# -- DATABASE SETUP

CREATE DATABASE meraki\_db;

USE meraki\_db;

# -- QUESTION 1

CREATE TABLE TruckMake (

TruckMakeID CHAR(3) NOT NULL,

TruckMakeName VARCHAR(30),

PRIMARY KEY(TruckMakeID)

);

DROP TABLE TruckModel;

CREATE TABLE TruckModel (

TruckMakeID CHAR(3) NOT NULL,

TruckModelID CHAR(3) NOT NULL,

TruckModelName VARCHAR(30),

PRIMARY KEY(TruckMakeID, TruckModelID),

FOREIGN KEY(TruckMakeID) REFERENCES TruckMake(TruckMakeID)

);

CREATE TABLE Truck (

TruckVINNum CHAR(4) NOT NULL,

TruckMakeID CHAR(3) NOT NULL,

TruckModelID CHAR(3) NOT NULL,

TruckColour VARCHAR(15),

TruckPurchaseDate DATE,

TruckCost DECIMAL(10, 2),

PRIMARY KEY(TruckVINNum),

FOREIGN KEY(TruckMakeID, TruckModelID) REFERENCES TruckModel(TruckMakeID, TruckModelID)

);

CREATE TABLE Service (

TransportID CHAR(2) NOT NULL,

TransportName VARCHAR(30),

TransportCost DECIMAL(10, 2),

TransportMaxDist DECIMAL(10, 2),

PRIMARY KEY(TransportID)

);

CREATE TABLE Allocation (

TruckVINNum CHAR(4) NOT NULL,

TransportID CHAR(2) NOT NULL,

FromDate DATE,

ToDate DATE,

FOREIGN KEY(TruckVINNum) REFERENCES Truck(TruckVINNum),

FOREIGN KEY(TransportID) REFERENCES Service(TransportID)

);

INSERT INTO TruckMake (TruckMakeID, TruckMakeName)

VALUES ('TM1', 'Volvo'),

('TM2', 'Mercedes'),

('TM3', 'Isuzu'),

('TM4', 'Mack'),

('TM5', 'Kenworth');

INSERT INTO TruckModel (TruckMakeID, TruckModelID, TruckModelName)

VALUES ('TM1', 'M01', 'Big Truck'),

('TM1', 'M02', 'Biggest Truck'),

('TM2', 'M01', 'Half Truck'),

('TM2', 'M02', 'Small Truck'),

('TM2', 'M03', 'Smallest Truck'),

('TM3', 'M01', 'Semi Truck'),

('TM4', 'M01', 'Demi Truck'),

('TM4', 'M02', 'Drilling Truck'),

('TM5', 'M01', 'Cement Truck');

INSERT INTO Truck (TruckVINNum, TruckMakeID, TruckModelID, TruckColour, TruckPurchaseDate, TruckCost)

VALUES ('V023', 'TM1', 'M01', 'Red', '1998-07-16', 25000),

('V054', 'TM1', 'M02', 'Red', '2009-11-11', 24999.85),

('V635', 'TM2', 'M02', 'White', '2016-01-16', 16500),

('V999', 'TM4', 'M02', 'Yellow', '2016-01-16', 4000),

('V998', 'TM5', 'M01', 'Black', '2020-05-03', 14000.95);

INSERT INTO Service (TransportID, TransportName, TransportCost, TransportMaxDist)

VALUES ('T1', 'Coal Delivery', 5000, 1000),

('T2', 'Iron Ore Delivery', 1000, 1500),

('T3', 'Large Quantity Delivery', 3000, 250),

('T4', 'National Shipment', 10000, 750),

('T5', 'International Shipment', 2000, 1200);

INSERT INTO Allocation (TruckVINNum, TransportID, FromDate, ToDate)

VALUES ('V023', 'T3', '2020-08-17', '2020-08-18'),

('V023', 'T4', '2020-06-05', '2020-06-08'),

('V635', 'T4', '2020-08-17', '2020-08-20'),

('V999', 'T5', '2020-06-17', '2020-06-30'),

('V054', 'T2', '2020-01-03', '2020-01-04');

