



● Home

About

Contact

Get Started ➞



Liang Qi Xun

Jerick Ang



INTRODUCTION

Carmala, is a car rental application that is developed to ease the process of renting cars. User can browse available cars, book it and handle payment with our user-friendly interface,

OBJECTIVE PURPOSES & VISION

Easy to learn user interface
Reliable transportation options
flexible pickup locations
we want to:
Ensure customer satisfaction
Offer variety of choices for everyone
encourage usage of eco friendly vehicles
To become everyones go-to car rental platform



TOPIC OUTLINE

- 1. Literature Review
- 2. Methodology
- 3. System Demo
- 4. Testing
- 5. Conclusion





LITERATURE REVIEW





EXISTING SOLUTION

Several car rental companies currently offer online booking systems through desktop and mobile platforms, providing a convenient digital alternative to the traditional booking methods.

However, many systems struggle with real-time data validation, lack user-friendly features. Furthermore, data security remains a concern,



SWOT ANALYSIS OF HERTZ

Strength:

- User-friendly app and streamlined booking/payment processes

Weakness:

- Occasional delays in vehicle pickups during peak travel times
- Customer service inefficiencies impacting satisfaction

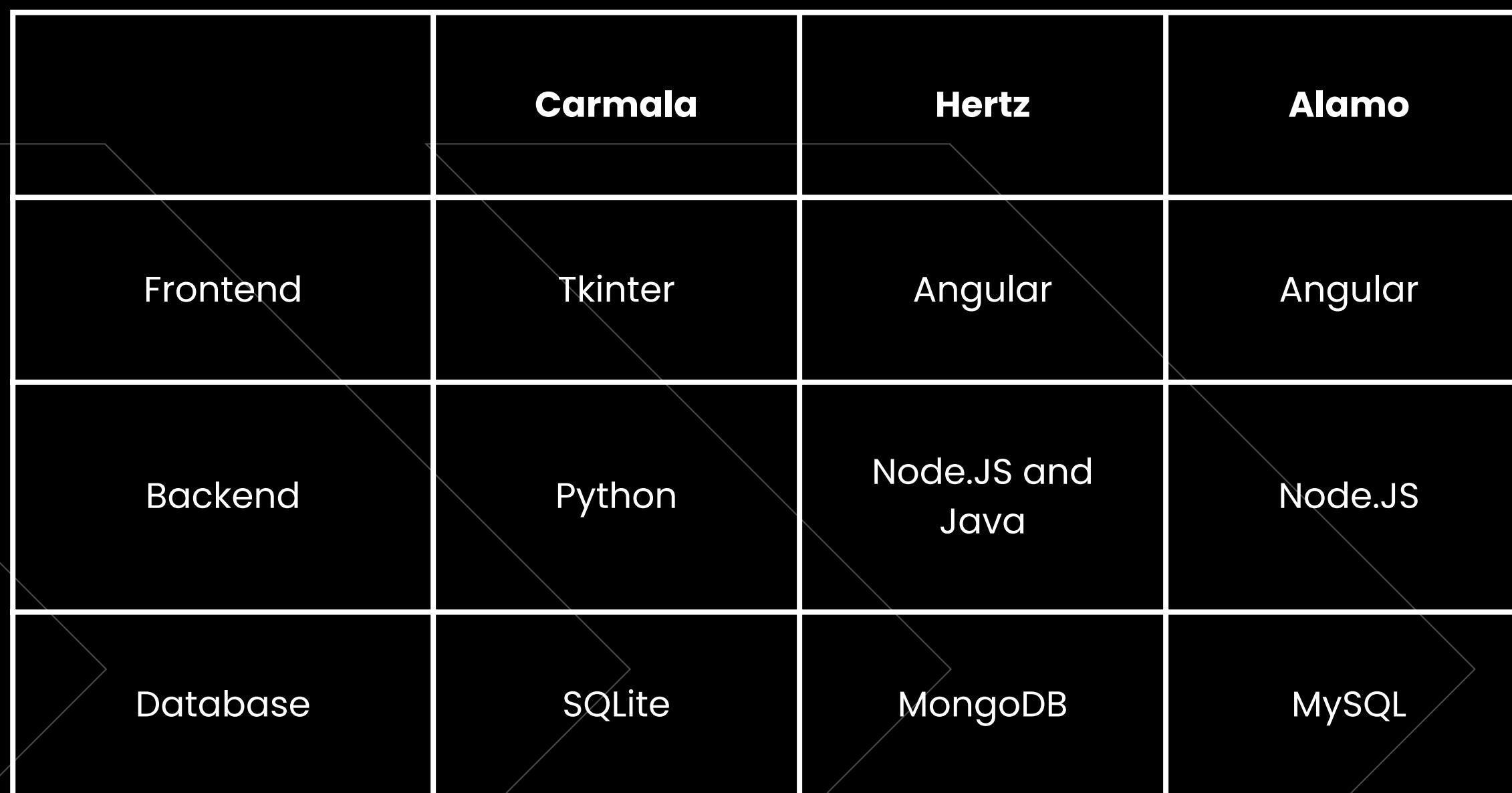
Opportunities:

