**CPS 510 A3 Table Source Code:**

By Hunter Huchenski, Hetu Patel and Eric Mergelas

CREATE TABLE Customers (

Customer\_ID NUMBER GENERATED ALWAYS AS IDENTITY PRIMARY KEY,

First\_Name VARCHAR2(50) NOT NULL,

Last\_Name VARCHAR2(50) NOT NULL,

Email VARCHAR2(100) NOT NULL,

Phone\_Number VARCHAR2(15),L

License\_Number VARCHAR2(20) UNIQUE NOT NULL,

Address VARCHAR2(255)

);

CREATE TABLE Cars (

Car\_ID NUMBER GENERATED ALWAYS AS IDENTITY PRIMARY KEY,

Make VARCHAR2(50) NOT NULL,

Model VARCHAR2(50) NOT NULL,

Year NUMBER(4) CHECK (Year >= 1886),

License\_Plate VARCHAR2(10) UNIQUE NOT NULL,

VIN VARCHAR2(17) UNIQUE NOT NULL,

Daily\_Rental\_Price NUMBER(10, 2) NOT NULL,

Availability\_Status VARCHAR2(20) CHECK (Availability\_Status IN ('Available', 'Rented', 'Under\_Maintenance'))

);

CREATE TABLE Rental\_Transactions (

Rental\_ID NUMBER GENERATED ALWAYS AS IDENTITY PRIMARY KEY,

Customer\_ID NUMBER REFERENCES Customers(Customer\_ID),

Car\_ID NUMBER REFERENCES Cars(Car\_ID),

Rental\_Start\_Date DATE NOT NULL,

Rental\_End\_Date DATE,

Total\_Cost NUMBER(10, 2),

Status VARCHAR2(20) CHECK (Status IN ('Active', 'Completed', 'Cancelled'))

);

CREATE TABLE Payments (

Payment\_ID NUMBER GENERATED ALWAYS AS IDENTITY PRIMARY KEY,

Rental\_ID NUMBER REFERENCES Rental\_Transactions(Rental\_ID),

Payment\_Amount NUMBER(10, 2) NOT NULL,

Payment\_Date DATE NOT NULL,

Payment\_Method VARCHAR2(20) CHECK (Payment\_Method IN ('Credit Card', 'Cash', 'Debit'))

);

CREATE TABLE Car\_Maintenance (

Maintenance\_ID NUMBER GENERATED ALWAYS AS IDENTITY PRIMARY KEY,

Car\_ID NUMBER REFERENCES Cars(Car\_ID),

Maintenance\_Date DATE NOT NULL,

Description VARCHAR2(255),

Maintenance\_Cost NUMBER(10, 2)

);

CREATE TABLE Locations (

Location\_ID NUMBER GENERATED ALWAYS AS IDENTITY PRIMARY KEY,

Location\_Name VARCHAR2(100) NOT NULL,

Address VARCHAR2(255) NOT NULL,

Phone\_Number VARCHAR2(15)

);

ALTER TABLE Cars

ADD Location\_ID NUMBER;

ALTER TABLE Cars

ADD CONSTRAINT fk\_location

FOREIGN KEY (Location\_ID)

REFERENCES Locations(Location\_ID);

ALTER TABLE Rental\_Transactions

ADD Location\_ID NUMBER;

ALTER TABLE Rental\_Transactions

ADD CONSTRAINT fk\_location

FOREIGN KEY (Location\_ID)

REFERENCES Locations(Location\_ID);

CREATE TABLE Cars (

Car\_ID NUMBER GENERATED ALWAYS AS IDENTITY PRIMARY KEY,

Make VARCHAR2(50) NOT NULL,

Model VARCHAR2(50) NOT NULL,

Year NUMBER(4) CHECK (Year >= 1886),

License\_Plate VARCHAR2(10) UNIQUE NOT NULL,

VIN VARCHAR2(17) UNIQUE NOT NULL,

Daily\_Rental\_Price NUMBER(10, 2) NOT NULL,

Availability\_Status VARCHAR2(20) CHECK (Availability\_Status IN ('Available', 'Rented', 'Under\_Maintenance')),

Location\_ID NUMBER REFERENCES Locations(Location\_ID) -- Inline definition

);

