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CIS344

Individual Project 1

**Interview with a Craft Store Manager**

Interview Questions and Answers

**Question 1**: Can you describe the importance of having a database in a craft store?

**Answer 1**: A database is essential for managing inventory, tracking sales, and storing customer information. It helps maintain accurate stock levels, set competitive prices, and analyze sales trends.

**Question 2:** What kind of information is stored in your craft store database?

**Answer 2:** Our database stores data related to products, customer information, sales transactions, supplier details, and stock movements.

**Question 3:** What details do you keep in the product database?

**Answer 3:** The product database includes names, prices, category, stock level, and supplier information.

**Question 4:** What customer details do you track?

**Answer 4:** We store customer names, email, and phone.

**Question 5:** How does the database track the sales transactions?

**Answer 5:** Each sale records the customer ID, date, total amount, and payment method

**Question 6:** How do you track stock movements?

**Answer 6:** Every time a product is sold, returned or restocked, we log an entry in the Stock\_Movements table, recording the product, type of movement, quantity and date.

**Question 7:** How do you track supplier relationships?

**Answer 7:** We store supplier names, contact details, the products they provide, and order history.

**Question 8:** Can a product be sold in multiple sales?

**Answer 8:** Yes, a single product can appear in multiple sales, and a single sale can contain multiple products

**Question 9:** How is this many-to-many sales-product relationship managed?

**Answer 9:** We use a junction table (Sales\_Products) to link Sales and Products, which includes additional details such as quantity sold and price.

**Analysis**

Entities and Attributes

1. Products
   * Attributes:
     + Product\_ID (Primary Key, String)
     + Name (String)
     + Price (Decimal)
     + Category (String)
     + Stock\_Level ( Integer)
     + Supplier\_ID (Foreign Key, String)
2. Customers
   * Attributes:
     + Customer\_ID (Primary, String)
     + Name (String)
     + Email (String)
     + Phone(String)
3. Sales
   * Attributes:
     + Sales\_ID (Primary Key, String)
     + Customer\_ID (Foreign Key, String)
     + Sale\_Date (Date)
     + Total\_Amount (Decimal)
     + Payment\_Method (String)
4. Suppliers
   * Attributes:
     + Supplier\_ID (Primary key, String)
     + Name (String)
     + Contact\_Person (String)
     + Email (String)
     + Phone (String)
5. Sales\_Products
   * Attributes:
     + Sale\_Product\_ID (Primary Key, String)
     + Sales\_ID (Foreign Key, String)
     + Product\_ID (Foreign Key, String)
     + Quantity (Integer)
     + Price\_at\_Sale (Decimal)
6. Stock\_Movements Table
   * Attributes:
     + Movement\_ID (Primary Key, String)
     + Product\_ID (Foreign Key, String)
     + Movement\_Type (ENUM: Sales, Restock, Return)
     + Quantity (Integer)
     + Movement\_Date (Date)

**Relationships and Cardinality:**

1. Purchases (Between Customers and Sales)
   * Cardinality: Each customer (1) can make multiple purchases (M), but each sale is linked to only one customer.
   * Notation: One-to-Many (1:M) Relationship from Customers to Sales
2. Supplied by (between Suppliers and Products)
   * Cardinality: Each supplier (1) can supply multiple products (M), but each product has one supplier.
   * Notation: One-to-Many (1:M) Relationship from Suppliers to Products
3. Sold in (between Sales and Products )
   * Cardinality: A single sale (1) can contain multiple products (M), and a single product (1) can appear in multiple sales (M)
   * Resolved via Junction Table (Sales\_Products): Tracks each product within a sale, including quantity sold and sale price
   * Notation: One-to-Many (1:M) Relationship from Sales to Sales\_Products, Many-to-One (M:1) from Sales\_Products to Products
4. Stock Transactions (between Products and Stock Movements)
   * Cardinality: Each product (1) can have multiple stock movements (M), but each stock movement is linked to one product
   * Notation: One-to-Many (1:M) Relationship from Products to Stock Movement

**Participation Constraints:**

1. Sales to Products through “Sold In”:
   * Total participation for Sales\_Products, as each sale must have at least one product, and each product in a sale must be recorded
2. Suppliers to Products through “Supplied by”:
   * Total participation for Products, since each product must have a supplier
3. Customers to Sales through “Purchases” :
   * Partial participation for Customers, as not every customer necessarily makes a purchase
4. Products to Stock Movement through “Stock\_Transactions”:
   * Partial participation since not all products may have stock movements recorded