



	UNIVERSITI MALAYSIA SARAWAK
	Faculty of Computer Science and Information Technology

Assignment/Project/Report Cover Sheet

Student Name (lecture group no)	Student ID Number	Group	Signature
NURUL ADRIANA BINTI AFFENDY	100613	G02	
DAYANG SITI ZAKIRAH BINTI ABANG ZULKARNAINI	98677	G02	
NAFISAH AMANI BINTI SHAHRIN SHAH	97616	G02	
SHAMRIN BIN AL IDRUS	100973	G02	

Course Code: TMF2034	Course Name: Database Concept and Design
Assignment Title: Project	Lecturer: Dr Lee Nung Kion
Due Date: 26 June 2025	Date Submitted: 25 June 2025

This cover sheet must be completed, signed and firmly attached to the front of the submission. All work must be submitted by the due date. If an extension of work is granted, an extension acknowledgement slip must be signed by the lecturer/tutor and attached to the assignment/project/report. Please note that it is your responsibility to retain copies of your assignment.

Plagiarism and Collusion are methods of cheating that are addressed in the Peraturan Akademik Universiti Malaysia Sarawak para 11: Etika Akademik

Plagiarism Plagiarism is the presentation of work which has been copied in whole or in part from another person's work, or from any other source such as the Internet, published books or periodicals without due acknowledgement given in the text.

Collusion

Collusion is the presentation of work that is the result in whole or in part of unauthorized collaboration with another person or persons.

Where there are reasonable grounds for believing that cheating has occurred, the only action that may be taken when plagiarism or collusion is detected is for the staff member not to mark the item of work and to report or refer the matter to the Dean. This may result in work being disallowed and given a fail grade or if the circumstances warrant, the matter may be referred to a Committee of inquiry for investigation. Such investigation may result in the matter being referred to the University Discipline Committee, which has the power to exclude a student.

Upon placing signature above, I certify that I have not plagiarized the work of others or participated in unauthorized collusion when preparing this assignment.

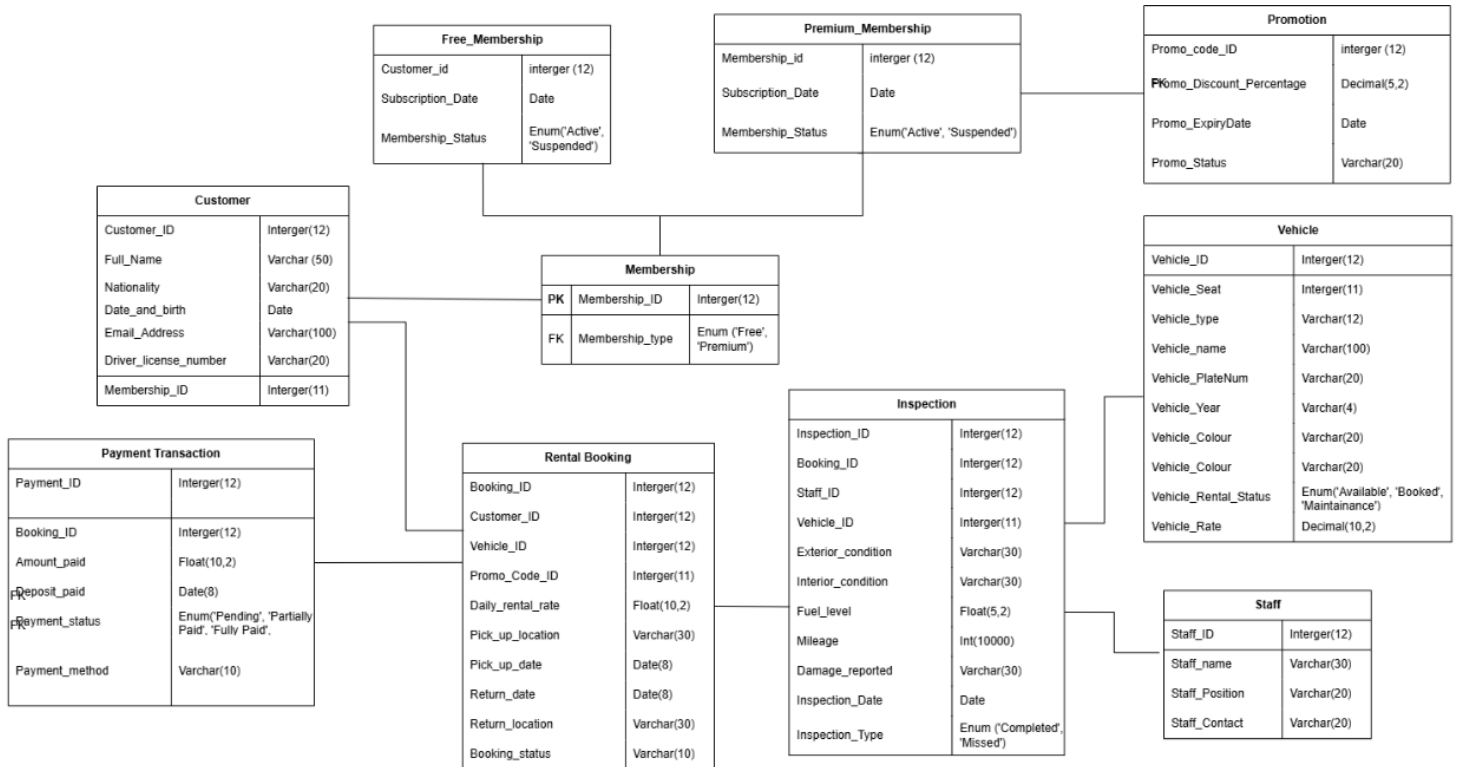
I also certify that I have taken proper care in safeguarding my work and have made all reasonable efforts to ensure that my work is not able to be copied.

