1. **Find All Customers Who Have Rented a Car but Have No Active Rentals**SELECT First\_Name, Last\_Name

FROM Customers c

WHERE EXISTS (

SELECT 1

FROM Rental\_Transactions r

WHERE r.Customer\_ID = c.Customer\_ID

)

AND NOT EXISTS (

SELECT 1

FROM Rental\_Transactions r

WHERE r.Customer\_ID = c.Customer\_ID AND r.Status = 'Active'

);

**2. Union of Available and Under Maintenance Cars**

SELECT Make, Model, Year, Availability\_Status

FROM Cars

WHERE Availability\_Status = 'Available'

UNION

SELECT Make, Model, Year, Availability\_Status

FROM Cars

WHERE Availability\_Status = 'Under\_Maintenance';

3. **List Customers with No Rental Records (Using MINUS)**

SELECT c.Customer\_ID, c.First\_Name, c.Last\_Name

FROM Customers c

MINUS

SELECT DISTINCT r.Customer\_ID, c.First\_Name, c.Last\_Name

FROM Customers c

JOIN Rental\_Transactions r ON c.Customer\_ID = r.Customer\_ID;

4. **Total Rentals by Car Model for Models with More Than 5 Rentals**

SELECT c.Make, c.Model, COUNT(r.Rental\_ID) AS Total\_Rentals

FROM Cars c

JOIN Rental\_Transactions r ON c.Car\_ID = r.Car\_ID

GROUP BY c.Make, c.Model

HAVING COUNT(r.Rental\_ID) > 5

ORDER BY Total\_Rentals DESC;

**5. Average Maintenance Cost per Location with Total Count of Maintenance**

SELECT l.Location\_Name, COUNT(cm.Maintenance\_ID) AS Maintenance\_Count, AVG(cm.Maintenance\_Cost) AS Avg\_Maintenance\_Cost

FROM Locations l

JOIN Cars c ON l.Location\_ID = c.Location\_ID

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

GROUP BY l.Location\_Name

HAVING COUNT(cm.Maintenance\_ID) > 0

ORDER BY Avg\_Maintenance\_Cost DESC;

**#!/bin/sh**

**sqlplus64 "emergela/03225404@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(Host=oracle12c.scs.ryerson.ca)(Port=1521))(CONNECT\_DATA=(SID=orcl12c)))" <<EOF**

**-- Create Customers table**

**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),**

**License\_Number VARCHAR2(20) UNIQUE NOT NULL,**

**Address VARCHAR2(255)**

**);**

**-- Create Cars table**

**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)**

**);**

**-- Create Rental\_Transactions table**

**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 Payments table**

**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 Car\_Maintenance table**

**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 Locations table**

**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)**

**);**

**-- Create Views**

**CREATE VIEW Customer\_Rental\_Summary AS**

**SELECT**

**c.First\_Name,**

**c.Last\_Name,**

**COUNT(r.Rental\_ID) AS Total\_Rentals,**

**MIN(r.Rental\_Start\_Date) AS First\_Rental,**

**MAX(r.Rental\_Start\_Date) AS Last\_Rental**

**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**

**Total\_Rentals DESC;**

**CREATE VIEW Cars\_Maintenance\_View AS**

**SELECT**

**c.Make,**

**c.Model,**

**c.Year,**

**cm.Description,**

**cm.Maintenance\_Date,**

**cm.Maintenance\_Cost**

**FROM**

**CARS c**

**JOIN**

**CAR\_MAINTENANCE cm ON c.CAR\_ID = cm.CAR\_ID**

**ORDER BY**

**cm.Maintenance\_Date DESC;**

**exit;**

**EOF**

**#!/bin/sh**

**sqlplus64 "emergela/03225404@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(Host=oracle12c.scs.ryerson.ca)(Port=1521))(CONNECT\_DATA=(SID=orcl12c)))" <<EOF**