- Forming strategic partnerships with rideshare companies for flexible mobility options
- Offering electric vehicle rentals to attract eco-conscious travelers

Threats:

- Rising competition in the car rental industry
- Economic fluctuations and regulatory pressures affecting operations and profitability

TECHNOLOGICAL BACKGROUND



RESEARCH GAP

1. Real-Time Availability and Reservation Guarantees
2. Variety of Vehicle Choice
3. Flexible Pick-Up and Drop-Off Points



METHODOLOGY



DESIGN APPROACH

The Agile Scrum Framework is used as the software development process model for the application, promoting a structured approach while breaking the project into smaller, manageable tasks that can be developed and refined iteratively.



AGILE USER STORY TEMPLATE

User Story ID	As a <type of user>	I want to <perform some task>	so that I can <achieve some goal>
	Non-login user	View list of available cars for rent	Know the availability of car for rent
		Search for cars of interest	know whether the app have the product I wanted
		Check prices and promotions	find the most worthy rental car
		compare cars by cars	what car suits me better
		add car to booking list	make final decision easily without going back and forth
		register an account	become login user
	Login user	login to account	manage profile
		edit personal information	keep my information updated
		find and book list of cars available for rent	rent the car
		make payment after booking confirmation	secure booking
		view rental history	rent back the car I wanted

AGILE USER STORY TEMPLATE

3	Admin	Login to admin account manage rental agencies	manage admin profile keep track of activites of all rental agencies
4	Rental Agencies	login to rental agencies account add, edit and remove cars from the app view all rental statistics Provide support services to customers with enquiries approve user booking	manage agencies profile ensure the information is updated analyze business performance provide customer satisfaction send user booking confirmation

PRODUCT BACKLOG

ID	AS A ...	I WANT TO ...	SO THAT ...	PRIORITY	SPRINT	STATUS
1	Non-login user	register an account	use the application	High	0	Complete
2	Login user	login to account	search for car	Medium	0	Complete
		Check prices and promotions	find the most worthy rental car	Medium	0	Complete
		add car to booking list	make final decision easily without going back and forth	Medium	0	Complete
		edit personal information	keep my information updated	Medium	0	Complete
		find and book list of cars available for rent	rent the car	High	0	Complete
		make payment after booking confirmation	secure booking	High	0	In Progress
		view rental history	rent back the car I wanted	High	0	Complete
3	Admin	Login to admin account	manage admin profile	High	0	Not Started
		manage rental agencies	keep track of activities of all rental agencies	High	0	Not Started
5	Rental agencies	Login to rental agencies account	manage agencies profile	High	0	Not Started
		add, edit and remove cars from the app	ensure the information is updated	High	0	Not Started
		view all rental statistics	analyze business performance	Medium	0	Not Started
		Provide support services to customers with enquiries	provide customer satisfaction	Medium	0	Not Started
		Approve user booking	send user booking confirmation	Medium	0	Not Started

