

# **Any questions from last week?**

**2 questions**  
**1 upvote**



# SIT773 - SOFTWARE REQUIREMENTS ANALYSIS AND MODELLING

---

- Lecture 5: Modelling requirements
- Dr Hourieh Khalajzadeh (Hannah)
- School of Information Technology
- [hkhalajzadeh@deakin.edu.au](mailto:hkhalajzadeh@deakin.edu.au)





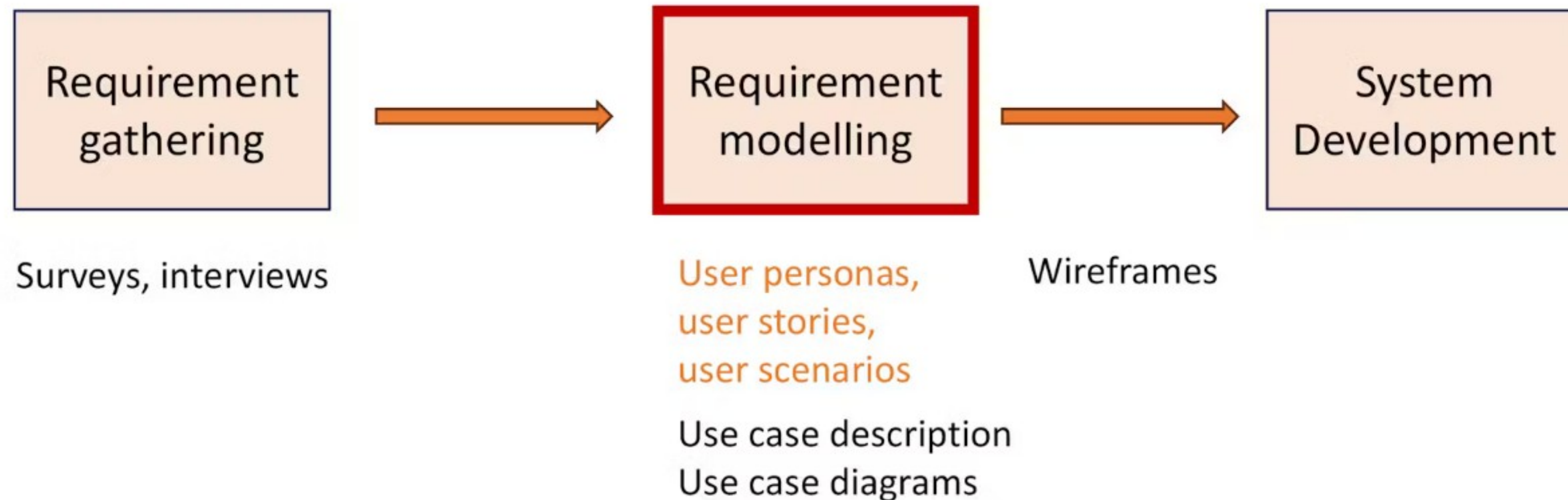
# Outline

- Use case description
- Use case diagram
- Wireframes



# Requirement Modelling

- Helps the team to make sense of the user requirements, and lead the team towards the required system design



A solid orange horizontal bar.