**DROP TABLE Payments CASCADE CONSTRAINTS;**

**DROP TABLE Rental\_Transactions CASCADE CONSTRAINTS;**

**DROP TABLE Car\_Maintenance CASCADE CONSTRAINTS;**

**DROP TABLE Cars CASCADE CONSTRAINTS;**

**DROP TABLE Customers CASCADE CONSTRAINTS;**

**DROP TABLE Locations CASCADE CONSTRAINTS;**

**exit;**

**EOF**

**#!/bin/sh**

**MainMenu()**

**{**

**while [ "$CHOICE" != "START" ]**

**do**

**clear**

**echo**

**"================================================================="**

**echo "| Oracle All Inclusive Tool"**

**echo "|"**

**echo "| Main Menu - Select Desired Operation(s):"**

**echo "|"**

**echo "| <CTRL-Z Anytime to Enter Interactive CMD Prompt>"**

**echo "---------------------------------------------------------"**

**echo " $IS\_SELECTEDM M) View Manual"**

**echo " "**

**echo " $IS\_SELECTED1 1) Create Tables"**

**echo " $IS\_SELECTED2 2) Drop Tables"**

**echo " $IS\_SELECTED3 3) Populate Tables"**

**echo " $IS\_SELECTED4 4) Query Tables"**

**echo " $IS\_SELECTED5 5) View Database Views" # New option for viewing the views**

**echo " "**

**echo " $IS\_SELECTEDX X) Force/Stop/Kill Oracle DB"**

**echo " "**

**echo " $IS\_SELECTEDE E) End/Exit"**

**echo "Choose: "**

**read CHOICE**

**if [ "$CHOICE" == "0" ]**

**then**

**echo "Nothing Here"**

**elif [ "$CHOICE" == "1" ]**

**then**

**bash create\_tables.sh**

**Pause**

**elif [ "$CHOICE" == "2" ]**

**then**

**bash drop\_tables.sh**

**Pause**

**elif [ "$CHOICE" == "3" ]**

**then**

**bash populate\_tables.sh**

**Pause**

**elif [ "$CHOICE" == "4" ]**

**then**

**bash query\_tables.sh**

**Pause**

**elif [ "$CHOICE" == "5" ]**

**then**

**bash view\_views.sh # Executes the new view script**

**Pause**

**elif [ "$CHOICE" == "E" ]**

**then**

**exit**

**fi**

**done**

**}**

**#--COMMENTS BLOCK--**

**# Main Program**

**#--COMMENTS BLOCK--**

**ProgramStart()**

**{**

**StartMessage**

**while [ 1 ]**

**do**

**MainMenu**

**done**

**}**

**ProgramStart**

**#!/bin/sh**

**sqlplus64 "emergela/03225404@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(Host=oracle12c.scs.ryerson.ca)(Port=1521))(CONNECT\_DATA=(SID=orcl12c)))" <<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**

**#!/bin/sh**

**sqlplus64 "emergela/03225404@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(Host=oracle12c.scs.ryerson.ca)(Port=1521))(CONNECT\_DATA=(SID=orcl12c)))" <<EOF**

