ENTITY DIAGRAM ORTIZO SHOP

DataBase Foundations

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Database Design

Step 1 – Define Components

Component 1 (High Priority - Most Requested):

1. **Instruments, Categories, and Brands:**
   Display a list of instruments, categorized by type and brand, showing inventory status and pricing.
2. **Inventory Management:**
   Keep track of stock levels for instruments and accessories, updating inventory based on sales and restocks.
3. **Purchase and Sales Receipts:**
   Manage the history of transactions, combining purchase and sales receipts, with attributes to distinguish between the two.
4. **Suppliers:**
   Manage information related to suppliers, including addresses, and facilitate instrument orders.
5. **Accessories:**
   Display and manage available accessories (e.g., guitar picks, drumsticks), along with categories, brands, and inventory status.

Component 2 (Low Priority - Additional Features):

1. **Shopping Cart and Discounts:**
   Provide a shopping cart feature with the ability to apply discounts for online purchases.
2. **Blog and News:**
   A blog section where the store can share articles, updates, and product reviews.
3. **Point of Sale (Physical Store):**
   A module to track in-store sales, connect to the central inventory, and allow integration with physical store operations.

Step 2 – Define entities

- Instrument – E1
- Category – E2
- Brand – E3
- Inventory – E4
- Receipt – E5 (Handles both purchase and sales receipts)
- History of Receipts – E6
- User – E7 (Administrator or Customer)
- Supplier – E8
- Accessory – E9
- Inventory_Receipt – E10

Step 3 – Define attributes per entity

E1. Instrument

- InstrumentID (PK): Unique identifier for the instrument.
- Name: Name of the instrument.
- Description: Description of the instrument.
- Price: Selling price of the instrument.
- Stock: Available quantity in stock.
- CategoryID (FK): Identifier for the category the instrument belongs to.
- BrandID (FK): Identifier for the brand of the instrument.

E2. Category

- CategoryID (PK): Unique identifier for the category.
- Name: Name of the category (e.g., string instruments, percussion).
- Description: Description of the category.

E3. Brand

- BrandID (PK): Unique identifier for the brand.
- Name: Name of the brand (e.g., Yamaha, Gibson).
- Country: Country where the brand is based.

E4. Inventory

- InventoryID (PK): Unique identifier for the inventory.
- InstrumentID (FK): Identifier for the instrument in the inventory.
- AccessoryID (FK): Identifier for the accessory in the inventory.
- Quantity: Quantity of the instrument in stock.
- DateUpdated: Date when the inventory was last updated.
- InventoryReceiptID (FK): Identifier for the inventory receipt that links to inventory changes.

E5. Receipt

- ReceiptID (PK): Unique identifier for the receipt.
- UserID (FK): Identifier for the user (buyer or seller).
- SupplierID (FK): Identifier for the provider involved in the transaction (for purchases).
- Date: Date of the transaction.
- TotalAmount: Total amount of the transaction.
- ReceiptType: Type of receipt (purchase or sale).
- InventoryReceiptID (FK): Identifier for the inventory receipt that links to inventory changes.

E6. History of Receipts

- HistoryID (PK): Unique identifier for the receipt history.
- ReceiptID (FK): Identifier for the receipt being tracked.
- Date: Date when the record was added to the history.
- Status: Current status of the transaction (e.g., completed, refunded).

E7. User

- UserID (PK): Unique identifier for the user.
- Username: Username for login purposes.
- Password: Encrypted password for authentication.
- Role: Role of the user (e.g., administrator, customer).
- Email: Email address of the user.