MARK:

Table of Contents

Relational Database Schema	4
Normalization	5
1 st NF (First Normal Form):	5
2 nd NF (Second Normal Form):	5
3 rd NF (Third Normal Form):	6
Finalized Crow's Foot Relational Database Diagram	7
Functionality	8
References	19
Appendix	20

Relational Database Schema



Normalization

1st NF (First Normal Form):

RENTAL_BOOKING

(Customer_ID, Customer_Name, Email_Address, Date_of_birth, Driver_license_number, Vehicle_ID, Vehicle_Name, Vehicle_Type, Vehicle_Seat, Vehicle_PlateNum, Vehicle_Year, Vehicle_Colour, Membership_ID, Membership_type, Subscription_Date, Membership_Status, Booking_ID, Pick_up_location, Pick_up_date, Return_location, Return_date, Booking_status, Payment_ID, Amount_paid, Deposit_paid, Payment_status, Payment_method, Staff_ID, Staff_Name, Staff_Position, Staff_Contact, Inspection_ID, Exterior_condition, Interior_condition, Fuel_level, Mileage, Damage_reported, Inspection_Date, Inspection_Type)

2nd NF (Second Normal Form):

RENTAL_BOOKING

(Booking_ID, Pick_up_location, Pick_up_date, Return_location, Return_date, Booking_status)

CUSTOMER

(Customer_ID, Customer_Name, Email_Address, Date_of_birth, Driver_license_number, Membership_ID)

VEHICLE

(Vehicle_ID, Vehicle_Name, Vehicle_Type, Vehicle_Seat, Vehicle_PlateNum, Vehicle_Year, Vehicle_Colour)

PAYMENT_TRANSACTION

(Payment_ID, Booking_ID, Amount_paid, Deposit_paid, Payment_status, Payment_method)

INSPECTION

(Inspection_ID, Booking_ID, Staff_ID, Vehicle_ID, Exterior_condition, Interior_condition, Fuel_level, Mileage, Damage_reported, Inspection_Date, Inspection_Type)

STAFF

(Staff_ID, Staff_Name, Staff_Position, Staff_Contact)

MEMBERSHIP

(Membership_ID, Membership_Type)

PROMOTION

(Promo_Code_ID, Promo_Code)

3rd NF (Third Normal Form):

RENTAL_BOOKING

(Booking_ID, Pick_up_location, Pick_up_date, Return_location, Return_date, Booking_status, Membership_ID)

CUSTOMER

(Customer_ID, Customer_Name, Email_Address, Date_of_birth, Driver_license_number, Membership_ID)

VEHICLE

(Vehicle_ID, Vehicle_Name, Vehicle_Type, Vehicle_Seat, Vehicle_PlateNum, Vehicle_Year, Vehicle_Colour, Vehicle_Rental_Status, Vehicle_Rate)

PAYMENT_TRANSACTION

(Payment_ID, Booking_ID, Amount_paid, Deposit_paid, Payment_status, Payment_method)

INSPECTION

(Inspection_ID, Booking_ID, Staff_ID, Vehicle_ID, Exterior_condition, Interior_condition, Fuel_level, Mileage, Damage_reported, Inspection_Date, Inspection_Type)

MEMBERSHIP

(Membership_ID, Membership_Type)

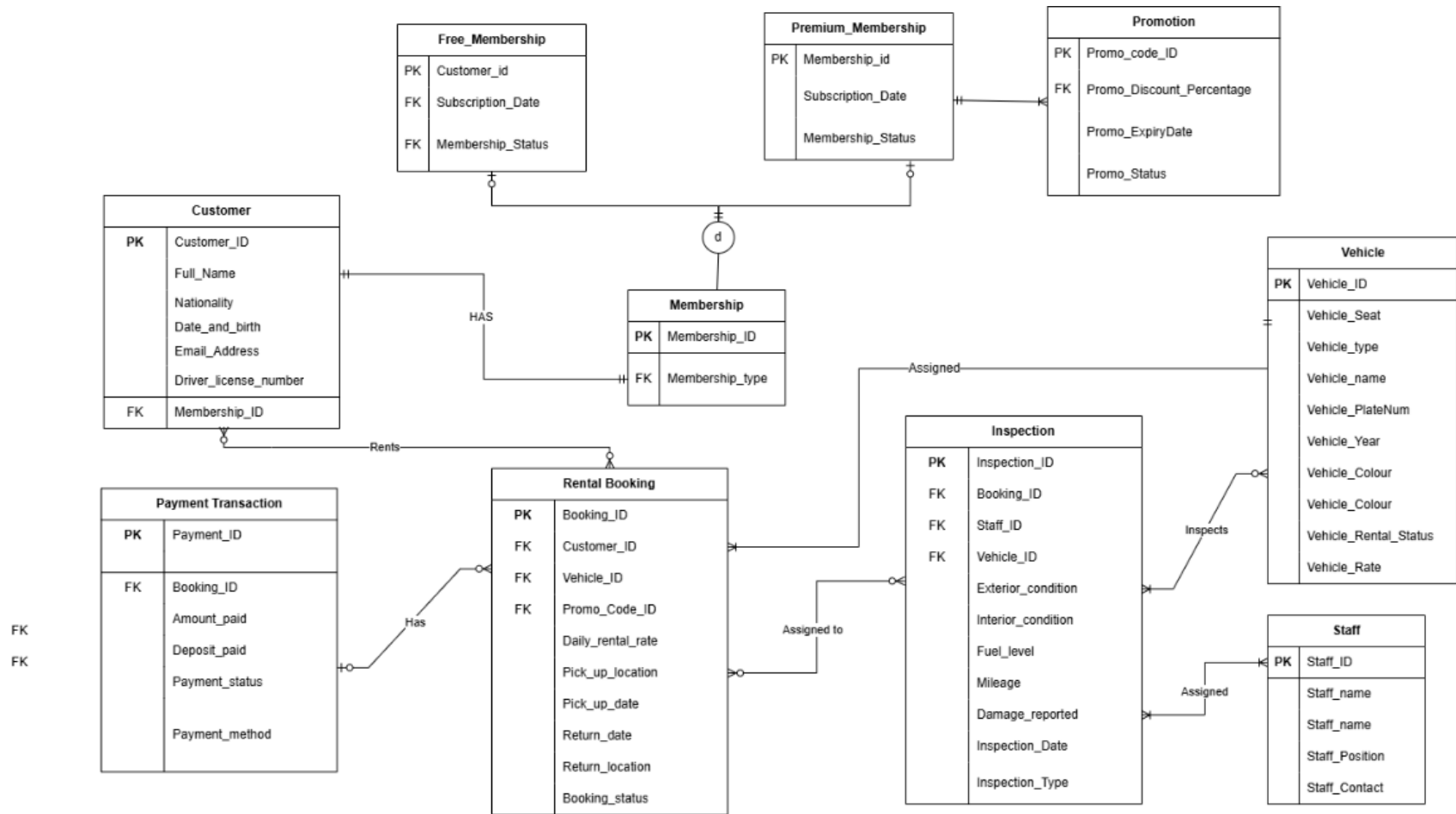
PROMOTION

(Membership_ID, Promo_Discount_Percentage, Promo_Expiry, Date, Promo_Status)

