Assignment 2 of INFO90002 S1 2022
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1. List all vehicles the company owns. Only show registration, make, model, depot name and depot email. List the result in alphabetical order of depot name. (10 marks)

```
SELECT "1323782" AS StuID, vehicle3782.RegNo, vehicle3782.Make, vehicle3782.Model, depot3782.DepotName,
depot3782.EmailAddress
FROM vehicle3782
INNER JOIN depot3782
ON vehicle3782.DepotID = depot3782.DepotID
ORDER BY depot3782.DepotName;
```

StuID	RegNo	Make	Model	DepotName	EmailAddress
1323782	WWH002	Toyota	Corolla	Ballarat	ballarat@westwindcarhire.com.au
1323782	WWH015	Mazda	CX-3	Ballarat	ballarat@westwindcarhire.com.au
1323782	WWH001	Toyota	Corolla	Caroline Springs	carolinesprings@westwindcarhire.com.au
1323782	WWH007	Volkswagen	Transporter	Caroline Springs	carolinesprings@westwindcarhire.com.au
1323782	WWH009	Volkswagen	Transporter	Caroline Springs	carolinesprings@westwindcarhire.com.au
1323782	WWH011	Mazda	CX-3	Caroline Springs	carolinesprings@westwindcarhire.com.au
1323782	WWH016	Mazda	CX-5	Caroline Springs	carolinesprings@westwindcarhire.com.au
1323782	WWH018	Hyundai	Staria Load	Caroline Springs	carolinesprings@westwindcarhire.com.au
1323782	WWH020	Hyundai	I30	Caroline Springs	carolinesprings@westwindcarhire.com.au
1323782	WWH022	Hyundai	Staria	Caroline Springs	carolinesprings@westwindcarhire.com.au

30 rows returned

2. List all depot names that have 5 or more vehicles.
(10 marks)

```
-- q2 showing NumDepVehicles column for easier examination

SELECT "1323782" AS StuID, depot3782.DepotName, COUNT(vehicle3782.DepotID) AS NumDepVehicles
FROM depot3782
INNER JOIN vehicle3782
ON vehicle3782.DepotID = depot3782.DepotID
GROUP BY depot3782.DepotName
HAVING numDepVehicles > 5;
```

StuID	DepotName	NumDepVehicles
1323782	Caroline Springs	9
1323782	Deer Park	8
1323782	Sunshine	7

3 rows returned

3. List the number of rentals for each month of each year. Order the result by month then year. Base your query on the car collection date.
(10 marks)

```
SELECT "1323782" AS StuID, COUNT(rental3782.RegNo) AS NumRental, MONTH(rental3782.DateCollection) AS Month,
MONTHNAME(rental3782.DateCollection) AS MonthName, YEAR(rental3782.DateCollection) AS Year
FROM rental3782
GROUP BY Month, MonthName, Year
ORDER BY Month, MonthName, Year;
```

StuID	NumRental	Month	MonthName	Year
1323782	8	1	January	2020
1323782	2	1	January	2021
1323782	7	1	January	2022
1323782	5	2	February	2020
1323782	2	2	February	2021
1323782	2	2	February	2022
1323782	6	3	March	2020
1323782	1	3	March	2021
1323782	1	3	March	2022
1323782	3	4	April	2020
1323782	1	4	April	2021

27 rows returned

4. List all clients for whom rental collection date is in one month and the return date is in a different month, e.g. vehicle collection happened in March 2021 and return was in April 2021. Be sure to eliminate duplicates from your result set.
(15 marks)

```
-- q4 ColMonNum short for Collect Month Number, RetMonNum short for Return Month Number
-- showing both month number and name for better readability

SELECT "1323782" AS StuID, client3782.ClientID, CONCAT(client3782.FirstName, " ", client3782.FamilyName) AS ClientName,
MONTHNAME(rental3782.DateCollection) AS CollectMonth, MONTH(rental3782.DateCollection) AS ColMonNum,
MONTHNAME(rental3782.DateReturn) AS ReturnMonth, MONTH(rental3782.DateReturn) AS RetMonNum
FROM rental3782
INNER JOIN client3782
on client3782.CLientID = rental3782.ClientID
HAVING CollectMonth <> ReturnMonth;
```

StuID	ClientID	ClientName	CollectMonth	ColMonNum	ReturnMonth	RetMonNum
1323782	1592	Connie Müller	January	1	February	2
1323782	1845	José Ashworth	January	1	February	2
1323782	1595	Sven Mackenzie	October	10	November	11
1323782	1891	Martín Estes	May	5	June	6
1323782	1752	Liz Hernández	January	1	February	2
1323782	2010	Chandra Gregory	May	5	June	6
1323782	1873	Theodore Diaz	January	1	February	2