E8. Supplier

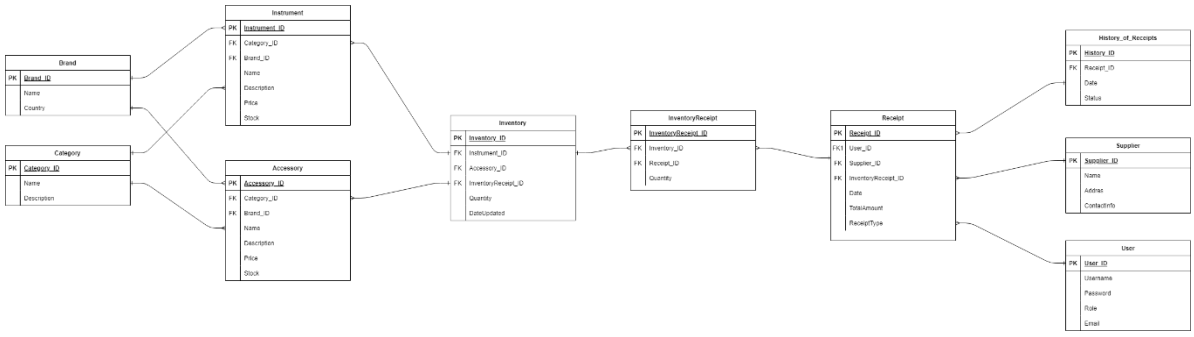
- SupplierID (PK): Unique identifier for the supplier.
- Name: Name of the supplier.
- Address: Address of the supplier.
- ContactInfo: Phone number or contact details of the supplier.

E9. Accessory

- AccessoryID (PK): Unique identifier for the accessory.
- Name: Name of the accessory.
- Description: Description of the accessory.
- Price: Selling price of the accessory.
- Stock: Available quantity in stock.
- CategoryID (FK): Identifier for the category of the accessory.
- BrandID (FK): Identifier for the brand of the accesory

E10.Inventory_Receipt

- InventoryReceiptID (PK)**:** Unique identifier for the record.
- InventoryID (FK)**:** Identifier for the item in the inventory.
- ReceiptID (FK)**:** Identifier for the related receipt.
- Quantity**:** Quantity of the item associated with the receipt.



Step 4 – Define Relationships

- Instrument – E1
- Category – E2
- Brand – E3
- Inventory – E4
- Receipt – E5
- History of Receipts – E6
- User – E7
- Supplier – E8
- Accessory – E9
- Inventory_Receipt – E10

	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
E1		X	X	X						
E2	X								X	
E3	X								X	
E4	X								X	X
E5						X	X	X		X
E6					X					
E7					X					
E8					X					
E9		X	X	X						
E10				X	X					