# Use cases



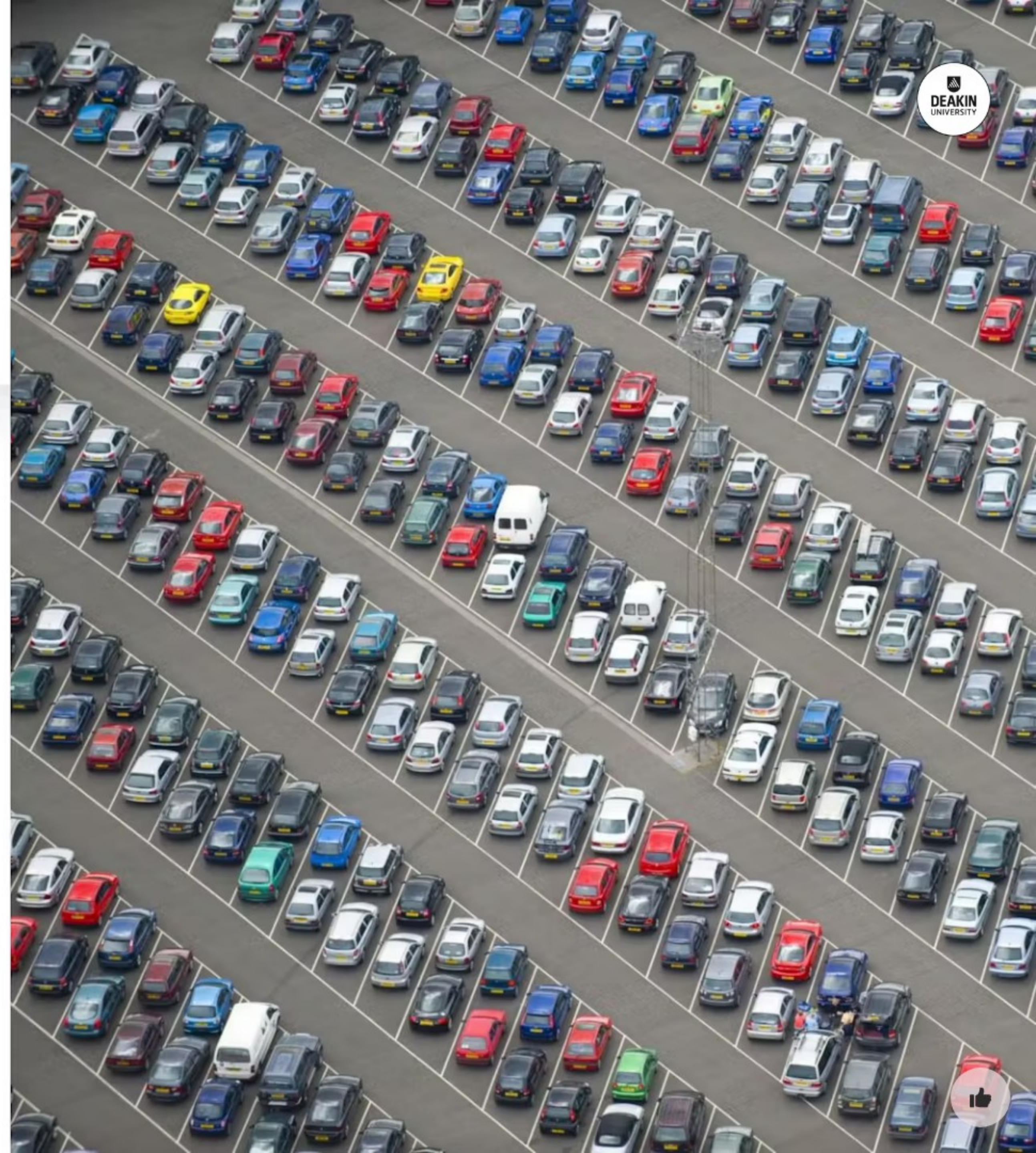
# Use case

- A use case describes a set of possible sequences an actor will go through with the system to achieve their goals
- Unlike usage scenarios, use cases focus less on the needs and motivations of users and more on HOW the system will be used.
- This technique will also uncover the hidden and additional requirements
- Modelling techniques: textual description and graphical diagrams



# MCC car parking scenario (from last week)

- Imagine Melbourne City Council is employing you to develop a smartphone mobile application to solve its parking problem. This app should help people locate car park spaces in the inner city and pay for parking with ease.





# What are the hidden requirements in this problem scenario?

It must be available for  
24\*7

Security of the car park

Ethical practices?


secure payment options

user profile to store the  
car license plate

Number plate  
recognition at the car  
park

schedule parking



A solid orange horizontal bar.

# Use Case as Textual Description



# Example

Use case: Reserve a parking spot

Actor: Driver

Driver logs into the system. Driver selects the 'reserve spot' menu option. Driver navigates the map screen and selects the location at which they want to park. Driver selects a time at which to reserve the spot. System assigns the spot to the driver. System provides the exact spot location to the driver.





