

--USE Operations;

CREATE DATABASE Perry_Lucas_db;
USE Perry_Lucas_db;

CREATE TABLE Customer (
 CustomerID INT PRIMARY KEY IDENTITY(2900000,1),
 Name VARCHAR(100) NOT NULL,
 Address VARCHAR(255) NOT NULL,
 PhoneNumber VARCHAR(15) NOT NULL,
 Email VARCHAR(100) UNIQUE NOT NULL,
 PreferredDeliveryLocation VARCHAR(100)
);

CREATE TABLE ServiceType (
 ServiceID VARCHAR(10) PRIMARY KEY,
 Description VARCHAR(50) NOT NULL,
 DeliveryTimeframe VARCHAR(50) NOT NULL,
 BaseCost DECIMAL(10,2) NOT NULL,
 PriorityLevel VARCHAR(20) NOT NULL
);

CREATE TABLE Package (
 PackageID INT PRIMARY KEY IDENTITY(10000,1),
 TrackingNumber VARCHAR(20) UNIQUE NOT NULL,
 Weight DECIMAL(5,2) NOT NULL,
 Dimensions VARCHAR(50),
 ServiceID VARCHAR(10) NOT NULL,
 Status VARCHAR(20) NOT NULL DEFAULT 'Pending',
 DeclaredValue DECIMAL(10,2),
 CustomerID INT NOT NULL,
 FOREIGN KEY (CustomerID) REFERENCES Customer(CustomerID),
 FOREIGN KEY (ServiceID) REFERENCES ServiceType(ServiceID)
);