STAFF

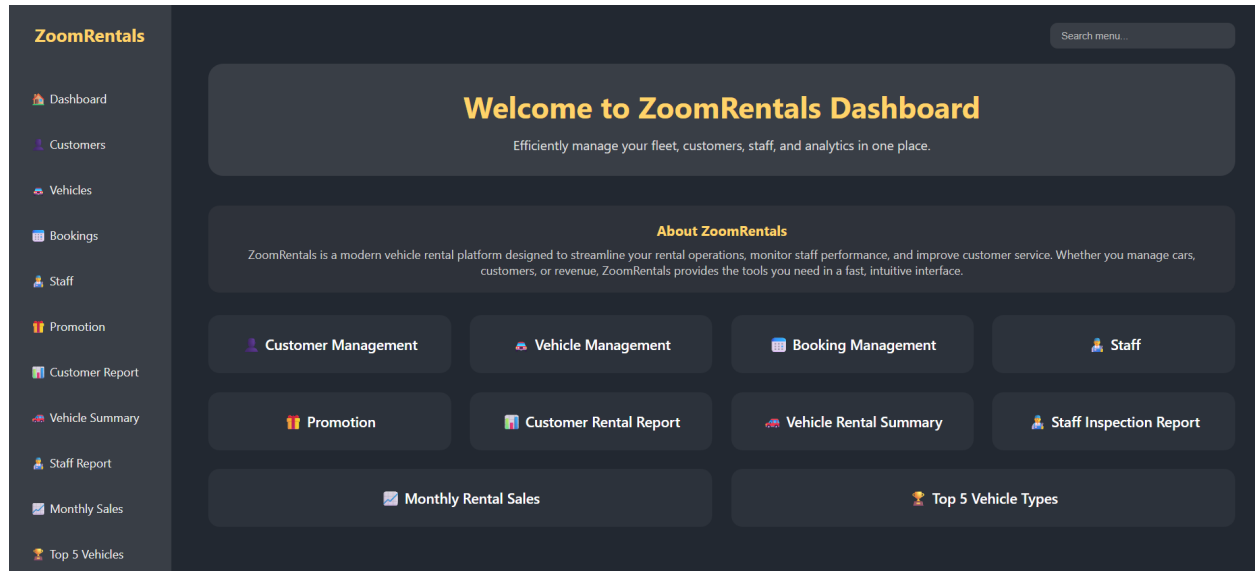
(Staff_ID, Staff_Name, Staff_Position, Staff_Contact)

Finalized Crow's Foot Relational Database Diagram

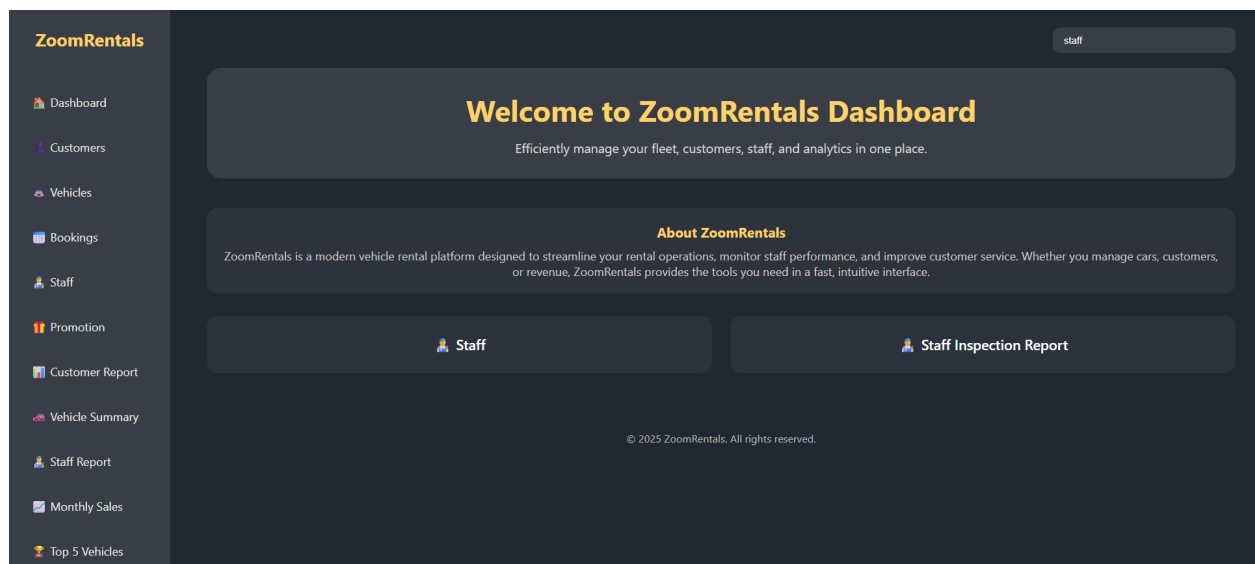


Functionality

a. dashboard



Dashboard to show all the functions.