# Think about other use cases for the car parking app

They are  
subscribing/reserving./sch  
eduling parking spots for a  
month.

cancelling a booking

Parking inspector  
reports a parking  
violation

Saving the parking  
place.

promotional offers

check the available  
parking spots

Profile creation

Map of the car parking



# Think about other use cases for the car parking app

check available time slots

requesting to extend the time for your ongoing reservation

Inquiry or complaint

Add a new car to profile

Locate the parking slot

Driver paying for the parking slot

Actor: Mobile App Staff  
Improving the system or adding any additional features.

request certain spot (handicap, parent, etc.)



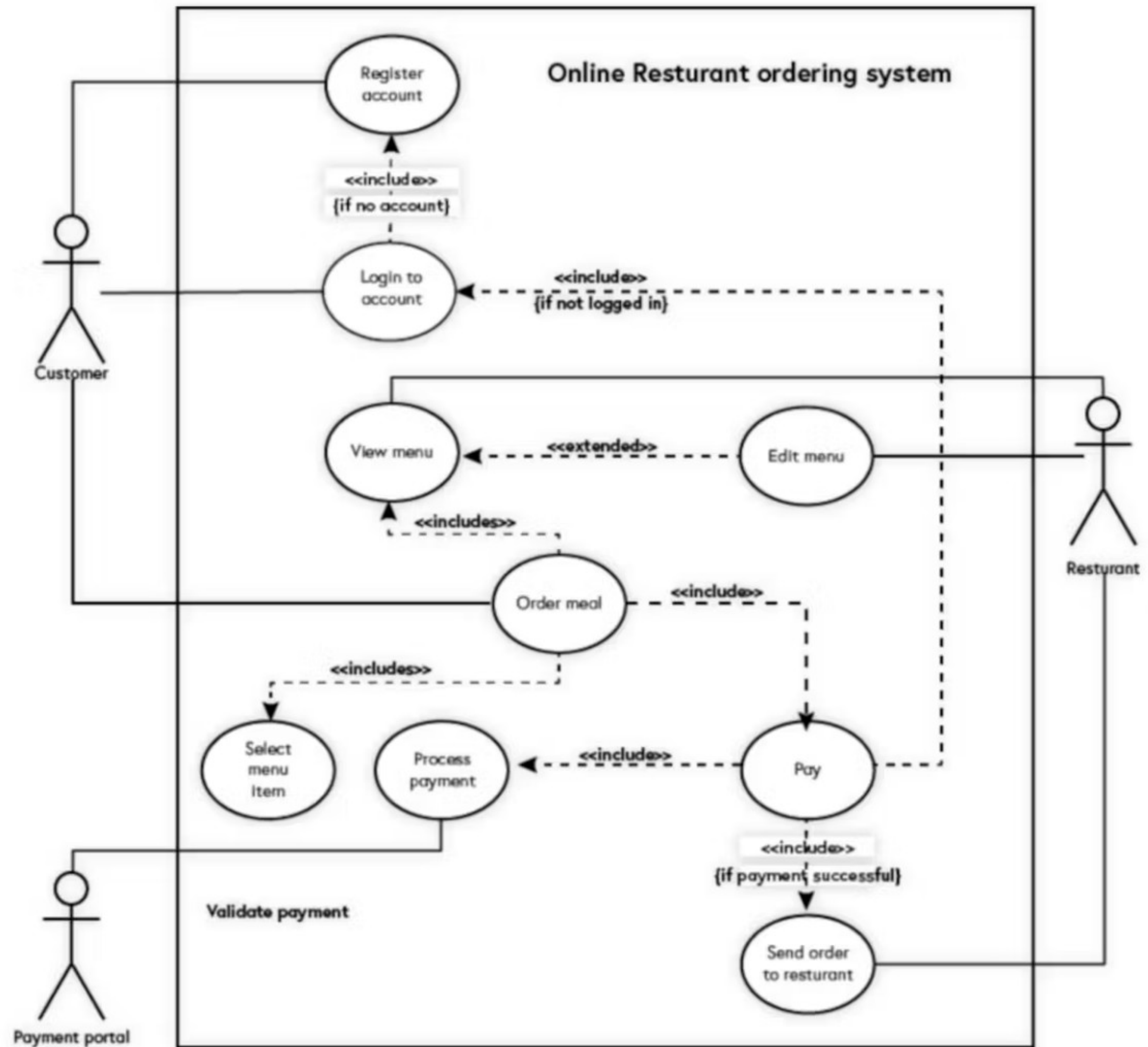
# Think about other use cases for the car parking app

