDate, Reason, Status, TranstID

**Key:** ReturnID

For all FDs in this relation, ReturnID is the superkey.

So, the relation is in BCNF.