CREATE DATABASE supply\_chain\_management;

USE supply\_chain\_management;

-- Users Table (Suppliers, Distributors, Retailers, Admins)

CREATE TABLE users (

user\_id CHAR(36) PRIMARY KEY,

name VARCHAR(255) NOT NULL,

email VARCHAR(255) UNIQUE NOT NULL,

password\_hash VARCHAR(255) NOT NULL,

role ENUM('Supplier', 'Distributor', 'Retailer', 'Admin') NOT NULL,

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP

);

-- Products Table

CREATE TABLE products (

product\_id CHAR(36) PRIMARY KEY,

name VARCHAR(255) NOT NULL,

description TEXT,

category VARCHAR(100),

unit\_price DECIMAL(10,2) NOT NULL,

supplier\_id CHAR(36),

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

FOREIGN KEY (supplier\_id) REFERENCES users(user\_id) ON DELETE SET NULL

);

-- Inventory Table

CREATE TABLE inventory (

inventory\_id CHAR(36) PRIMARY KEY,

product\_id CHAR(36) NOT NULL,

location\_id CHAR(36) NOT NULL,

quantity INT NOT NULL DEFAULT 0,

threshold INT NOT NULL DEFAULT 5,

last\_updated TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

FOREIGN KEY (product\_id) REFERENCES products(product\_id) ON DELETE CASCADE,

FOREIGN KEY (location\_id) REFERENCES warehouse\_locations(location\_id) ON DELETE CASCADE

);

-- Orders Table

CREATE TABLE orders (

order\_id CHAR(36) PRIMARY KEY,

customer\_id CHAR(36) NOT NULL,

status ENUM('Pending', 'Processing', 'Shipped', 'Delivered', 'Cancelled') DEFAULT 'Pending',

total\_amount DECIMAL(12,2) NOT NULL DEFAULT 0.00,

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

FOREIGN KEY (customer\_id) REFERENCES users(user\_id) ON DELETE CASCADE

);

-- Order Items Table (Many-to-Many Relationship)

CREATE TABLE order\_items (

order\_item\_id CHAR(36) PRIMARY KEY,

order\_id CHAR(36) NOT NULL,

product\_id CHAR(36) NOT NULL,

quantity INT NOT NULL DEFAULT 1,

subtotal DECIMAL(12,2) NOT NULL,

FOREIGN KEY (order\_id) REFERENCES orders(order\_id) ON DELETE CASCADE,

FOREIGN KEY (product\_id) REFERENCES products(product\_id) ON DELETE CASCADE

);

-- Shipments Table

CREATE TABLE shipments (

shipment\_id CHAR(36) PRIMARY KEY,

order\_id CHAR(36) NOT NULL,

carrier VARCHAR(255),

tracking\_number VARCHAR(100) UNIQUE,

status ENUM('In Transit', 'Delivered', 'Delayed', 'Cancelled') DEFAULT 'In Transit',

estimated\_arrival DATE,

actual\_arrival DATE,

FOREIGN KEY (order\_id) REFERENCES orders(order\_id) ON DELETE CASCADE

);

-- Warehouse Locations Table

CREATE TABLE warehouse\_locations (

location\_id CHAR(36) PRIMARY KEY,

name VARCHAR(255) NOT NULL,

address TEXT NOT NULL,

capacity INT NOT NULL DEFAULT 0

);

-- Demand Forecasting Table (AI-driven predictions)

CREATE TABLE demand\_forecasting (

forecast\_id CHAR(36) PRIMARY KEY,

product\_id CHAR(36) NOT NULL,

predicted\_demand INT NOT NULL,

forecast\_date DATE NOT NULL,

accuracy DECIMAL(5,2) CHECK (accuracy BETWEEN 0 AND 100),

FOREIGN KEY (product\_id) REFERENCES products(product\_id) ON DELETE CASCADE

);

-- Notifications Table (For Alerts & Order Updates)

CREATE TABLE notifications (

notification\_id CHAR(36) PRIMARY KEY,

user\_id CHAR(36) NOT NULL,

message TEXT NOT NULL,

status ENUM('Unread', 'Read') DEFAULT 'Unread',

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

FOREIGN KEY (user\_id) REFERENCES users(user\_id) ON DELETE CASCADE

);