SPRINT BACKLOG

BACKLOG TASK & ID	STORY POINTS	ASSIGNED TO	STATUS	ORIGINAL ESTIMATE	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	SPRINT REVIEW
Non-login user	8									
register an account		LIANG	Finished	3	1	1	5	0	1	0
Login user	1									
login to profile		LIANG	Finished	3	3	0.5	0.5	0	0	2
edit and manage personal info		LIANG	Finished	3	5	5	1	1	1	0
find and book list of cars available for rent		LIANG	Finished	5	1	1	1	1	1	0
Search for cars of interest		LIANG	Finished	3	1	1	5	0	1	0
Check prices and promotions		LIANG	Finished	1	1	0	0	0	0	0
add car to booking list		LIANG	Finished	7	5	3	0	0	0	0
make payment after booking confirmation		ANG	Finished	2	2	5	0	1	0	1
view rental history		ANG	Finished	5	5	9	5	1	0	1
Super Admin	5									
Login to admin account		ANG	Finished	8	6	0	0	0	0	0
manage rental agencies		ANG	Finished	3	1	3	3	3	0	0
Rental Agencies	8									
login to rental agencies account		ANG	Finished	9	4	2	2	1	1	0
add, edit and remove cars from the app		ANG	Finished							
view all rental statistics		ANG	Finished	6	6	3	3	3	1	1
Provide support services to customers		ANG	Finished	6	2	8	8	1	0	1
approve user booking		ANG	Finished	0.5	0.5	0.5	0.5	0	0	0

DEVELOPMENT TOOLS

Carmala uses these web technologies to develop a system that provides a secure, responsive, and efficient user experience.