Search the specific functions.

b. Customer Membership Details

Customer Membership Details

Search Name

Search Nationality

All Membership Types

Customer ID	Full Name	Nationality	Driver License Number	Date Of Birth	Contact Number	Email Address	Membership ID	Membership Type	Subscription Date	Membership Status	Actions
16	Aminul Hakim Bin Rosli	Malaysian	W1203456A	1993-02-21	012-3456789	aminul.rosli95@gmail.com	1001	Free	2023-03-15	Active	Edit Delete
17	Nur Aisyah Binti Ahmad	Malaysian	S7654321B	1997-06-07	013-8765432	nuraisyah98@yahoo.com	1001	Free	2024-12-31	Active	Edit Delete
18	Tan Wei Jie	Malaysian	J2345678C	2001-02-16	016-2233445	wei.jie.tan90@hotmail.com	1002	Premium	2024-07-17	Active	Edit Delete
19	Aina Farzana Binti Halim	Malaysian	P1239876D	1999-12-01	019-8877665	aina.halim97@gmail.com	1002	Premium	2025-01-10	Active	Edit Delete
20	Muhamad Syafiq Bin Omar	Malaysian	K4567890E	1990-04-18	011-1144556	syafiq.omar92@yahoo.com	1001	Free	2022-06-25	Active	Edit Delete
21	Lim Pei Ling	Malaysian	1989-06-25	1994-08-14	017-5551122	pei.ling.lim89@gmail.com	1002	Premium	2023-10-25	Suspended	Edit Delete
22	Roslan Bin Abdullah	Malaysian	A1357924G	1968-02-16	012-6677889	roslan.abdullah94@outlook.com	1002	Premium	2024-02-01	Suspended	Edit Delete
23	Siti Nunul Binti Razak	Malaysian	T2468135H	1990-11-23	014-7788991	nunul.razak00@gmail.com	1001	Free	2025-01-10	Active	Edit Delete
24	Goh Jin Hao	Malaysian	M1357864J	1997-12-31	018-9988776	jin.hao.goh91@gmail.com	1002	Premium	2024-03-25	Suspended	Edit Delete
25	Wan Nur Huda Binti Wan Mahzan	Malaysian	C3124567K	1984-06-20	014-3355778	nur.huda96@ymail.com	1002	Premium	2023-08-05	Active	Edit Delete
26	Haftz Bin Salleh	Malaysian	D9081726L	1993-09-10	016-5566778	haftz.salleh88@gmail.com	1002	Premium	1988-12-22	Suspended	Edit Delete
27	Yasmin Binti Idris	Malaysian	B1123344M	1995-03-08	013-3344556	yasmin.idris93@gmail.com	1002	Premium	2025-02-12	Active	Edit Delete
28	Ismail Bin Zainal	Malaysian	L4466553N	1994-02-10	012-2223344	ismail.zainal90@gmail.com	1002	Premium	2023-06-24	Active	Edit Delete
29	Dayang Nabila Binti Yusuf	Malaysian	Q9988776P	1980-03-12	017-6668882	dayang.nabila99@gmail.com	1001	Free	2025-01-28	Active	Edit Delete
30	Harith Mustafa	Malaysian	R7788996Q	1988-08-16	019-1122334	harith.mustafa87@hotmail.com	1001	Free	2024-04-12	Active	Edit Delete

Add New Customer

Back to Homepage

Display customer membership details.

Edit Customer

Full Name:

Dayang Nabila Binti Yusuf

Nationality:

Malaysian

Driver License Number:

Q9988776P

Date of Birth:

01/12/1988

Contact Number:

017-6668882

Email Address:

dayang.nabila99@gmail.com

Subscription Date:

01/28/2025

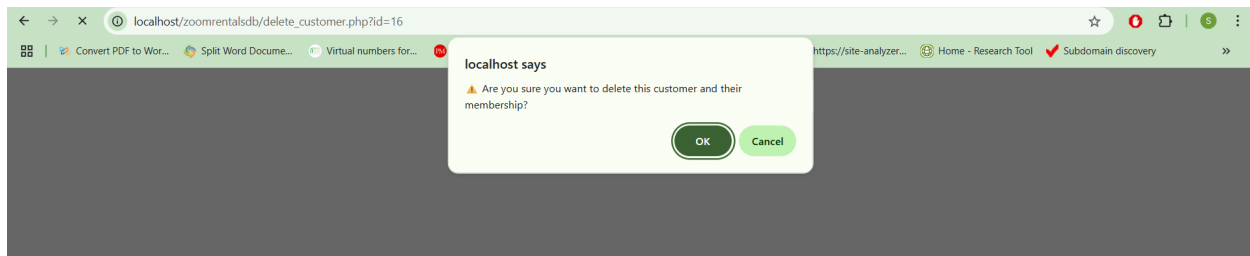
Membership Status:

Active

Update Customer

Back to Customer List

Edit customer details



Delete customer details

Customer Membership Details											
a			malaysian			Premium					
Customer ID	Full Name	Nationality	Driver License Number	Date Of Birth	Contact Number	Email Address	Membership ID	Membership Type	Subscription Date	Membership Status	Actions
18	Tan Wei Jie	Malaysian	J2345678C	2001-02-16	016-2233445	wei.jie.tan90@hotmail.com	1002	Premium	2024-07-17	Active	Edit Delete
19	Aina Farzana Binti Halim	Malaysian	P1239876D	1999-12-01	019-8877665	aina.halim97@gmail.com	1002	Premium	2025-01-10	Active	Edit Delete
22	Roslan Bin Abdullah	Malaysian	A1357924G	1968-02-16	012-6677889	roslan.abdullah94@outlook.com	1002	Premium	2024-02-01	Suspended	Edit Delete
24	Goh Jin Hao	Malaysian	M1357864J	1997-12-31	018-9988776	jin.hao.goh91@gmail.com	1002	Premium	2024-03-25	Suspended	Edit Delete
25	Wan Nur Huda Binti Wan Mahzan	Malaysian	C3124567K	1984-06-20	014-3355778	nur.huda96@ymail.com	1002	Premium	2023-08-05	Active	Edit Delete
26	Hafiz Bin Salleh	Malaysian	D9081726L	1993-09-10	016-5566778	hafiz.salleh88@gmail.com	1002	Premium	1988-12-22	Suspended	Edit Delete
27	Yasmin Binti Idris	Malaysian	B1123344M	1995-03-08	013-3344556	yasmin.idris93@gmail.com	1002	Premium	2025-02-12	Active	Edit Delete
28	Ismail Bin Zainal	Malaysian	L4466553N	1994-02-10	012-2223344	ismail.zainal90@gmail.com	1002	Premium	2023-06-24	Active	Edit Delete
Add New Customer						Back to Homepage					

Search customer details.

