Group 3
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Revised ERD for Integrated Electronics Store Database Management System

1. **Entities and Relationships**
   - Customers
     - 1 Customer → M Sales (1:M)
     - Customers do not directly buy products; instead, they make sales transactions.
   - Sales
     - 1 Sale → M SalesDetails (1:M)
     - 1 Employee → M Sales (1:M) or M:N with SalesEmployee
     - Sales transactions record products purchased by customers.
   - SalesDetails (Associative Entity)
     - 1 Sale → M SalesDetails (1:M)
     - 1 Product → M SalesDetails (1:M)
     - Attributes: SaleID (FK), ProductID (FK), Quantity, Subtotal
   - Products
     - 1 Product → M SalesDetails (1:M)
     - 1 Product → 1 Inventory (1:1) or 1:M with InventoryTransactions
     - 1 Product → M SupplierProducts (1:M instead of 1:1)
   - Inventory & Inventory Transactions
     - 1 Inventory → 1 Product (1:1) (If simple stock tracking)
     - 1 Product → M InventoryTransactions (1:M) (If batch tracking is needed)
   - Employees
     - If multiple employees process the same sale, a SalesEmployee table would be needed for an M:N relationship.
   - Suppliers
     - 1 Supplier → M SupplierProducts (1:M)
     - 1 Product → M SupplierProducts (1:M)
     - Replaces the direct 1 Supplier → 1 Product model.
   - Purchase Orders
     - M Purchase Orders → 1 Supplier (M:1)
     - 1 Purchase Order → M PurchaseOrderDetails (1:M instead of M:1)
   - PurchaseOrderDetails (Associative Entity)
     - 1 Purchase Order → M PurchaseOrderDetails (1:M)
     - 1 Product → M PurchaseOrderDetails (1:M)
     - Attributes: OrderID (FK), ProductID (FK), QuantityOrdered, PricePerUnit

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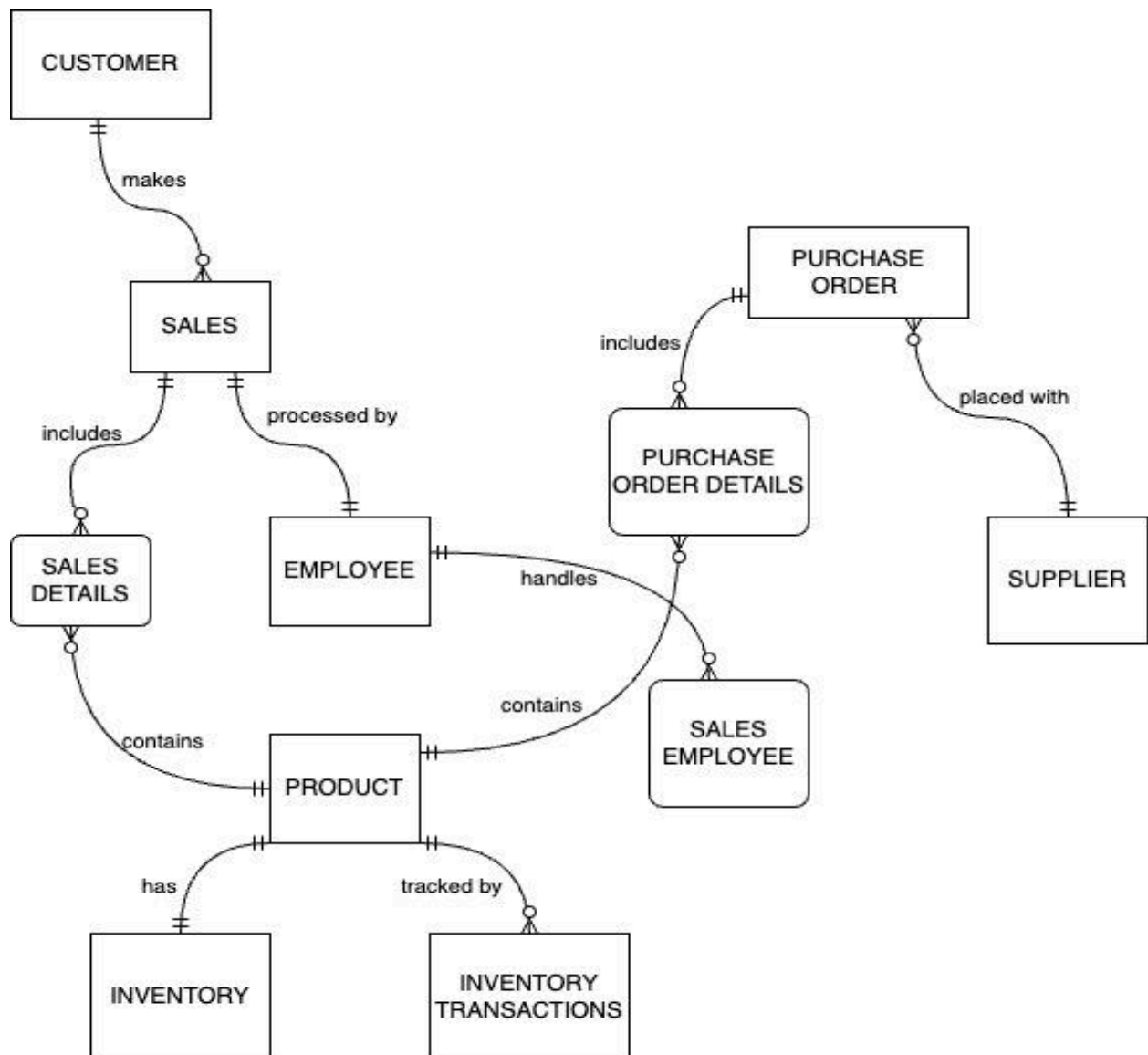
Key Changes:

- Introduced SalesDetails as an associative entity between Sales and Products to handle the M:N relationship.
- Changed Supplier-Product to M:N with a new SupplierProducts associative entity.
- Adjusted Purchase Orders to allow multiple products per order via PurchaseOrderDetails.
- Clarified Inventory relationship and introduced InventoryTransactions for batch tracking if needed.
- Emphasized that Financial Reports should be generated dynamically rather than stored as separate entities.
- Added a possible SalesEmployee table for cases where multiple employees handle the same sale.

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Changes made to the conceptual ERD

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LOGICAL ERD