**User Interface**

Tkinter & Custom Tkinter

**Language**

Python

**Database**

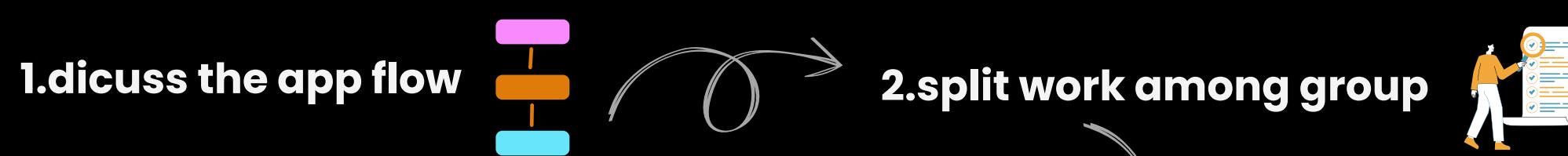
SQLite

**Prototype Design**

Figma



PROCESS



2. split work among group



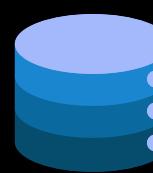
3. design layout with figma



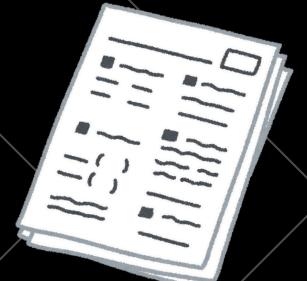
4. Implement code structure



5. Connect database



6. Test for errors



DEMO

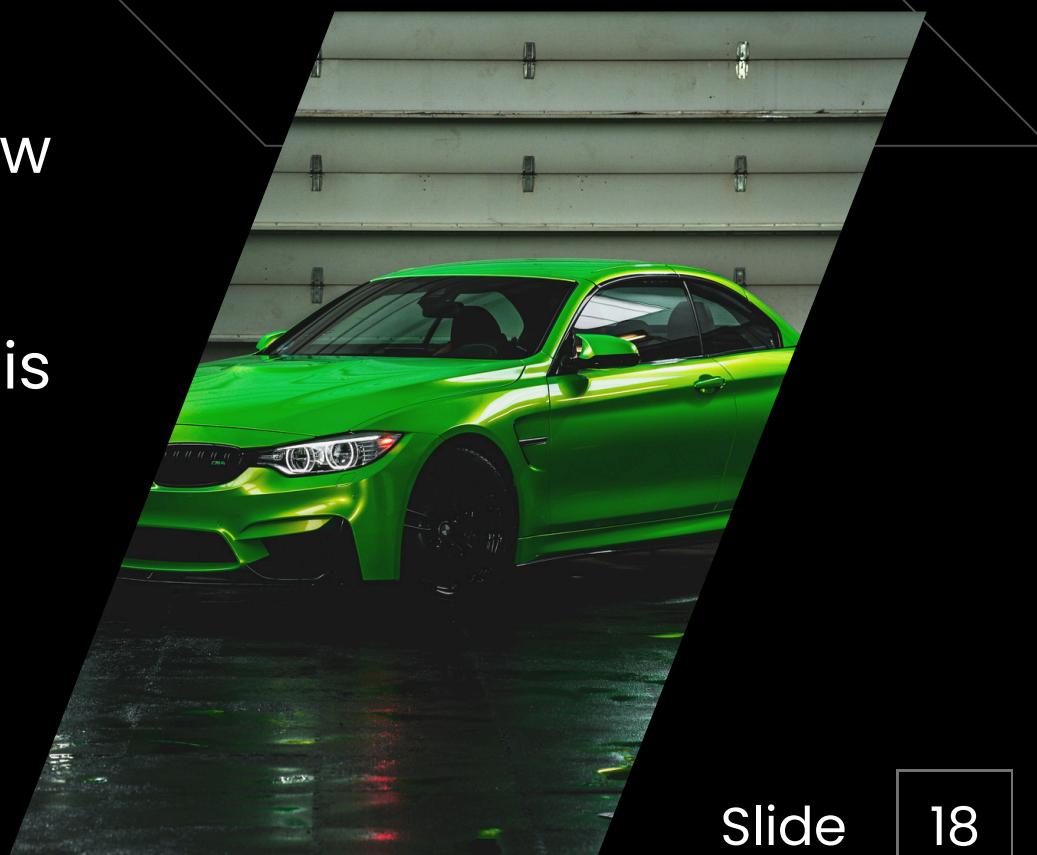


TESTING



Testing Strategy:

1. Unit Testing: tested on individual file or a function
2. Integration Testing: testing with a few functions of files join together
3. Usability testing: test how easy a system is to use





UNIT TESTING

Testing Objective: user register account and login

No	Event	Attribute and Value	Expected Result	Result
1	Users click ok without entering anything	Field is blank	Login failed	Pass
2	Users login with invalid username or password	Username: <u>bos</u> Password: <u>liangqixun</u>	Login failed, wrong username or password	Pass
3	Users password and confirm password does not match	Password: <u>liangqixun</u> Confirm password: <u>qixunliang</u>	Register <u>failed</u> , password does not match	Pass

Testing Objective: Search for available car

No	Event	Attribute and Value	Expected Result	Result
1	Users leave input field blank	Field is blank	Search <u>failed</u> , no input detected	Pass
2	User input location with invalid input	Location: @^%!#	Search <u>failed</u> , no cars available in this region	Pass
3	Users enter location in small capital or all capital	Location: <u>penang</u> Location: PENANG	Proceed to open car list	Pass