7 rows returned

5. List the registrations, makes and models of the cars that have never been transferred to another depot.
(10 marks)

After testing 1000 times on where clause and left join on this query, average duration/fetch time is 0.0046 sec

```
-- Using JOIN over subquery for better efficiency

SELECT "1323782" AS StuID, vehicle3782.RegNo, vehicle3782.Make, vehicle3782.Model
FROM vehicle3782
LEFT JOIN transfer3782
ON vehicle3782.RegNo = transfer3782.RegNo
WHERE transfer3782.DepotID IS NULL;
```

StuID	RegNo	Make	Model
1323782	WWH001	Toyota	Corolla
1323782	WWH006	Volkswagen	Transporter
1323782	WWH008	Volkswagen	Transporter
1323782	WWH009	Volkswagen	Transporter
1323782	WWH011	Mazda	CX-3
1323782	WWH012	Mazda	CX-3
1323782	WWH013	Mazda	CX-3
1323782	WWH015	Mazda	CX-3
1323782	WWH016	Mazda	CX-5
1323782	WWH017	Mazda	CX-5
1323782	WWH018	Hyundai	Staria Load

17 rows returned

6. List client ID and Client Full Name for those who rented a car more than twice in the year 2020.
(20 marks)

```
SELECT "1323782" AS StuID, rental3782.ClientID, CONCAT(client3782.FirstName, " ", client3782.FamilyName) AS ClientName,
COUNT(MONTH(rental3782.DateCollection)) AS RentCount
FROM rental3782
INNER JOIN client3782
ON rental3782.ClientID = client3782.ClientID
WHERE YEAR(rental3782.DateCollection) = 2020
GROUP BY rental3782.ClientID
HAVING RentCount > 2;
```

StuID	ClientID	ClientName	RentCount
1323782	1573	Liu Devon	3
1323782	1994	Yoshi Karttunen	3

3 row returned

7. List all vehicles and their average number of rental days per year. The results should be displayed as Year, RegNo, make, model, average number of days.
(20 marks)

```
-- q7 Average rental days result format to 2 decimal places

SELECT "1323782" AS StuID, YEAR(rental3782.DateCollection) AS Year, rental3782.RegNo, vehicle3782.Make, vehicle3782.Model,
FORMAT(AVG(DATEDIFF(rental3782.DateReturn, rental3782.DateCollection)), 2) AS AverageRentalDays
FROM rental3782
INNER JOIN vehicle3782
ON rental3782.RegNo = vehicle3782.RegNo
GROUP BY RegNo, Year
ORDER BY RegNo, Year;
```

StuID	Year	RegNo	Make	Model	AverageRentalDays
1323782	2020	WWH001	Toyota	Corolla	5.33
1323782	2020	WWH002	Toyota	Corolla	6.00
1323782	2020	WWH003	Toyota	Corolla	6.25
1323782	2021	WWH003	Toyota	Corolla	2.00
1323782	2022	WWH003	Toyota	Corolla	2.00
1323782	2020	WWH004	Toyota	Corolla	5.50
1323782	2020	WWH005	Nissan	Navara	8.11
1323782	2021	WWH005	Nissan	Navara	1.00
1323782	2020	WWH006	Volkswagen	Transporter	11.50
1323782	2020	WWH007	Volkswagen	Transporter	8.50
1323782	2021	WWH007	Volkswagen	Transporter	8.00

47 rows returned

8. Count the number of cars rented in each quarter of each year. Your output should show rental year, quarter, number of cars rented.
Quarter 1 contains months Jan, Feb, March; quarter 2 – April, May, June, etc. Note, year 2022 has records for quarter 1 only. (30 marks)

```
-- q8 Count "number of cars" not "the amount that cars have been rented". Meaning count unique car rented, not how many times car rented

SELECT "1323782" AS StuID, YEAR(rental3782.DateCollection) AS Year, QUARTER(rental3782.DateCollection) AS Quarter,
COUNT(DISTINCT(rental3782.RegNo)) AS NumCarRented
FROM rental3782
GROUP BY year, quarter
ORDER BY year, quarter;
```

StuID	Year	Quarter	NumRental
1323782	2020	1	12
1323782	2020	2	10
1323782	2020	3	8
1323782	2020	4	11
1323782	2021	1	5
1323782	2021	2	6
1323782	2021	3	4
1323782	2021	4	5
1323782	2022	1	8