Add New Customer

Full Name:

Nationality:

Driver License Number:

Date of Birth:

Contact Number:

Email Address:

Membership:

Subscription Date:

Membership Status:

Add Customer

© 2022 by RentCar Ltd

Add new customer membership details.

c. Vehicle management

ID	VEHICLE NAME	TYPE	YEAR	PLATE NUMBER	SEATS	COLOUR	DAILY RATE (RM)	RENTAL STATUS	ACTIONS
303	Toyota Vios	Sedan	2020	SAR1234	5	White	RM 400.00	Available	Edit Delete
304	Honda CRV	SUV	2022	KCH5678	7	Black	RM 800.00	Available	Edit Delete
305	Perodua Myvi	Hatchback	2021	BTU3344	5	Blue	RM 250.00	Booked	Edit Delete
306	Proton X70	SUV	2023	MYV7788	5	Red	RM 400.00	Available	Edit Delete
307	Nissan Almera	Sedan	2019	BINT1001	5	Silver	RM 450.00	Available	Edit Delete
308	Proton X70	SUV	2023	QAD78900	5	White	RM 200.00	Available	Edit Delete
309	Perodua Aruz	SUV	2022	QAF6543F	7	silver	RM 175.00	Available	Edit Delete
310	Honda Jazz	Hatchback	2020	QAH7891H	5	Yellow	RM 140.00	Available	Edit Delete
311	Perodua Axia	Hatchback	2021	QAY4567B	5	silver	RM 110.00	Available	Edit Delete
312	Perodua Bezza	Sedan	2020	QAG2345G	5	White	RM 110.00	Booked	Edit Delete
313	Proton Saga	Sedan	2018	QAJ1233H	5	maroon	RM 110.00	Available	Edit Delete
314	Perodua Alva	SUV	2023	QAR7891H	5	black	RM 190.00	Available	Edit Delete

[Add New Vehicle](#)
[Back to Homepage](#)

Display vehicle list.

Edit Vehicle

Vehicle Name: Toyota Vios

Vehicle Type: Sedan

Year: 2020

Plate Number: SAR1234

Seat Count: 5

Colour: White

Daily Rate (RM): 400.00

Rental Status: Available

[UPDATE VEHICLE](#)

[Back to Vehicle List](#)

Edit vehicle details.

Add New Vehicle

Vehicle Name: Enter vehicle name

Vehicle Type: Enter vehicle type

Year: Enter vehicle year

Plate Number: Enter plate number

Seat Count: Enter seat count

Colour: Enter vehicle colour

Daily Rate (RM): e.g. 100.00

Rental Status: Available

[ADD VEHICLE](#)

[Back to Vehicle List](#)

Add new vehicle.

d. Booking list

Booking List														
Search keyword...			All Payments		dd/mm/yyyy		dd/mm/yyyy		Filter					
ID	Customer	Vehicle	Pickup Date	Return Date	Pickup Location	Return Location	Status	Payment	Promo Code	Promo Discount	Total Discount	Total Amount	Inspection	Actions
8	Aminul Hakim Bin Rosli	Toyota Vios	2025-02-05	2025-02-07	Emart Matang	Emart Matang	Completed	Fully Paid	1	40.00	40.00	RM 800.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
9	Nur Aisyah Binti Ahmad	Honda CRV	2025-02-08	2025-02-10	Mydin Petrajaya	Mydin Petrajaya	Completed	Fully Paid	2	40.00	40.00	RM 1,600.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
10	Tan Wei Jie	Proton X70	2025-02-15	2025-02-16	Aiman Mall	Aiman Mall	Completed	Fully Paid	3	160.00	160.00	RM 400.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
11	Aina Farzana Binti Halim	Perodua Myvi	2025-03-07	2025-03-09	Kuching Airport	Kuching Airport	Completed	Fully Paid	8	100.00	100.00	RM 400.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
12	Muhamad Syafiq Bin Omar	Nissan Almera	2025-03-16	2025-03-17	Shell Tabuan	Shell Tabuan	Completed	Fully Paid	—	0.00	0.00	RM 450.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
42	Hafiz Bin Salleh	Perodua Myvi	2025-03-20	2025-03-21	Aiman Mall	Aiman Mall	Completed	Fully Paid	2	12.50	12.50	RM 237.50	✓ Pickup — Return	Edit Delete Pay Inspect
13	Lim Pei Ling	Proton X50	2025-03-22	2025-03-24	Stadium Negeri	Stadium Negeri	Completed	Fully Paid	2	20.00	20.00	RM 380.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
24	Roslan Bin Abdullah	Perodua Aruz	2025-04-11	2025-04-14	Vivacity	Vivacity	Completed	Fully Paid	—	0.00	0.00	RM 310.00	✓ Pickup — Return	Edit Delete Pay Inspect
25	Siti Nurul Binti Razak	Honda Jazz	2025-04-18	2025-04-19	Mardi Kuching	Mardi Kuching	Completed	Fully Paid	—	0.00	0.00	RM 140.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
26	Goh Jin Hao	Perodua Axia	2025-04-24	2025-04-26	Yayasan Sarawak	Yayasan Sarawak	Completed	Fully Paid	1	22.00	22.00	RM 198.00	— Pickup — Return	Edit Delete Pay Inspect
41	Lim Pei Ling	Toyota Vios	2025-04-27	2025-04-28	BDC	BDC	Completed	Fully Paid	1	40.00	40.00	RM 360.00	✓ Pickup — Return	Edit Delete Pay Inspect
27	Wan Nur Huda Binti Wan Mahzan	Perodua Bezza	2025-05-03	2025-05-05	The Spring	The Spring	Completed	Fully Paid	—	0.00	0.00	RM 220.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
28	Hafiz Bin Salleh	Proton Saga	2025-05-09	2025-05-12	Aiman Mall	Aiman Mall	Completed	Fully Paid	1	33.00	33.00	RM 297.00	✓ Pickup — Return	Edit Delete Pay Inspect

Display customer booking list.