**-- Select customers with first name 'Bob'**

**SELECT \* FROM Customers WHERE First\_Name = 'Bob';**

**-- Select available cars**

**SELECT \* FROM Cars WHERE Availability\_Status = 'Available';**

**-- Select active rental transactions**

**SELECT \* FROM Rental\_Transactions WHERE Status = 'Active';**

**-- Sum of credit card payments**

**SELECT SUM(Payment\_Amount) AS Total\_Credit\_Card\_Payments FROM Payments WHERE Payment\_Method = 'Credit Card';**

**-- Select location details**

**SELECT Location\_Name, Phone\_Number, Address FROM Locations;**

**-- Cars and their locations**

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

**FROM Cars, Locations**

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

**-- Rental details by customer and location**

**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;**

**-- Distinct last names of customers**

**SELECT DISTINCT Last\_Name FROM Customers ORDER BY Last\_Name;**

**-- Count of available cars by make**

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

**FROM Cars**

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

**GROUP BY Make**

**ORDER BY NumberOfCars DESC;**

**-- Count of rentals by status**

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

**FROM Rental\_Transactions**

**GROUP BY Status**

**ORDER BY Status;**

**-- Total payments by payment method**

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

**FROM Payments**

**GROUP BY Payment\_Method**

**ORDER BY TotalPaid DESC;**

**-- Average maintenance cost by description**

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

**FROM Car\_Maintenance**

**GROUP BY Description**

**ORDER BY AverageCost DESC;**

**-- Distinct locations and addresses**

**SELECT DISTINCT Location\_Name, Address**

**FROM Locations**

**ORDER BY Address;**

**-- Customer rental count summary**

**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;**

**-- Maintenance count by car make and model**

**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;**

**-- Rental summary by car make and model**

**SELECT**

**c.Make,**

**c.Model,**

**COUNT(r.Rental\_ID) AS Total\_Rentals,**

**MIN(r.Rental\_Start\_Date) AS First\_Rental,**

**MAX(r.Rental\_End\_Date) AS Last\_Rental**

**FROM**

**Cars c**

**LEFT JOIN**

**Rental\_Transactions r ON c.Car\_ID = r.Car\_ID**

**GROUP BY**

**c.Make, c.Model**

**ORDER BY**

**Total\_Rentals DESC;**

**-- Top 5 customers by total rentals**

**SELECT**

**c.First\_Name AS "First Name",**

**c.Last\_Name AS "Last Name",**

**COUNT(r.Rental\_ID) AS "Total Rentals"**

**FROM**

**Customers c**

**JOIN**

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

**GROUP BY**

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

**ORDER BY**

**"Total Rentals" DESC**

**FETCH FIRST 5 ROWS ONLY;**

**-- Total maintenance cost by car make and model**

**SELECT**

**c.Make AS "Car Make",**

**c.Model AS "Car Model",**

**SUM(cm.Maintenance\_Cost) AS "Total Maintenance Cost"**

**FROM**

**Cars c**

**JOIN**

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

**GROUP BY**

**c.Make, c.Model**

**ORDER BY**

**"Total Maintenance Cost" DESC;**

**-- Find All Customers Who Have Rented a Car but Have No Active Rentals**

**SELECT First\_Name, Last\_Name**

**FROM Customers c**

**WHERE EXISTS (**

**SELECT 1**

**FROM Rental\_Transactions r**

**WHERE r.Customer\_ID = c.Customer\_ID**

**)**

**AND NOT EXISTS (**

**SELECT 1**

**FROM Rental\_Transactions r**

**WHERE r.Customer\_ID = c.Customer\_ID AND r.Status = 'Active'**

**);**

**-- Union of Available and Under Maintenance Cars**

**SELECT Make, Model, Year, Availability\_Status**

**FROM Cars**

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

**UNION**

**SELECT Make, Model, Year, Availability\_Status**

**FROM Cars**

**WHERE Availability\_Status = 'Under\_Maintenance';**

**-- List Customers with No Rental Records (Using MINUS)**

**SELECT c.Customer\_ID, c.First\_Name, c.Last\_Name**

**FROM Customers c**

**MINUS**

**SELECT DISTINCT r.Customer\_ID, c.First\_Name, c.Last\_Name**

**FROM Customers c**

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

**-- Total Rentals by Car Model for Models with More Than 5 Rentals**

**SELECT c.Make, c.Model, COUNT(r.Rental\_ID) AS Total\_Rentals**

**FROM Cars c**

**JOIN Rental\_Transactions r ON c.Car\_ID = r.Car\_ID**

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

**HAVING COUNT(r.Rental\_ID) > 5**

**ORDER BY Total\_Rentals DESC;**

**-- Average Maintenance Cost per Location with Total Count of Maintenance**

**SELECT l.Location\_Name, COUNT(cm.Maintenance\_ID) AS Maintenance\_Count, AVG(cm.Maintenance\_Cost) AS Avg\_Maintenance\_Cost**

**FROM Locations l**

**JOIN Cars c ON l.Location\_ID = c.Location\_ID**

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

**GROUP BY l.Location\_Name**

**HAVING COUNT(cm.Maintenance\_ID) > 0**

**ORDER BY Avg\_Maintenance\_Cost DESC;**

**exit;**

**EOF**

**#!/bin/sh**

**sqlplus64 "emergela/03225404@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(Host=oracle12c.scs.ryerson.ca)(Port=1521))(CONNECT\_DATA=(SID=orcl12c)))" <<EOF**

**-- View Cars Maintenance**

**SELECT \* FROM Cars\_Maintenance\_View;**

**-- View Customer Rental Summary**

**SELECT \* FROM Customer\_Rental\_Summary;**

**exit;**

**EOF**

**echo "Press Enter to return to the menu..."**

**read**