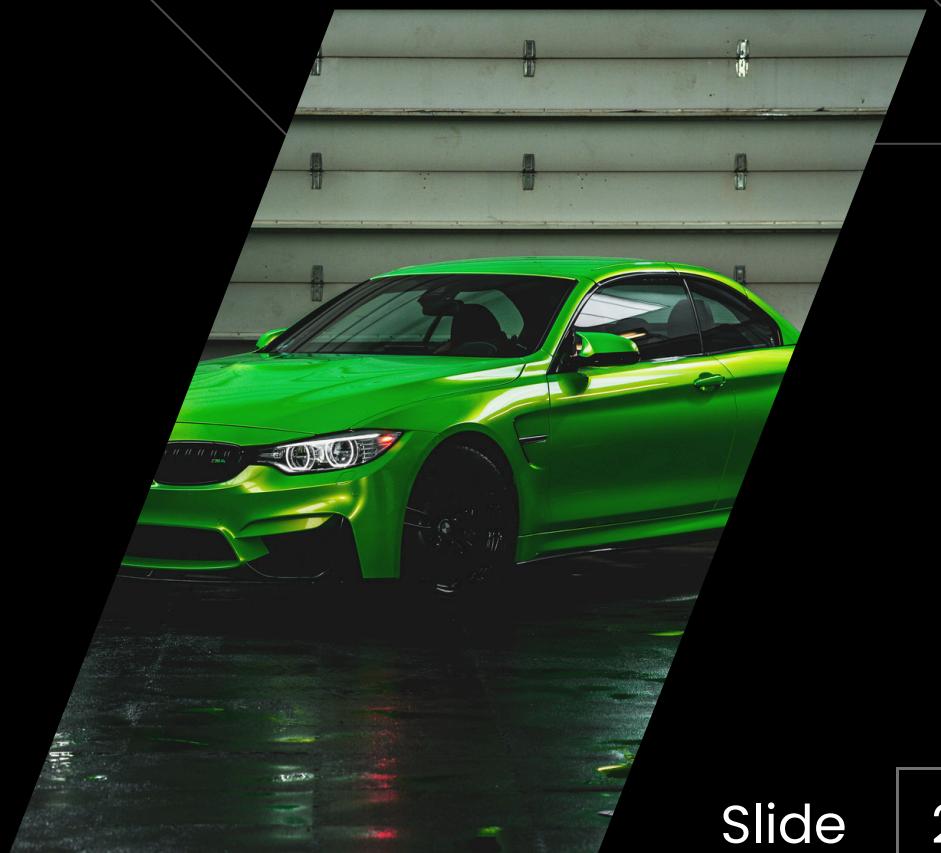
INTEGRATION TESTING

Testing Objective: Fetching data

No	Event	Attribute and Value	Expected Result	Result
1	System can remember logged in user if the account is not logged out when open between panels or exit	User ID = 1	Logged in user id = 1	Pass
2	Booking details panel can correctly display the cars that booked by user	Car ID = 4,	Shows correct carID, pickup date, drop-off date, car name and booking status	Pass



