

INFO90002 S1 2022

Assignment 2 - SQL

Due: see LMS

Submission: Via the Canvas LMS

Weighting: 10% of your total assessment (Graded out of 200 marks)

WesternVic Car Rentals

WesternVic Car Rentals is a medium size car rental company that currently has 5 depots in the Western Suburbs of Melbourne and Western Victoria. Customers can hire a vehicle from any depot and if necessary vehicles are transferred between depots. The company keeps track of vehicles, their transfers, their rentals and their maintenance. All staff members are associated with a specific depot where they either perform admin duties or conduct maintenance of vehicles.

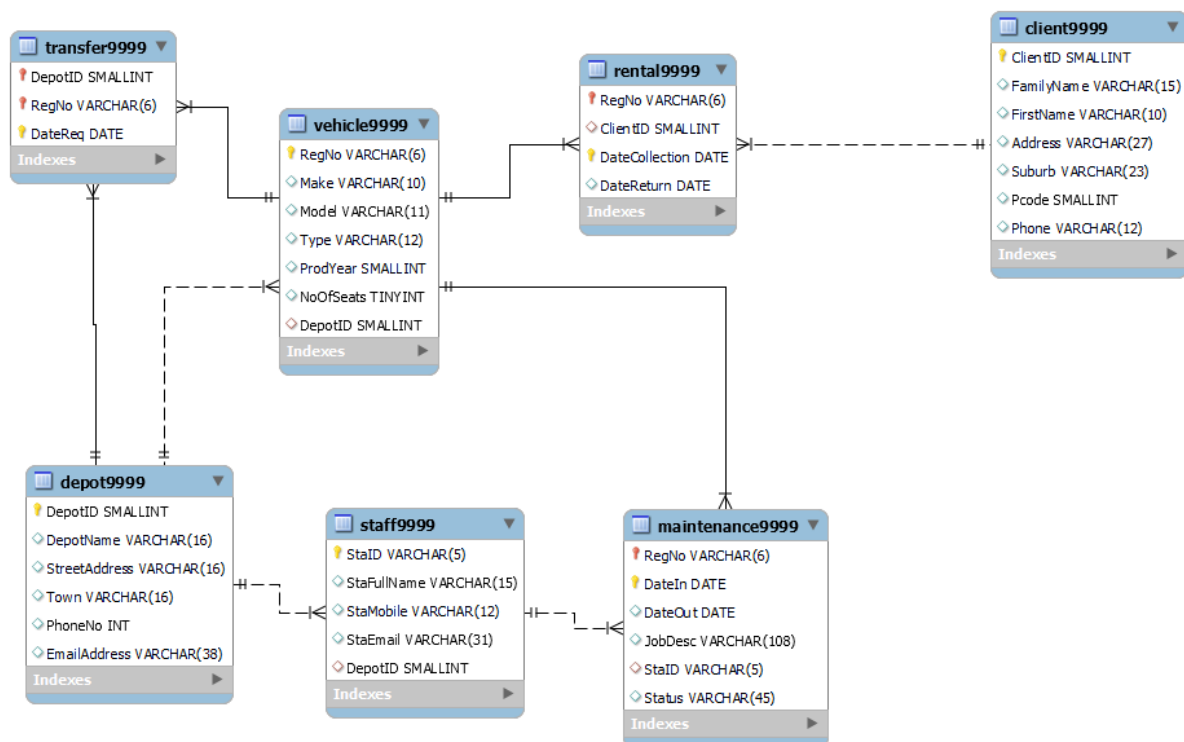


Figure 1. WesternVic Car Rental Data Model

Instructions

1. Rename all tables to have the last 4 digits the same as the last 4 digits of your student ID
 - **Download** the file named **CarRentals_9999.sql** from the **LMS**.
 - Open this file in a text editor, e.g. in **Notepad**, **Notepad++** or **some other Text editor**
 - Change all occurrences of **9999** to **the last 4 digits of your student ID**. (one way to do this is to perform a **find and replace**).
2. Run the script on the engineering server (and / or on your local MySQL server). This will create the car rentals database with all required tables and populate them with data.


3. Write the following SQL statement and execute it.

```
SELECT '123459999' as StuID, depot9999.*
FROM depot9999
```

(Note that in the above statement 123459999 should be replaced with your Student ID and both 9999 would be last 4 digits of your student ID, as in step 1 above)

Notice how each row contains your student id and all attributes from the depot table.


