

# Logical & Physical Schema



```
CREATE TABLE Users (
    UserID INT IDENTITY(1,1) PRIMARY KEY,
    FullName VARCHAR(100) NOT NULL,
    Email VARCHAR(100) UNIQUE NOT NULL,
    PasswordHash VARCHAR(255) NOT NULL,
    Role VARCHAR(50) NOT NULL CHECK (Role IN ('Admin', 'Manager', 'Staff')),
    CreatedAt DATETIME DEFAULT CURRENT_TIMESTAMP
);
```

```
CREATE TABLE Customers (
    CustomerID INT IDENTITY(1,1) PRIMARY KEY,
    FullName VARCHAR(100) NOT NULL,
    Phone VARCHAR(20) NOT NULL,
    Email VARCHAR(100) UNIQUE,
    Address TEXT,
```

**CreatedAt DATETIME DEFAULT CURRENT\_TIMESTAMP**  
**);**

**CREATE TABLE Categories (**  
**CategoryID INT IDENTITY(1,1) PRIMARY KEY,**  
**CategoryName VARCHAR(100) UNIQUE NOT NULL,**  
**Description TEXT**  
**);**

**CREATE TABLE Suppliers (**  
**SupplierID INT IDENTITY(1,1) PRIMARY KEY,**  
**SupplierName VARCHAR(100) NOT NULL,**  
**Email VARCHAR(100) UNIQUE NOT NULL,**  
**Phone VARCHAR(15)**  
**);**

**CREATE TABLE Warehouses (**  
**WarehouseID INT IDENTITY(1,1) PRIMARY KEY,**  
**WarehouseName VARCHAR(100) NOT NULL,**  
**Location TEXT,**  
**ManagerID INT FOREIGN KEY REFERENCES Users(UserID) ON DELETE SET NULL**  
**);**

```
CREATE TABLE Products (  
    ProductID INT IDENTITY(1,1) PRIMARY KEY,  
    ProductName VARCHAR(100) NOT NULL,  
    Description TEXT,  
    Price DECIMAL(10,2) NOT NULL,  
    ReorderLevel INT,  
    CategoryID INT NOT NULL FOREIGN KEY REFERENCES Categories(CategoryID)  
);
```

```
CREATE TABLE SupplierProducts (  
    SupplierID INT NOT NULL,  
    ProductID INT NOT NULL,  
    PRIMARY KEY (SupplierID, ProductID),  
    FOREIGN KEY (SupplierID) REFERENCES Suppliers(SupplierID),  
    FOREIGN KEY (ProductID) REFERENCES Products(ProductID)  
);
```

```
CREATE TABLE WarehouseStock (  
    WarehouseID INT NOT NULL,  
    ProductID INT NOT NULL,  
    StockQuantity INT NOT NULL DEFAULT 0,  
    PRIMARY KEY (WarehouseID, ProductID),  
    FOREIGN KEY (WarehouseID) REFERENCES Warehouses(WarehouseID),  
    FOREIGN KEY (ProductID) REFERENCES Products(ProductID)  
);
```

```
CREATE TABLE Orders (  
    OrderID INT IDENTITY(1,1) PRIMARY KEY,  
    CreatedByUserID INT NOT NULL FOREIGN KEY REFERENCES Users(UserID),  
    OrderDate DATETIME DEFAULT CURRENT_TIMESTAMP,  
    TotalAmount DECIMAL(10,2) NOT NULL,  
    Status VARCHAR(50) NOT NULL DEFAULT 'Pending'  
);
```

```
CREATE TABLE CustomerOrders (  
    CustomerOrderID INT IDENTITY(1,1) PRIMARY KEY,  
    CustomerID INT NOT NULL FOREIGN KEY REFERENCES Customers(CustomerID),  
    OrderID INT NOT NULL FOREIGN KEY REFERENCES Orders(OrderID)  
);
```

```
CREATE TABLE OrderDetails (  
    OrderDetailID INT IDENTITY(1,1) PRIMARY KEY,  
    OrderID INT NOT NULL FOREIGN KEY REFERENCES Orders(OrderID),  
    ProductID INT NOT NULL FOREIGN KEY REFERENCES Products(ProductID),  
    Quantity INT NOT NULL,  
    Price DECIMAL(10,2) NOT NULL,  
    WarehouseID INT NOT NULL FOREIGN KEY REFERENCES Warehouses(WarehouseID)  
);
```

```
CREATE TABLE InventoryTransactions (  
    TransactionID INT IDENTITY(1,1) PRIMARY KEY,  
    ProductID INT NOT NULL FOREIGN KEY REFERENCES Products(ProductID),  
    WarehouseID INT NOT NULL FOREIGN KEY REFERENCES Warehouses(WarehouseID),  
    TransactionType VARCHAR(10) NOT NULL CHECK (TransactionType IN ('IN', 'OUT')),
```

Quantity INT NOT NULL,  
TransactionDate DATETIME DEFAULT CURRENT\_TIMESTAMP  
);

CREATE TABLE LowStockAlerts (  
AlertID INT IDENTITY(1,1) PRIMARY KEY,  
ProductID INT NOT NULL UNIQUE FOREIGN KEY REFERENCES Products(ProductID),  
WarehouseID INT NOT NULL FOREIGN KEY REFERENCES Warehouses(WarehouseID),  
AlertDate DATETIME DEFAULT CURRENT\_TIMESTAMP,  
Status VARCHAR(50) NOT NULL DEFAULT 'Active'  
);

CREATE TABLE Shipments (  
ShipmentID INT IDENTITY(1,1) PRIMARY KEY,  
OrderID INT NOT NULL FOREIGN KEY REFERENCES Orders(OrderID),  
WarehouseID INT NOT NULL FOREIGN KEY REFERENCES Warehouses(WarehouseID),  
ShipmentDate DATETIME DEFAULT CURRENT\_TIMESTAMP,  
Carrier VARCHAR(100) NOT NULL,  
TrackingNumber VARCHAR(50) UNIQUE,  
Status VARCHAR(50) NOT NULL DEFAULT 'In Transit'  
);