Booking List														
honda			Fully Paid		dd/mm/yyyy		dd/mm/yyyy		Filter					
ID	Customer	Vehicle	Pickup Date	Return Date	Pickup Location	Return Location	Status	Payment	Promo Code	Promo Discount	Total Discount	Total Amount	Inspection	Actions
9	Nur Aisyah Binti Ahmad	Honda CRV	2025-02-08	2025-02-10	Mydin Petrajaya	Mydin Petrajaya	Completed	Fully Paid	2	40.00	40.00	RM 1,600.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
25	Siti Nurul Binti Razak	Honda Jazz	2025-04-18	2025-04-19	Mardi Kuching	Mardi Kuching	Completed	Fully Paid	—	0.00	0.00	RM 140.00	✓ Pickup ✓ Return	Edit Delete Pay Inspect
Add Booking Back														

Search customer booking list.

Add Payment

Booking ID:

8

Payment Method:

Credit Card

Amount Paid:

Deposit Paid:

Payment Date:

dd/mm/yyyy

Submit Payment

Back to Booking List

Booking payment

Add Vehicle Inspection

Booking ID:

8

Vehicle ID:

303

Inspector Name:

Select Inspector

Inspection Type:

Select Type

Inspection Date:

dd/mm/yyyy

Fuel Level:

Mileage:

Exterior Condition:

Interior Condition:

Damage Reported:

Note:

SUBMIT INSPECTION

Back to Booking List

Vehicle inspection form

e. Staff list

Staff List

+ Add Staff

Back to Homepage

Search staff

ID	Name	Position	Contact	Actions
201	Aiman Syafiq	Inspector	0135647869	<div>EditDelete</div>
203	Farah Aminah	Inspector	01123456781	<div>EditDelete</div>
204	Daniel Hafiz	Inspector	01234567892	<div>EditDelete</div>
205	Siti Aisyah	Inspector	01345678903	<div>EditDelete</div>
206	Adam Khairul	Inspector	01456789014	<div>EditDelete</div>
207	Nadia Zahra	Inspector	01567890128	<div>EditDelete</div>
210	Nora Zain	Manager	0165566776	<div>EditDelete</div>
211	Adriana Amani	Inspector	0194379254	<div>EditDelete</div>

Display staff list.

Edit Staff

Staff Name:

Farah Aminah

Staff Position:

Inspector

Staff Contact:

01123456781

Update Staff

← Back to Staff List

Edit staff details.

+ Add New Staff

Staff Name:

Staff Position:

Staff Contact:

Add Staff

← Back to Staff List

Add new staff details.

📅 Promotion Management

Discount Percentage:

Expiry Date:

mm/dd/yyyy

Status:

Active

Add Promotion

← Back to Dashboard

ID	Discount (%)	Expiry Date	Status	Actions
8	20.00%	2026-02-23	Active	<div>EditDelete</div>
7	50.00%	2025-06-24	Active	<div>EditDelete</div>
3	40.00%	2026-01-23	Active	<div>EditDelete</div>
2	5.00%	2025-11-30	Active	<div>EditDelete</div>
1	10.00%	2025-12-31	Active	<div>EditDelete</div>

Display and add promotion management details.

g. Customer rental summary

Customer Rental Summary				
Customer ID	Full Name	Total Rentals	Promo Codes Used	Total Amount Spent (RM)
16	Amirul Hakim Bin Rosli	2	2	RM 1,208.00
17	Nur Aisyah Binti Ahmad	2	1	RM 1,820.00
18	Tan Wei Jie	2	2	RM 1,120.00
19	Aina Farzana Binti Halim	2	1	RM 510.00
20	Muhamad Syafiq Bin Omar	2	0	RM 560.00
21	Lim Pei Ling	2	2	RM 740.00
22	Roslani Bin Abdullah	1	0	RM 510.00
23	Siti Nurul Binti Razak	1	0	RM 140.00
24	Goh Jin Hao	1	1	RM 198.00
25	Wan Nur Huda Binti Wan Mahzan	2	1	RM 580.00
26	Hafiz Bin Salleh	2	2	RM 534.50
27	Yasmin Binti Idris	1	1	RM 180.50
28	Ismail Bin Zainal	2	2	RM 850.00
29	Dayang Nabila Binti Yusuf	1	1	RM 313.50
30	Harith Bin Mustafa	1	0	RM 110.00

display customer rental details.

h. Vehicle rental summary

Vehicle Rental Summary				
Vehicle ID	Vehicle Name	Total Rentals	Rental Frequency	Availability Status
305	Perodua Myvi	4	Medium	Booked
312	Perodua Bezza	3	Low	Booked
303	Toyota Vios	3	Low	Available
311	Perodua Axia	3	Low	Booked
309	Perodua Aruz	2	Low	Booked
313	Proton Saga	2	Low	Booked
307	Nissan Almera	2	Low	Booked
306	Proton X70	1	Low	Available
310	Honda Jazz	1	Low	Available
314	Perodua Aliva	1	Low	Available
304	Honda CRV	1	Low	Available
308	Proton X50	1	Low	Available

Display the vehicle rental summary.