CONCLUSION

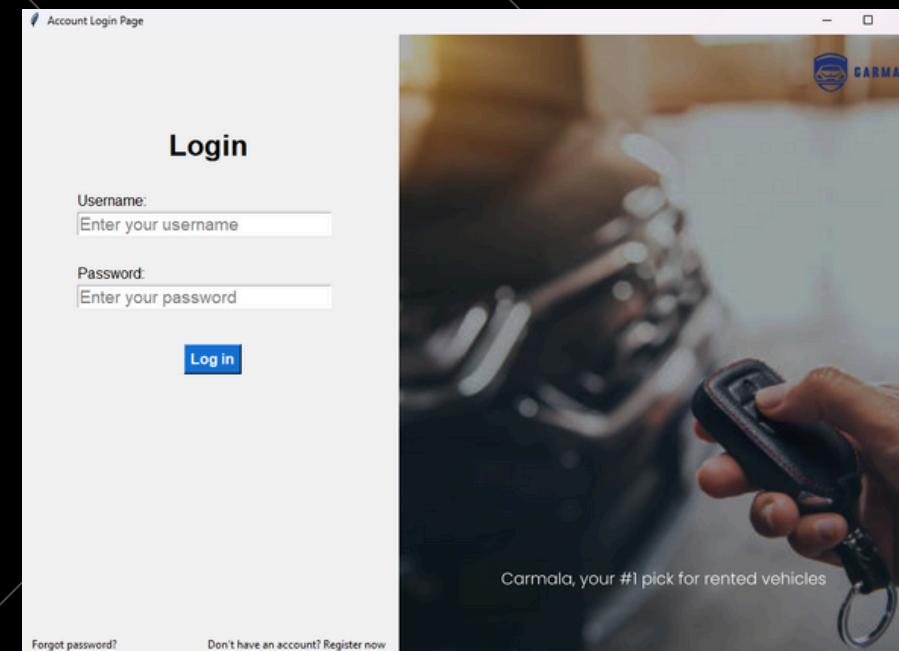


ACHIEVEMENTS

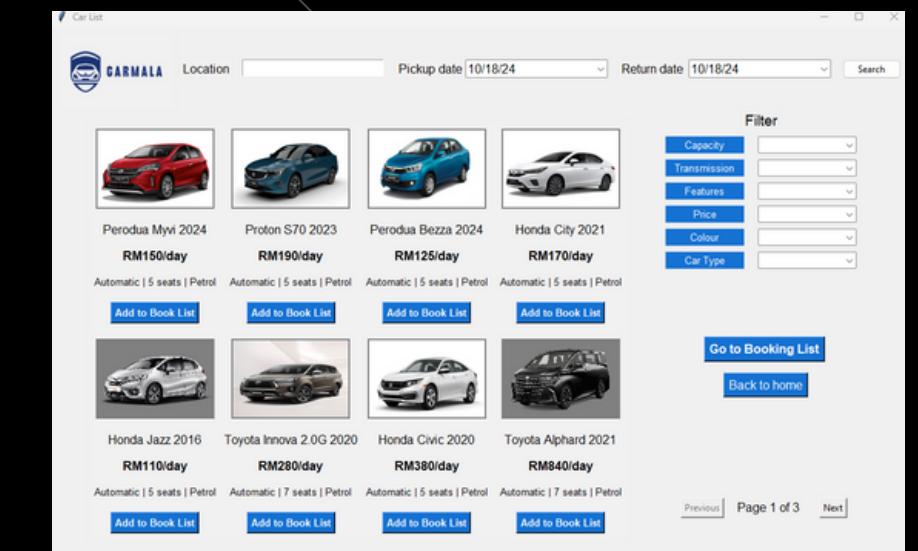
Designed our own logo



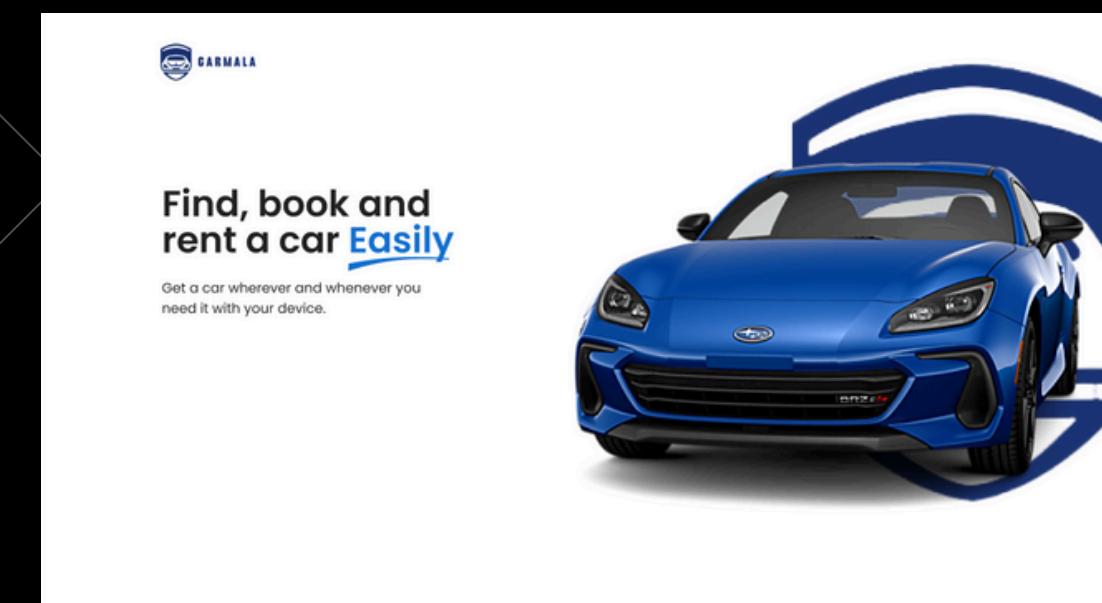
First panel developed



Streamlined booking process