9 rows returned

9. List all cars that had maintenance work that included tyres. Your output should show RegNo, make, model, job description. Order the output by make and model.
(15 marks)

```
-- q9 ignore maintenance status, data not up to date, only check JobDesc to include "tyre"

SELECT "1323782" AS StuID, maintenance3782.RegNo, vehicle3782.Make, vehicle3782.Model, maintenance3782.JobDesc
FROM maintenance3782
INNER JOIN vehicle3782
ON maintenance3782.RegNo = vehicle3782.RegNo
WHERE JobDesc LIKE '%tyre%'
ORDER BY Make, Model;
```

StuID	RegNo	Make	Model	JobDesc
1323782	WWH001	Toyota	Corolla	Logbook service. Fit new tyres x4
1323782	WWH002	Toyota	Corolla	Routine rotate tyres.
1323782	WWH003	Toyota	Corolla	Routine rotate tyres.
1323782	WWH004	Toyota	Corolla	New set of tyres

4 rows returned

10. List all details of vehicles that are older than 7 years and have 5 seats. Show depot name, not number. Order results by make and model.
(15 marks)

```
-- q10, showing all vehicles details

SELECT "1323782" AS StuID, depot3782.DepotName, vehicle3782.RegNo, vehicle3782.Make, vehicle3782.Model, vehicle3782.Type,
vehicle3782.ProdYear, vehicle3782.NoOfSeats
FROM vehicle3782
INNER JOIN depot3782
ON vehicle3782.DepotID = depot3782.DepotID
WHERE vehicle3782.ProdYear < YEAR(DATE_SUB(NOW(),INTERVAL 7 YEAR)) AND vehicle3782.NoOfSeats = 5
ORDER BY vehicle3782.Make, vehicle3782.Model;
```

StuID	DepotName	RegNo	Make	Model	Type	ProdYear	NoOfSeats
1323782	Sunshine	WWH025	Subaru	Liberty	Sedan	2011	5
1323782	Deer Park	WWH026	Subaru	Liberty	Sedan	2011	5
1323782	Sunshine	WWH024	Subaru	Outback	SUV	2009	5

3 rows returned

11.

1. Write the SQL DDL to create a view that lists the staff ID, full name, mobile phone number and depot name they work in for all staff who are NOT involved in maintenance, i.e. admin staff (30 marks)

```
-- q11a, this following part is DDL to create a view, DROP VIEW call is optional (if need to re-create view)
-- DROP VIEW IF EXISTS vw_StaNotInMain;

CREATE VIEW vw_StaNotInMain AS
SELECT staff3782.StaID, staff3782.StaFullName, staff3782.StaMobile, depot3782.DepotName
FROM staff3782
INNER JOIN depot3782
ON staff3782.DepotID = depot3782.DepotID
LEFT JOIN maintenance3782
ON staff3782.StaID = maintenance3782.StaID
WHERE maintenance3782.RegNo IS NULL;
```


```
-- to show created view

SELECT "1323782" AS StuID, vw_StaNotInMain.StaID, vw_StaNotInMain.StaFullName, vw_StaNotInMain.StaMobile,
vw_StaNotInMain.DepotName
FROM vw_StaNotInMain;
```

StuID	StaID	StaFullName	StaMobile	DepotName
1323782	W0004	Gough Whitlam	0491 570 159	Ballarat
1323782	W0002	Bob Hawke	0491 570 157	Caroline Springs
1323782	W0003	Malcolm Fraser	0491 570 158	Horsham
1323782	W0001	Paul Keating	0491 570 156	Sunshine
1323782	W0009	Earle Page	0491 555 159	Sunshine

5 rows returned

2. (Using the View you created in Task 11a, write a query to identify staff work phone number (not their mobile). List staff member's full name, depot name and depot phone number

```
SELECT "1323782" AS StuID, vw_StaNotInMain.StaFullName, vw_StaNotInMain.DepotName, depot3782.PhoneNo
FROM vw_StaNotInMain
INNER JOIN depot3782
ON vw_StaNotInMain.DepotName = depot3782.DepotName;
```

StuID	StaFullName	DepotName	PhoneNo
1323782	Gough Whitlam	Ballarat	92148002
1323782	Bob Hawke	Caroline Springs	92148001
1323782	Malcolm Fraser	Horsham	92148003
1323782	Paul Keating	Sunshine	92140004
1323782	Earle Page	Sunshine	92140004

5 rows returned