i. Staff report

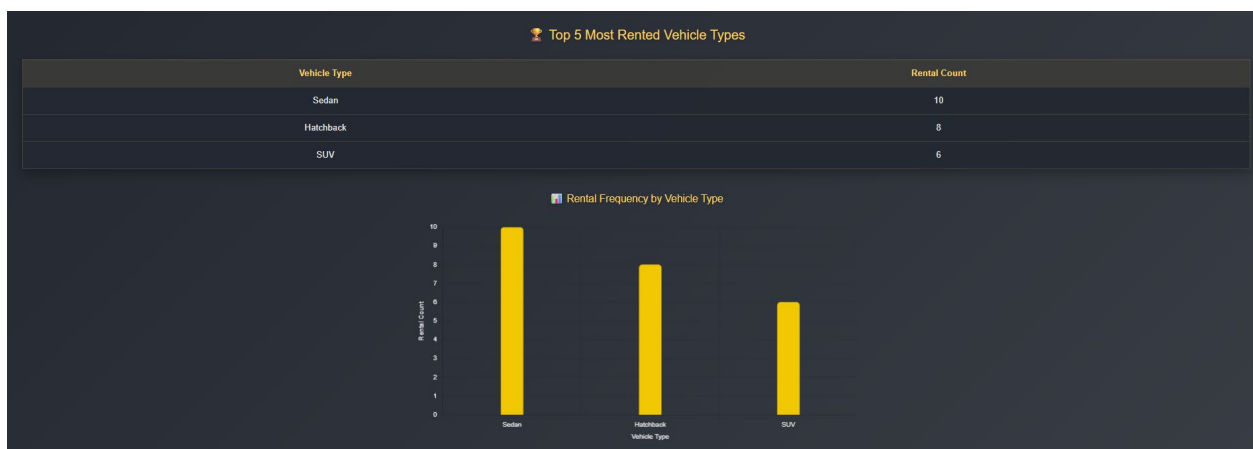
👤 Staff Inspection Report				
Staff ID	Staff Name	Total Pickups	Total Returns	Missed Inspections
201	Aiman Syafiq	3	3	1
203	Farah Aminah	2	2	1
204	Daniel Hafiz	3	2	0
205	Siti Aisyah	3	1	1
206	Adam Khairul	3	2	1
207	Nadia Zahra	3	1	1
211	Adriana Amani	4	1	1

Display the staff inspection report.

j. Monthly sales



Display monthly sales report.

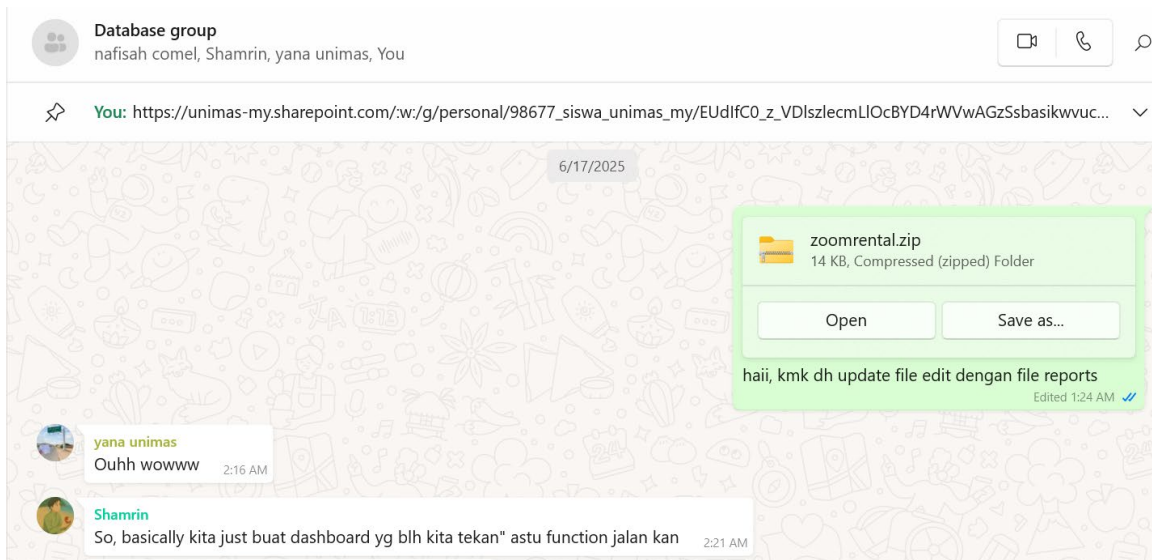
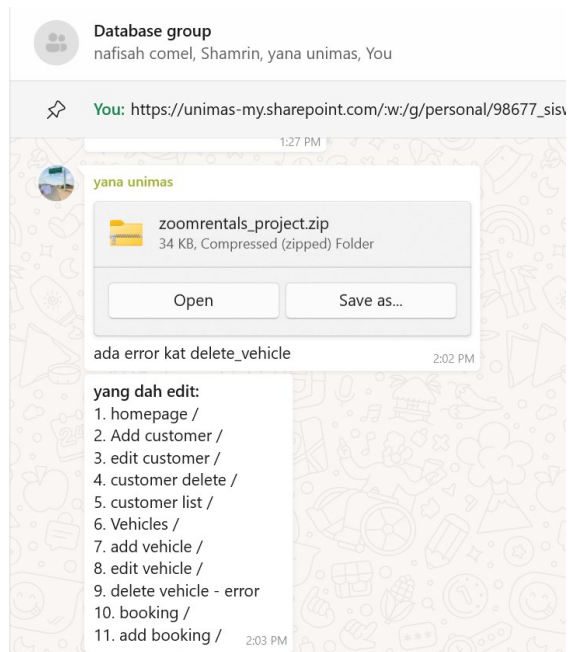
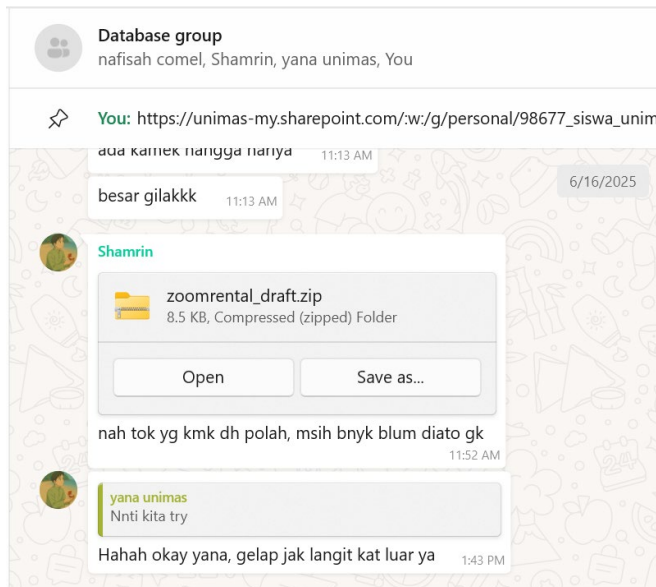