User Interface friendly to everyone

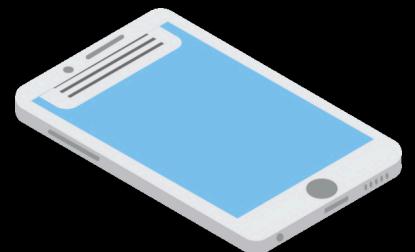


FUTURE IMPROVEMENTS

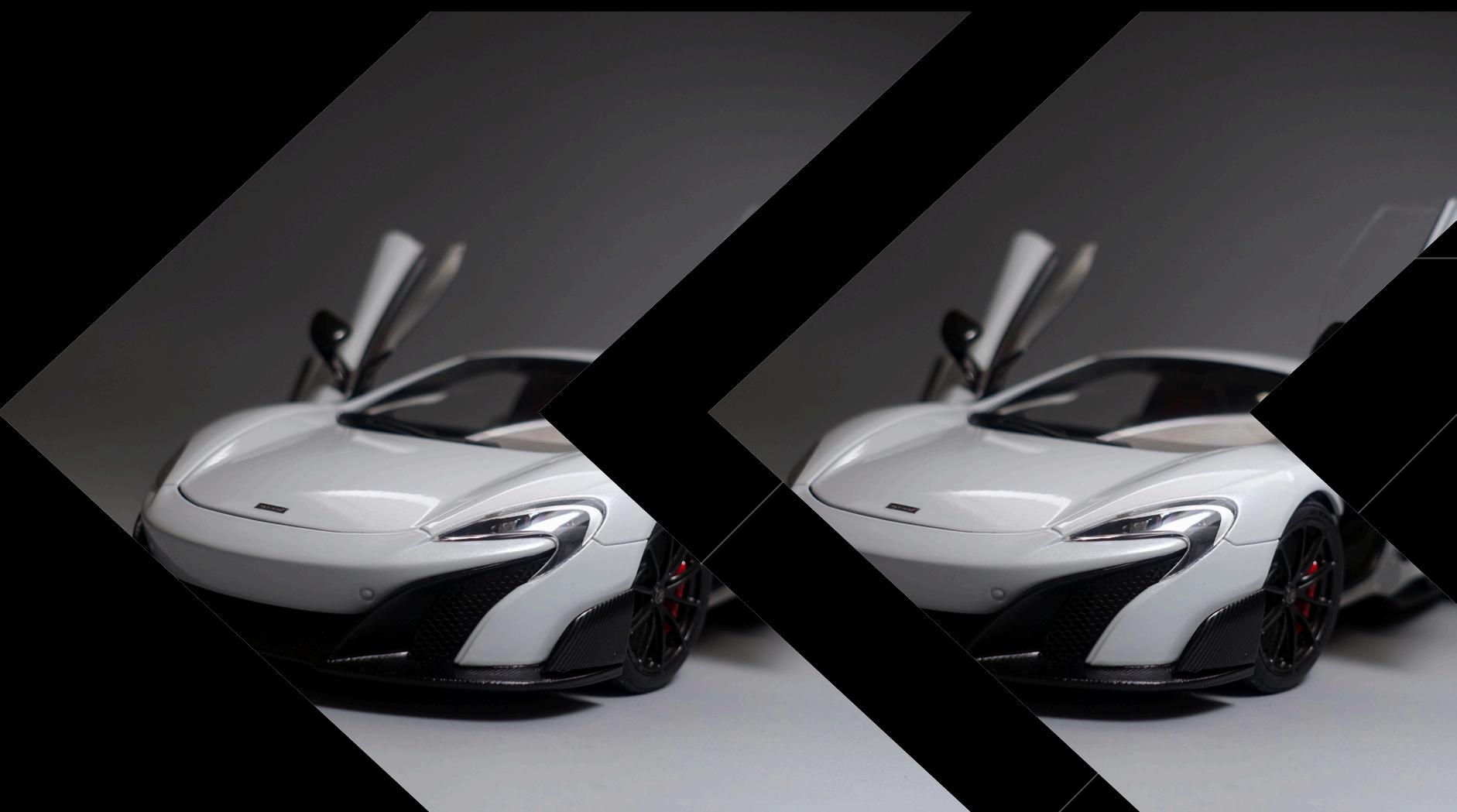
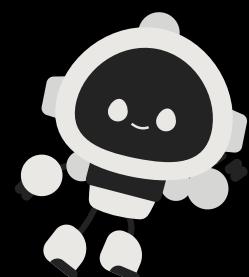
1. Location-Based Suggestions