CREATE TABLE [Order] (
 OrderID INT PRIMARY KEY IDENTITY(45000,1),
 OrderDate DATE NOT NULL,
 TotalCost DECIMAL(10,2) NOT NULL,
 ServiceID VARCHAR(10) NOT NULL,
 CustomerID INT NOT NULL,
 FOREIGN KEY (CustomerID) REFERENCES Customer(CustomerID),
 FOREIGN KEY (ServiceID) REFERENCES ServiceType(ServiceID)
);


```
CREATE TABLE Driver (  
    DriverID VARCHAR(10) PRIMARY KEY,  
    EmployeeName VARCHAR(100) NOT NULL,  
    EmployeeNumber VARCHAR(20) UNIQUE NOT NULL,  
    ContactNumber VARCHAR(15) NOT NULL,  
    AssignedHubID VARCHAR(10),  
    AssignedVehicleID VARCHAR(10)  
);
```

```
CREATE TABLE Vehicle (  
    VehicleID VARCHAR(10) PRIMARY KEY,  
    VehicleType VARCHAR(50) NOT NULL,  
    LicensePlate VARCHAR(15) UNIQUE NOT NULL,  
    CurrentMileage INT NOT NULL,  
    MaintenanceStatus VARCHAR(50) NOT NULL,  
    HubID VARCHAR(10)  
);
```

```
CREATE TABLE Hub (  
    HubID VARCHAR(10) PRIMARY KEY,  
    Location VARCHAR(255) NOT NULL,  
    Region VARCHAR(50) NOT NULL,  
    Capacity INT NOT NULL,  
    HubManagerID VARCHAR(10)  
);
```

```
CREATE TABLE DeliveryRoute (  
    RouteID VARCHAR(10) PRIMARY KEY,  
    DriverID VARCHAR(10) NOT NULL,  
    StartPoint VARCHAR(255) NOT NULL,  
    EndPoint VARCHAR(255) NOT NULL,  
    EstimatedDuration VARCHAR(50) NOT NULL,  
    RouteDistance DECIMAL(5,2) NOT NULL,  
    FOREIGN KEY (DriverID) REFERENCES Driver(DriverID)  
);
```

```
CREATE TABLE Stop (  
    StopID VARCHAR(10) PRIMARY KEY,  
    StopOrder INT NOT NULL,  
    StopAddress VARCHAR(255) NOT NULL,  
    StopType VARCHAR(50) NOT NULL,  
    PackageID INT NOT NULL,  
    RouteID VARCHAR(10) NOT NULL,  
    FOREIGN KEY (PackageID) REFERENCES Package(PackageID),  
    FOREIGN KEY (RouteID) REFERENCES DeliveryRoute(RouteID)  
);
```



```
CREATE TABLE Feeder (  
    FeederID VARCHAR(10) PRIMARY KEY,  
    TrailerType VARCHAR(50) NOT NULL,  
    SourceHubID VARCHAR(10) NOT NULL,  
    DestinationHubID VARCHAR(10) NOT NULL,  
    Status VARCHAR(50) NOT NULL,  
    Date DATE NOT NULL,  
    FOREIGN KEY (SourceHubID) REFERENCES Hub(HubID),  
    FOREIGN KEY (DestinationHubID) REFERENCES Hub(HubID)  
);
```

```
CREATE TABLE TrackingStatus (  
    TrackingID VARCHAR(10) PRIMARY KEY,  
    PackageID INT NOT NULL,  
    Location VARCHAR(255) NOT NULL,  
    Timestamp DATETIME NOT NULL,  
    Status VARCHAR(50) NOT NULL,  
    FOREIGN KEY (PackageID) REFERENCES Package(PackageID)  
);
```

```
CREATE TABLE Recipient (  
    RecipientID VARCHAR(10) PRIMARY KEY,  
    Name VARCHAR(100) NOT NULL,  
    Address VARCHAR(255) NOT NULL,  
    ContactNumber VARCHAR(15) NOT NULL,  
    DeliveryInstructions VARCHAR(255),  
    PackageID INT NOT NULL,  
    FOREIGN KEY (PackageID) REFERENCES Package(PackageID)  
);
```

```
CREATE TABLE Billing (  
    BillingID VARCHAR(10) PRIMARY KEY,  
    OrderID INT NOT NULL,  
    PaymentMethod VARCHAR(50) NOT NULL,  
    Amount DECIMAL(10,2) NOT NULL,  
    BillingDate DATE NOT NULL,  
    PaidStatus VARCHAR(20) NOT NULL,  
    FOREIGN KEY (OrderID) REFERENCES [Order](OrderID)  
);
```

```
CREATE TABLE EmployeeSchedule (  
    ScheduleID VARCHAR(10) PRIMARY KEY,  
    EmployeeID VARCHAR(10) NOT NULL,  
    WorkDate DATE NOT NULL,  
    ShiftTime VARCHAR(50) NOT NULL,
```



```
Role VARCHAR(50) NOT NULL
);
```

```
CREATE TABLE IncidentReport (
  ReportID VARCHAR(10) PRIMARY KEY,
  DriverID VARCHAR(10) NOT NULL,
  IncidentDate DATE NOT NULL,
  IncidentType VARCHAR(50) NOT NULL,
  Description TEXT NOT NULL,
  Resolution TEXT NOT NULL,
  FOREIGN KEY (DriverID) REFERENCES Driver(DriverID)
);
```

```
CREATE TABLE PriorityLevel (
  PriorityID VARCHAR(10) PRIMARY KEY,
  Description VARCHAR(50) NOT NULL,
  DeliveryGuarantee VARCHAR(50) NOT NULL
);
```

```
CREATE TABLE CustomerFeedback (
  FeedbackID VARCHAR(10) PRIMARY KEY,
  CustomerID INT NOT NULL,
  FeedbackDate DATE NOT NULL,
  Rating INT CHECK (Rating BETWEEN 1 AND 5),
  Comments TEXT,
  FOREIGN KEY (CustomerID) REFERENCES Customer(CustomerID)
);
```