Step 5 – Define Relationships Types

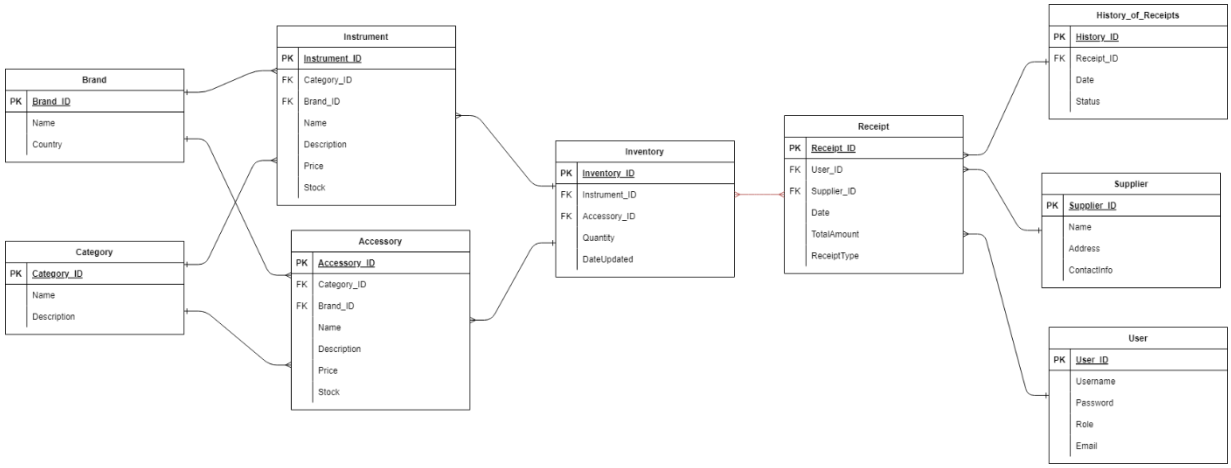
E1 n...1 E2 E1 n...1 E3 E1 n...1 E4

E4 1…n E10 E5 1…n E10

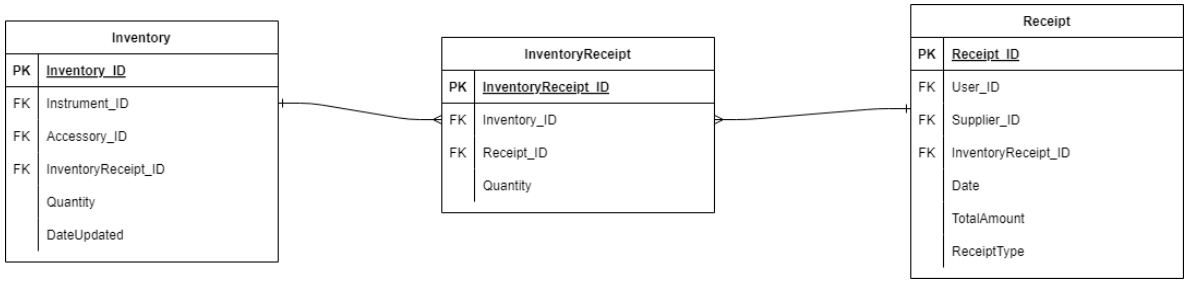
E5 n…1 E6 E5 n... E7 E5 n... E8

E9 n…1 E2 E9 n…1 E3 E9 n…1 E4

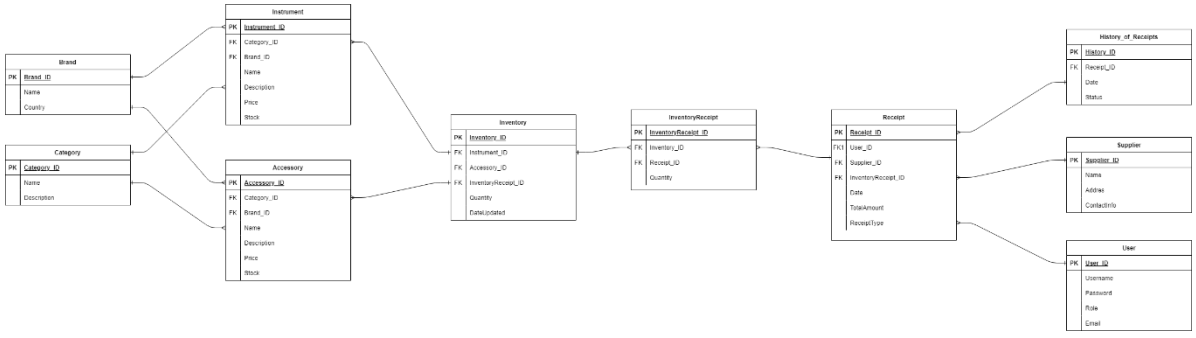