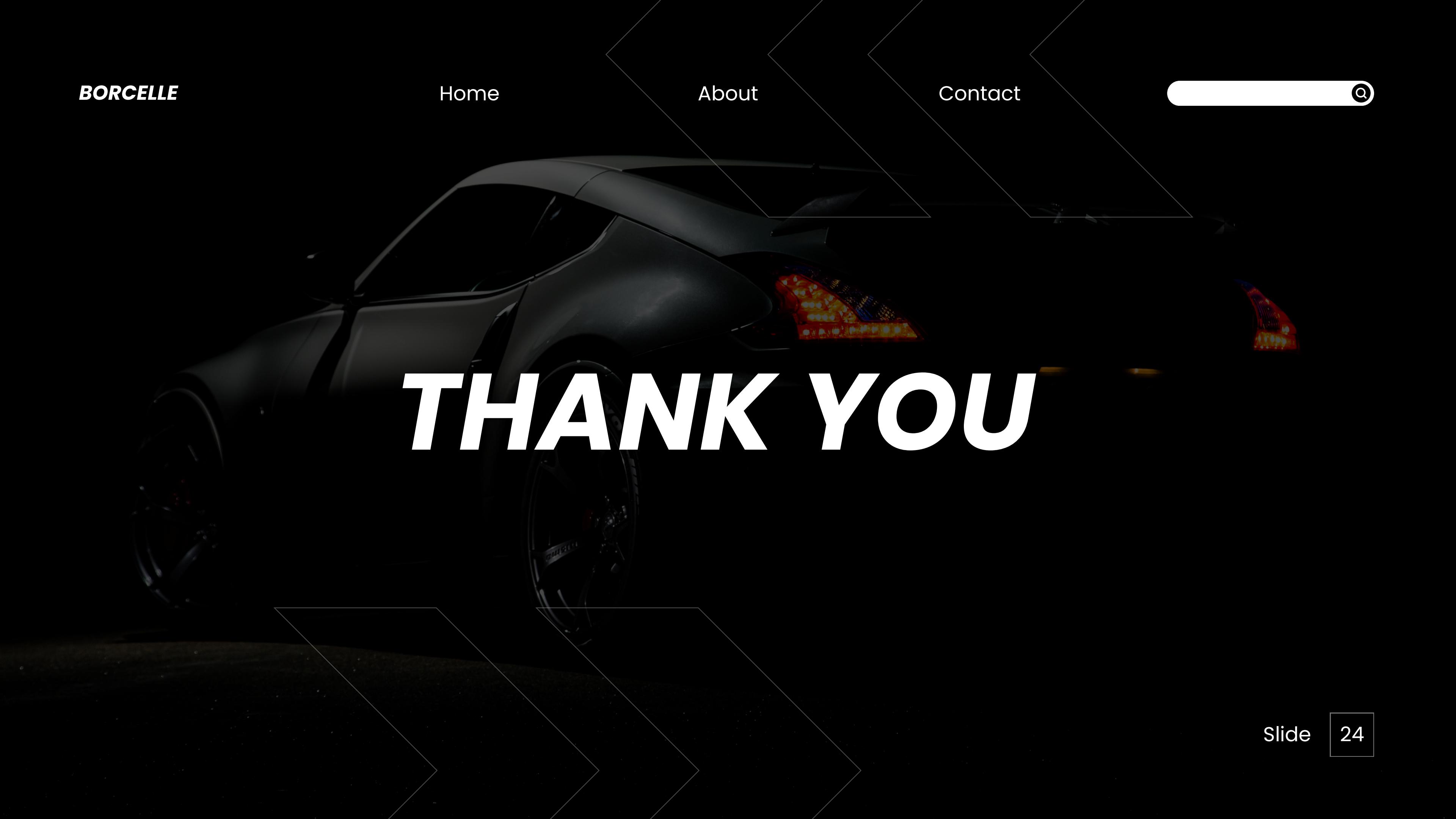


2. Mobile Application Expansion



3. AI chatbot Integration





THANK YOU