-- Sample Data

```
INSERT INTO Customer (Name, Address, PhoneNumber, Email,
PreferredDeliveryLocation)
VALUES ('James Iona', '5390 Pacific Avenue Jamestown WA', '(429) 559-9120',
'Jlona@gmail.com', 'Front Door');
```

```
INSERT INTO ServiceType (ServiceID, Description, DeliveryTimeframe,
BaseCost, PriorityLevel)
VALUES ('ST001', 'UPS Next Day Air', '1 business day', 39.99, 'High');
```

```
INSERT INTO Package (TrackingNumber, Weight, Dimensions, ServiceID,
Status, DeclaredValue, CustomerID)
VALUES ('1Z999AA10123456789', 3.5, '30x20x15 cm', 'ST001', 'In Transit',
150.00,
(SELECT CustomerID FROM Customer WHERE Email =
'Jlona@gmail.com'));
```

```
INSERT INTO [Order] (OrderDate, TotalCost, ServiceID, CustomerID)
```



```
VALUES ('2025-01-09', 29.99, 'ST001',  
      (SELECT CustomerID FROM Customer WHERE Email =  
      'Jlona@gmail.com')));
```

```
INSERT INTO Driver (DriverID, EmployeeName, EmployeeNumber,  
ContactNumber, AssignedHubID, AssignedVehicleID)  
VALUES ('D1001', 'Mark Spencer', '987654321', '(555) 123-4567', 'H002',  
'V245');
```

```
INSERT INTO Hub (HubID, Location, Region, Capacity, HubManagerID)  
VALUES ('H002', '53690 Olympic View Road', 'Northwest Region', 12000,  
'M002');
```

```
INSERT INTO Vehicle (VehicleID, VehicleType, LicensePlate, CurrentMileage,  
MaintenanceStatus, HubID)  
VALUES ('V245', 'Package Car', 'ABC1234', 12000, 'Needs Maintenance',  
'H002');
```

```
-- Select to verify data  
SELECT * FROM Customer;  
SELECT * FROM Package;  
SELECT * FROM [Order];  
SELECT * FROM Driver;  
SELECT * FROM Hub;  
SELECT * FROM Vehicle;
```

```
-- Display the active tables  
SELECT TABLE_NAME  
FROM INFORMATION_SCHEMA.TABLES  
WHERE TABLE_TYPE = 'BASE TABLE';
```

-- Scenarios:

```
-- Track a Package  
SELECT  
    P.TrackingNumber,  
    P.Status AS CurrentStatus,  
    TS.Location AS CurrentLocation,  
    TS.Timestamp AS LastUpdated,  
    P.DeclaredValue AS PackageValue  
FROM
```



```

Package P
JOIN
  TrackingStatus TS ON P.PackageID = TS.PackageID
WHERE
  P.TrackingNumber = '1Z999AA10123456789';

-- Schedule a Pickup
-- Add new Pickup request
INSERT INTO PickupRequest (CustomerID, PickupLocation, PickupDate,
PickupTime, PackageID)
SELECT
  C.CustomerID,
  'CustomerLocation',
  '2025-01-15',
  '10:00 AM',
  P.PackageID
FROM
  Customer C
JOIN
  Package P ON C.CustomerID = P.CustomerID
WHERE
  C.Email = 'Jlona@gmail.com'
  AND P.Status = 'Pending'
  AND EXISTS (SELECT 1 FROM ServiceArea SA WHERE SA.Location =
'CustomerLocation');

-- Register a Customer
INSERT INTO Customer (Name, Address, PhoneNumber, Email,
PreferredDeliveryLocation)
VALUES ('Jane Doe', '1234 Elm Street, Tacoma, WA', '(555) 555-5555',
'jane.doe@email.com', 'Back Porch');

-- Driver Login
SELECT EmployeeName, ContactNumber, AssignedHubID, AssignedVehicleID
FROM Driver
WHERE DriverID = 'D1001';

-- Delivery Summary (After Package is Delivered)
SELECT
  P.TrackingNumber,
  R.Name AS RecipientName,
  D.Signature,
  D.DeliveryTime,
  D.DeliveryNotes
FROM
  Package P

```



```
JOIN
  Recipient R ON P.PackageID = R.PackageID
JOIN
  DeliveryDetails D ON P.PackageID = D.PackageID
WHERE
  P.TrackingNumber = '1Z999AA10123456789'
  AND P.Status = 'Delivered';
```

```
-- Cancel Pickup Request by Customer
DELETE FROM PickupRequest
WHERE CustomerID = (SELECT CustomerID FROM Customer WHERE Email =
'Jlona@gmail.com')
AND PickupID = (SELECT PickupID FROM PickupRequest WHERE PackageID =
10001 AND PickupDate = '2025-01-15');
```

```
-- Reschedule a Delivery by Customer
UPDATE DeliveryRoute
SET EstimatedDuration = '1 Hour', -- Example value that should be based on
real distance/time estimates
  RouteDate = '2025-01-16', -- New date for the delivery
  RouteTime = '2:00 PM'
WHERE RouteID = 'R001'
AND EXISTS (SELECT 1 FROM Package WHERE PackageID = 10001 AND
Status = 'Missed');
```