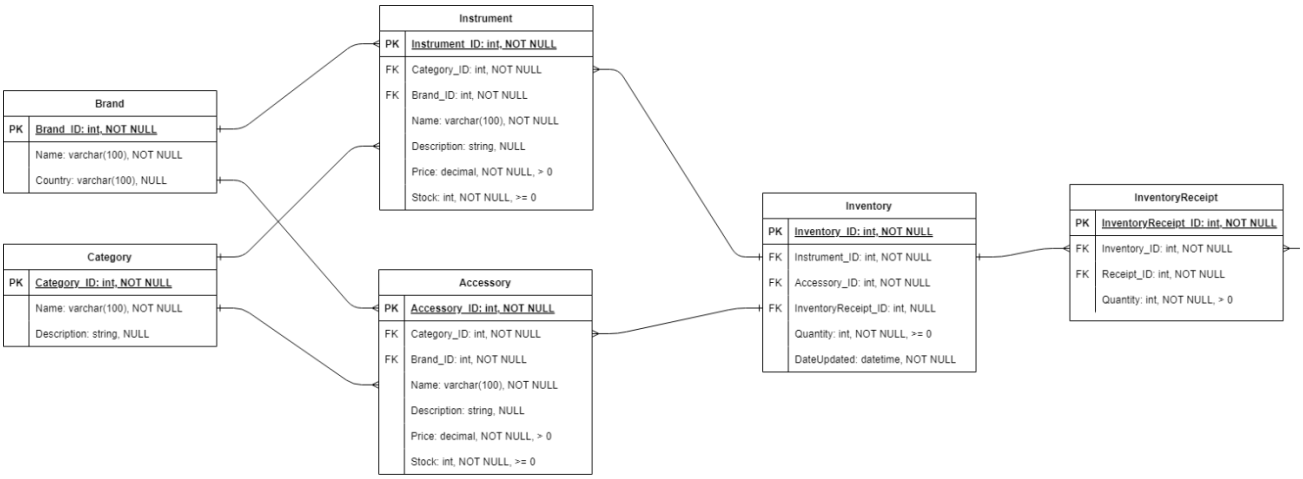
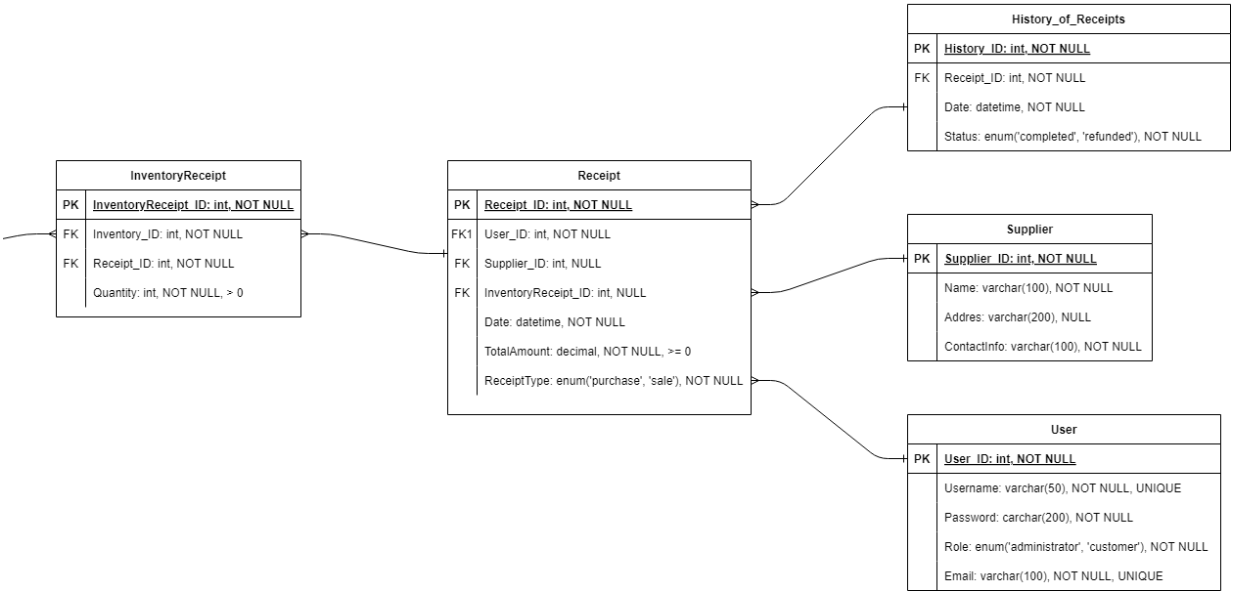
Step 6 – First Entity-Relationship Draw



Step 7 - First Split Many-to-Many Relationships



Step 8. Second Entity-Relationship Draw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