**INSERT INTO Customers (First\_Name, Last\_Name, Email, Phone\_Number, License\_Number, Address)**

**VALUES ('John', 'Doe', 'johndoe@example.com', '123-456-7890', 'L123456789', '123 Main St, City, Country');**

**INSERT INTO Customers (First\_Name, Last\_Name, Email, Phone\_Number, License\_Number, Address)**

**VALUES ('Jane', 'Smith', 'janesmith@example.com', '987-654-3210', 'L987654321', '456 Oak Ave, City, Country');**

**INSERT INTO Cars (Make, Model, Year, License\_Plate, VIN, Daily\_Rental\_Price, Availability\_Status, Location\_ID)**

**VALUES ('Toyota', 'Camry', 2020, 'ABC123', '1HGBH41JXMN109186', 50.00, 'Available', 1);**

**INSERT INTO Cars (Make, Model, Year, License\_Plate, VIN, Daily\_Rental\_Price, Availability\_Status, Location\_ID)**

**VALUES ('Honda', 'Civic', 2019, 'XYZ456', 'JH4DB8590SS001789', 45.00, 'Rented', 2);**

**INSERT INTO Rental\_Transactions (Customer\_ID, Car\_ID, Rental\_Start\_Date, Rental\_End\_Date, Total\_Cost, Status, Location\_ID)**

**VALUES (1, 1, TO\_DATE('2024-09-01', 'YYYY-MM-DD'), TO\_DATE('2024-09-05', 'YYYY-MM-DD'), 200.00, 'Completed', 1);**

**INSERT INTO Rental\_Transactions (Customer\_ID, Car\_ID, Rental\_Start\_Date, Rental\_End\_Date, Total\_Cost, Status, Location\_ID)**

**VALUES (2, 2, TO\_DATE('2024-09-15', 'YYYY-MM-DD'), NULL, NULL, 'Active', 2);**

**INSERT INTO Payments (Rental\_ID, Payment\_Amount, Payment\_Date, Payment\_Method)**

**VALUES (1, 200.00, TO\_DATE('2024-09-05', 'YYYY-MM-DD'), 'Credit Card');**

**INSERT INTO Payments (Rental\_ID, Payment\_Amount, Payment\_Date, Payment\_Method)**

**VALUES (2, 100.00, TO\_DATE('2024-09-20', 'YYYY-MM-DD'), 'Debit');**

**INSERT INTO Car\_Maintenance (Car\_ID, Maintenance\_Date, Description, Maintenance\_Cost)**

**VALUES (1, TO\_DATE('2024-08-01', 'YYYY-MM-DD'), 'Oil change and tire rotation', 100.00);**

**INSERT INTO Car\_Maintenance (Car\_ID, Maintenance\_Date, Description, Maintenance\_Cost)**

**VALUES (2, TO\_DATE('2024-08-10', 'YYYY-MM-DD'), 'Brake replacement', 250.00);**

**INSERT INTO Locations (Location\_Name, Address, Phone\_Number)**

**VALUES ('Downtown Branch', '789 Elm St, City, Country', '321-654-9870');**

**INSERT INTO Locations (Location\_Name, Address, Phone\_Number)**

**VALUES ('Uptown Branch', '101 Pine St, City, Country', '654-987-3210');**

**SELECT \***

**FROM Customers**

**WHERE First\_Name = 'Bob';**

**SELECT \***

**FROM Cars**

**WHERE Availability\_Status = 'Available';**

**SELECT \***

**FROM Rental\_Transactions**

**WHERE Status = 'Active';**

**SELECT SUM(Payment\_Amount) AS Total\_Credit\_Card\_Payments**

**FROM Payments**

**WHERE Payment\_Method = 'Credit Card';**

**SELECT Location\_Name, Phone\_Number, Address**

**FROM Locations;**

**SELECT Cars.Make, Cars.Model, Locations.Location\_Name**

**FROM Cars, LOCATIONS**

**WHERE Cars.Location\_ID = Locations.Location\_ID;**

**SELECT Rental\_Transactions.Rental\_ID, Customers.First\_Name, Customers.Last\_Name, Locations.Location\_Name, Rental\_Transactions.Status**