Reporting

for regular users we  
might include promotion  
or discounts



# Use Case Diagram





# Let's design the use case diagram for the car parking app

1. profile creation  
2. finding spots  
4. Using Navigation tools  
5. booking the spot  
6. payment details added  
7. payments made through the merchant  
8. extending the booking time/date

9. notifications and alerts  
10. managing the sessions (start and ending accordingly)  
11. accounts and history checking  
12. accessibility feature

Find available parking  
Book a parking spot  
Navigation and Directions  
Parkin history and receipts  
User profile and preferences  
Receive Alerts and notifications  
Process payment

**Car Park owners:**  
**add/remove/edit spots**

parking availability, book space, making payment, adding extra time or cancel booking

contacting customer support

parking availability, book space, making payment, adding extra time or cancel booking, Inspector receives notification for time limit

Use Case: Parking a vehicle at MCC  
Actor: Man of 35 years driving to work everyday  
Customer visits the carpark webpage. The vehicle goes its verification process. System recognises the vehicle. Syst



# Let's design the use case diagram for the car parking app

language options

Could get really big

but what if user do not  
want to register.



# User Personas

---



Janet is a mother of 4

Speaks multiple languages

She is tech-savvy.

She uses mobile and  
computer both.



Lee is retired.

Can only speak Mandarin

He is not tech-savvy.

He does not use mobile  
devices much.



# What are the issues with use case diagrams?

Harder to manage with complex scenarios

too simple

complexity, redundancy (duplication of the steps),

Could get really big

It doesn't specify the user characteristics

doesn't account for the users ability



# **Any questions?**

**2 questions**  
**1 upvote**





# Example

Use case: Reserve a parking spot

Actor: Driver

Driver logs into the system. Driver selects the 'reserve spot' menu option. Driver navigates the map screen and selects the location at which they want to park. Driver selects a time at which to reserve the spot. System assigns the spot to the driver. System provides the exact spot location to the driver.





## Expanded Use Case description



### Use case: Reserve a spot

1. Driver logs into the system.
2. Driver presses the 'reserve spot' button.
3. Driver selects parking location by placing a marker on an interactive map.
4. Driver selects the time at which they want to reserve the spot.
5. Driver sets the length of time for which they require the spot is required.
6. Driver confirms the details of the reservation request.
7. System searches for available parking spots in location for requested period.
8. System presents list of parking spots near to the desired location available for the specified period.
9. Driver selects a parking spot.
10. System confirms the reservation and presents summary data to driver.



# Exception conditions

## Use case: Reserve a spot

1. If driver does not have account:
  - a. Initiate use case 'Register an account'
2. If driver has forgotten password:
  - a. Initiate use case 'Recover password'
3. If selected parking location is outside Metro CBD
  - a. System reminds user that only the CBD is supported and prompts them to re-select parking location
4. If no appropriate parking spots are available
  - a. System indicates unavailability of parking to user
  - b. System presents alternative solutions in text (e.g. 'use private car park', 'use public transport')



**For the car parking app, create a textual description for another use case**





A solid orange horizontal bar.