Result Grid



Filter Rows:

Export:



Wrap Cell Content:



	StuID	DepotID	DepotName	StreetAddress	Town	PhoneNo	EmailAddress
▶	123459999	1	Ballarat	3 South Road	Delacombe	92148002	ballarat@westwindcarhire.com.au
	123459999	2	Caroline Springs	5 High Street	Caroline Springs	92148001	carolinesprings@westwindcarhire.com.au
	123459999	3	Deer Park	1 Main Road	Deer Park	92148000	deerpark@westwindcarhire.com.au
	123459999	4	Horsham	5 Wawunna Road	Horsham	92148003	horsham@westwindcarhire.com.au
	123459999	5	Sunshine	8 Harvester Road	Sunshine	92140004	sunshine@westwindcarhire.com.au

You are expected to include your student ID in all queries

Questions

Write a single SQL statement to answer the following questions. Do not use inline views / schema on read, views unless explicitly instructed to do so. Views, inline views and schema on read for Q1-Q9 will earn 0 marks.

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

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)
5. List the registrations, makes and models of the cars that have *never* been transferred to another depot.
(10 marks)
6. List client ID and Client Full Name for those who rented a car more than twice in the year 2020.
(20 marks)
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)
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)
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)
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)
11.
 - a. 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)
 - b. 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.
(15 marks)

Submission Details:

Submit a single PDF showing your answers to all questions

Specify your student name and ID at the top of your answer document.

Formatting requirements for your submission

For each question, present an answer in the following format:

- Show the question number and question in **black** text.
- Show your answer (the SQL statement) in **blue** text (**DO NOT use a screen shot**)
- Show a screenshot of the result from Workbench displaying 10 or fewer lines.
- Show how many rows were actually returned, in **red** text.
- Remember to include your student ID.
- Show each query on a separate page.
- You must not use in-line views, schema on read, views for questions unless explicitly instructed to do so (Q11A only).

Example:

Q.XX List all Mazda vehicles the company has. The output should show regNo, make, model, production year.

```
SELECT '123459999' as StuID, regNo, make, model, ProdYear
FROM vehicle9999
WHERE make="Mazda";
```

StuID	regNo	make	model	ProdYear
123459999	WWH011	Mazda	CX-3	2017
123459999	WWH012	Mazda	CX-3	2017
123459999	WWH013	Mazda	CX-3	2017
123459999	WWH014	Mazda	CX-3	2017
123459999	WWH015	Mazda	CX-3	2017
123459999	WWH016	Mazda	CX-5	2019
123459999	WWH017	Mazda	CX-5	2019

7 Rows returned

IMPORTANT: ATTEMPT EVERY QUESTION!

APPENDIX A. WesternVic Car Rental Business Rules

Clients

Clients can be in WesternVic Car Rental system but have never rented a car.

Vehicles

WesternVic Car Rental is a budget type company so their vehicles are not very modern, some are quite old.

Staff

There are admin staff and staff involved in vehicle maintenance

APPENDIX B. Sample Marking Schema

In this sample marking rubric Questions 1 and 2 are referring to a different case study. They each are worth 10 marks out of 200. Please attempt every question. The approach is as important as the result.

Q1 (10)	SELECT (2)	FROM (2)	JOIN (4)	RESULT (2)	Q2 (10)	SELECT (2)	FROM + JOIN (2)	GROUP BY (2 marks)	ORDER BY (2 marks)	RESULT (2 marks)
	first_name, last_name, job_title, dept_name 0.5 marks each	staff departments 1 mark each	LEFT RIGHT OUTER JOIN 4 - correct 3 - natural join inner join 2 - left right join without OUTER ; incorrect join condition 1 - Cartesian or any other join	118 rows Kimberly Grant must be in the set 2 correct 0 other		country_name (1 mark) count(staff_id) (2 marks) (alias ok too)	INNER JOIN NATURAL JOIN 2 marks outer joins for no staff 1 mark			correct order (1 marks) incorrect order unordered but correct data (0 marks) incorrect result; no result

Any questions? Check the Assignment 2 LMS Ed Discussion forum for suggestions and hints.