**FROM Rental\_Transactions, Locations, Customers, Cars**

**WHERE Rental\_Transactions.Customer\_ID = Customers.Customer\_ID**

**AND Rental\_Transactions.CAR\_ID = Cars.Car\_ID**

**AND Cars.Location\_ID = Locations.LOCATION\_ID**

**SELECT DISTINCT Last\_Name**

**FROM Customers**

**ORDER BY Last\_Name;**

**SELECT Make, COUNT(\*) AS NumberOfCars**

**FROM Cars**

**WHERE Availability\_Status = 'Available'**

**GROUP BY Make**

**ORDER BY NumberOfCars DESC;**

**SELECT Status, COUNT(\*) AS TotalRentals**

**FROM Rental\_Transactions**

**GROUP BY Status**

**ORDER BY Status;**

**SELECT Payment\_Method, SUM(Payment\_Amount) AS TotalPaid**

**FROM Payments**

**GROUP BY Payment\_Method**

**ORDER BY TotalPaid DESC;**

**SELECT Description, AVG(Maintenance\_Cost) AS AverageCost**

**FROM Car\_Maintenance**

**GROUP BY Description**

**ORDER BY AverageCost DESC;**

**SELECT DISTINCT Location\_Name, Address**

**FROM Locations**

**ORDER BY Address;**

**SELECT c.First\_Name, c.Last\_Name, COUNT(r.Rental\_ID) AS TotalRentals**

**FROM Customers c**

**LEFT JOIN Rental\_Transactions r ON c.Customer\_ID = r.Customer\_ID**

**GROUP BY c.First\_Name, c.Last\_Name**

**ORDER BY TotalRentals DESC;**

**SELECT c.Make, c.Model, COUNT(cm.Maintenance\_ID) AS MaintenanceCount**

**FROM Cars c**

**LEFT JOIN Car\_Maintenance cm ON c.Car\_ID = cm.Car\_ID**

**GROUP BY c.Make, c.Model**

**ORDER BY MaintenanceCount DESC;**

#!/bin/sh

sqlplus64 "username/password@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(Host=oracle.scs.ryerson.ca)(Port=1521))(CONNECT\_DATA=(SID=orcl)))" <<EOF

-- Insert sample data into Locations

INSERT INTO Locations (Location\_Name, Address, Phone\_Number) VALUES ('Downtown Branch', '123 Main St', '555-1234');

INSERT INTO Locations (Location\_Name, Address, Phone\_Number) VALUES ('Airport Branch', '789 Skyway Blvd', '555-5678');

-- Insert sample data into Cars

INSERT INTO Cars (Make, Model, Year, License\_Plate, VIN, Daily\_Rental\_Price, Availability\_Status, Location\_ID)

VALUES ('Toyota', 'Camry', 2020, 'ABC123', '1HGCM82633A123456', 45.99, 'Available', 1);

INSERT INTO Cars (Make, Model, Year, License\_Plate, VIN, Daily\_Rental\_Price, Availability\_Status, Location\_ID)

VALUES ('Honda', 'Civic', 2019, 'XYZ789', '2HGCM82633A654321', 40.99, 'Available', 2);

-- Insert sample data into Customers

INSERT INTO Customers (First\_Name, Last\_Name, Email, Phone\_Number, License\_Number, Address)

VALUES ('John', 'Doe', 'johndoe@example.com', '555-1111', 'L123456789', '456 Elm St');

INSERT INTO Customers (First\_Name, Last\_Name, Email, Phone\_Number, License\_Number, Address)

VALUES ('Jane', 'Smith', 'janesmith@example.com', '555-2222', 'L987654321', '789 Oak St');

-- Insert sample data into Rental\_Transactions

INSERT INTO Rental\_Transactions (Customer\_ID, Car\_ID, Rental\_Start\_Date, Rental\_End\_Date, Total\_Cost, Status)

VALUES (1, 1, TO\_DATE('2023-10-01', 'YYYY-MM-DD'), TO\_DATE('2023-10-05', 'YYYY-MM-DD'), 229.95, 'Completed');

INSERT INTO Rental\_Transactions (Customer\_ID, Car\_ID, Rental\_Start\_Date, Rental\_End\_Date, Total\_Cost, Status)

VALUES (2, 2, TO\_DATE('2023-10-10', 'YYYY-MM-DD'), NULL, NULL, 'Active');

-- Insert sample data into Payments

INSERT INTO Payments (Rental\_ID, Payment\_Amount, Payment\_Date, Payment\_Method)

VALUES (1, 229.95, TO\_DATE('2023-10-05', 'YYYY-MM-DD'), 'Credit Card');

INSERT INTO Payments (Rental\_ID, Payment\_Amount, Payment\_Date, Payment\_Method)

VALUES (1, 45.99, TO\_DATE('2023-10-05', 'YYYY-MM-DD'), 'Debit');

-- Insert sample data into Car\_Maintenance

INSERT INTO Car\_Maintenance (Car\_ID, Maintenance\_Date, Description, Maintenance\_Cost)

VALUES (1, TO\_DATE('2023-09-20', 'YYYY-MM-DD'), 'Oil change', 39.99);

INSERT INTO Car\_Maintenance (Car\_ID, Maintenance\_Date, Description, Maintenance\_Cost)

VALUES (2, TO\_DATE('2023-09-25', 'YYYY-MM-DD'), 'Tire rotation', 29.99);

exit;

EOF