# Wireframes

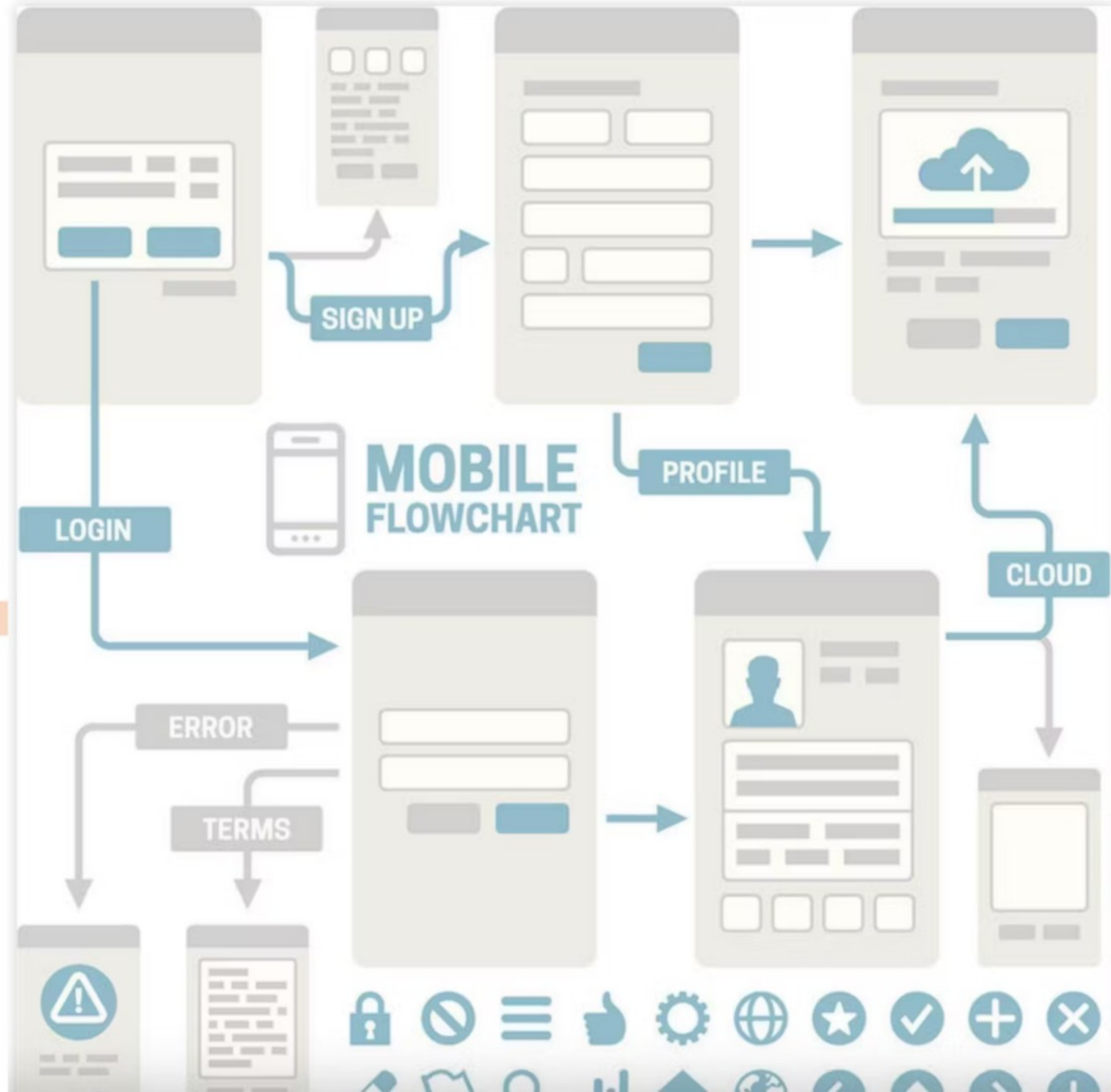


# Wireframes

- Low fidelity designs to showcase the design templates for the system
- focus is on how the varying aspects of the GUI should be positioned, NOT on the details of how they will look.



# Wire frame



# Create a wireframe for the car parking app



HomepageVehicle  
VerificationVehicle  
Recognition (Successful or  
Not)Parking Space Allocation  
PagePayment Receive  
Notification Confirmation





# **Any questions?**

**2 questions**  
**1 upvote**



# Let us look at the tasks now.

---



# Thank you!

I will see you all next week.