# -- QUESTION 2

SELECT TruckVINNum, TruckColour, CONCAT('$', TruckCost) AS 'Cost' FROM Truck

ORDER BY TruckCost DESC;

# -- QUESTION 3

SELECT TruckVINNum, TransportID, FromDate, ToDate, DATEDIFF(ToDate, FromDate) AS 'Number of Days' FROM Allocation;

# -- QUESTION 4

SELECT t.TruckVINNum, model.TruckModelName

FROM Truck t, TruckMake make, TruckModel model

WHERE t.TruckMakeID = make.TruckMakeID AND t.TruckModelID = model.TruckModelID AND make.TruckMakeID = model.TruckMakeID AND make.TruckMakeName = 'Volvo';

# -- QUESTION 5

SELECT DISTINCT a.TruckVINNum

FROM Allocation a JOIN Service s

USING(TransportID)

WHERE DATEDIFF(a.ToDate, a.FromDate) >= 3 && s.TransportCost BETWEEN 1500 AND 2500;

# -- QUESTION 6

SELECT s.TransportName, s.TransportCost, s.TransportMaxDist

FROM Service s

WHERE TransportID IN (

SELECT TransportID

FROM Allocation a

WHERE TIMESTAMPDIFF(MONTH, a.FromDate, NOW()) <= 6

);

# -- QUESTION 7

SELECT s.TransportName, s.TransportCost, s.TransportMaxDist

FROM Service s JOIN Allocation a

ON s.TransportID = a.TransportID AND TIMESTAMPDIFF(MONTH, a.FromDate, NOW()) <= 6;

# -- QUESTION 8

SELECT DISTINCT s.TransportName, s.TransportMaxDist AS 'Kilometers', CAST(s.TransportMaxDist/1.609 AS DECIMAL(10,2)) AS 'Miles'

FROM Service s JOIN Allocation a JOIN Truck t

ON s.TransportID = a.TransportID AND a.TruckVINNum = t.TruckVINNum AND t.TruckColour = 'Red';

# -- QUESTION 9

SELECT t.TruckColour, COUNT(t.TruckColour) AS 'Number of Trucks'

FROM Truck t

GROUP BY t.TruckColour

ORDER BY COUNT(t.TruckColour) DESC;

# -- QUESTION 10

SELECT make.TruckMakeName, COUNT(model.TruckModelID) AS 'Number of Models'

FROM TruckModel model JOIN TruckMake make

USING(TruckMakeID)

GROUP BY make.TruckMakeName

HAVING COUNT(model.TruckModelID) > 1;

# -- QUESTION 11

SELECT \*

FROM Truck

WHERE TruckVINNum NOT IN (

SELECT TruckVINNum

FROM Allocation

);

# -- QUESTION 12

# SELECT DISTINCT s.\*

# FROM Service s

# WHERE s.TransportCost > 5000 AND TransportID IN (

# SELECT TransportID

# FROM Allocation a

# WHERE

# EXTRACT(MONTH FROM a.FromDate) = 1 AND EXTRACT(MONTH FROM a.ToDate) = 1

# OR

# EXTRACT(YEAR FROM a.FromDate) = 2020 AND EXTRACT(YEAR FROM a.ToDate) = 2020

# OR

# EXTRACT(YEAR FROM a.FromDate) = 2021 AND EXTRACT(YEAR FROM a.ToDate) = 2021

# );

# -- QUESTION 13

SELECT DISTINCT t.TruckVINNum, make.TruckMakeName, model.TruckModelName

FROM Truck t, TruckMake make, TruckModel model, Allocation a

WHERE t.TruckMakeID = make.TruckMakeID AND t.TruckModelID = model.TruckModelID AND model.TruckMakeID = make.TruckMakeID AND t.TruckVINNum = a.TruckVINNum AND t.TruckColour = 'Red';