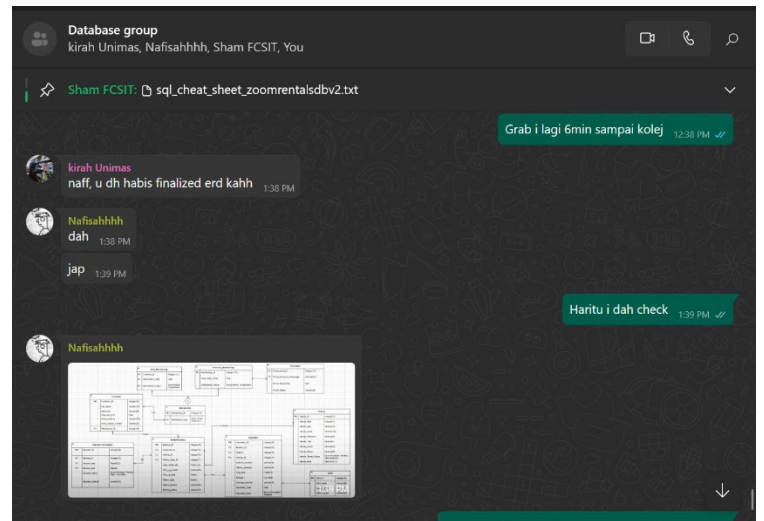
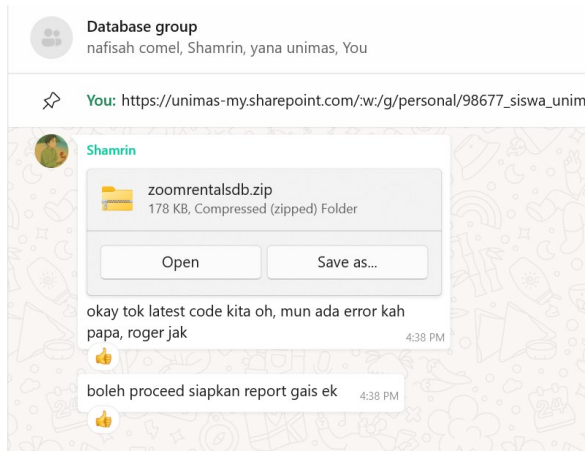
Top 5 most rented vehicle types.

References

GeeksforGeeks. (2025, May 14). First normal form (1NF). GeeksforGeeks.
<https://www.geeksforgeeks.org/dbms/first-normal-form-1nf/>

Appendix





Rubrics						
Relational Database Diagram (13 marks)						
Criteria	1	2	3	4	5	Mark
Relational database diagram (5 marks)	Relational database diagram is mostly incomplete and incorrect	Relational database diagram is partly complete but contains major missing attributes	Relational database diagram is mostly complete but has some missing or improperly defined attributes	Relational database diagram is complete but has minor inappropriate key attributes	Relational database diagram is complete, with key attributes appropriately assigned	
Relationship & Cardinality (3 marks)	Relationship and cardinality are mostly assigned incorrectly	Relationship and cardinality are partially assigned correctly	Relationship and cardinality are correctly assigned			
Normalized database (5 marks)	Major issues with redundancy, partial dependencies, and transitive dependencies	Some tables (>50%) fail to achieve 3NF, with partial or transitive dependencies causing major redundancy	Tables (>70%) mostly follow 3NF, but some partial or transitive dependencies exist, leading to minor redundancy and affecting overall integrity	Most tables (>80%) follow 3NF with minor issues in redundancy, but they do not affect overall integrity	All tables strictly follow 3NF. No redundancy, and all non-key attributes are fully functionally dependent on the primary key (s)	
Implementation of database application (25 marks)						
Criteria	1	2	3	4	5	
Add (3 marks)	Able to insert data for some entities but with major errors	Able to delete data for most entities but with minor errors	Able to insert data for all entities effectively			
Delete (3 marks)	Able to delete data for some entities but with major errors	Able to delete data for most entities but with minor errors	Able to delete data for all entities effectively			

Functionality marks	Update (3 marks)	Able to update data for some entities but with major errors	Able to update data for most entities but with minor errors	Able to update data for all entities effectively			
	Query (Accuracy) (5 marks)	Manipulate most required data components poorly	Manipulates some required data components but with major inaccuracies	Manipulates most required data components, but some have minor inaccuracies	Manipulates all required data components, with minor inaccuracies	Manipulates all required data components accurately	
Data Manipulation	Query (Optimization) (3 marks)	Queries are mostly not optimized	Queries are partly optimized	Queries are efficiently optimized			
	Many-to-many data (3 marks)	Able to capture many-to-many data (>25%)	Able to capture many-to-many data (>50%)	Able to capture many-to-many data (>90%)			
	Dummy data (2 marks)	Data quantity is sufficient for basic functionality and manipulation	Sufficient quantity of data provided to test all functionality and manipulation				
Creativity (3 marks)		The application integrates one creative feature that provides minimal enhancement to its usability	The application integrates one creative feature that moderately enhances its usability	The application integrates one creative feature that greatly enhance its usability			
Presentation (12 marks)							
Criteria	1	2	3	4	5		

Demonstration of Application (5 marks)	Demonstration of required functionality and data manipulation is unclear	Demonstration of required functionality and data manipulation is mostly unclear	Demonstration of required functionality and data manipulation is partly clear	Demonstration of required functionality and data manipulation is clear	Demonstration of required functionality and data manipulation is very clear	
Effort (2 marks)	All required functionality and data manipulation are partially working	All required functionality and data manipulation are working				
Q&A (5 marks)	Responds poorly to questions or provides irrelevant responses	Responses are unclear or provide incomplete answers	Responds adequately to questions but shows minor gaps in understanding	Responds to most questions with good understanding	Responds effectively to all questions, demonstrating thorough understanding of the application	
Total = 50 marks						