



Sri Lanka Institute of Information Technology

Design Walkthrough Document for Ticketing System for Public Transport Network

SE3070 - Case Studies in Software Engineering – 2022

Group ID: SE3070_WE_20

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Individual Contribution

ID Number	Name	Contribution
IT21191688	Ruwanpura M.W.H.S.L	<ul style="list-style-type: none">• Use case diagram• Class diagram• Sequence diagram• Story Board• Wireframes
IT21191442	Rathnayaka G.T.S.T	<ul style="list-style-type: none">• Use case diagram• Class diagram• Sequence diagram• Story Board• Wireframes
IT21071652	Hewapathiranage T.K	<ul style="list-style-type: none">• Use case diagram• Class diagram• Sequence diagram• Story Board• Wireframes
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Introduction

"TicketTrack" Bus Ticketing System is a comprehensive web and mobile application designed to fulfil requirements of travelers. This versatile system offers a range of services, including seat reservations, hassle-free digital token-based journeys, convenient bus schedule, and online account top-ups. Users can easily register through their mobile phones, and upon registration, they gain access to a personalized digital token.

Assumptions

01. Passenger Accounts

- a. Each passenger's digital token is attached to a unique account.
- b. Every account starts with an initial credit when they receive their token.

02. Journey Calculation

- a. Fare calculation is based on the starting and ending points of the journey.
- b. Fare is deducted from the account when the passenger exits the bus.

03. Visitor Passes

- a. Visitors or foreigners can purchase temporary passes for a fixed duration.
- b. Temporary passes provide access to a specific number of journeys within that duration.

04. Ticket Inspection

- a. Inspectors use digital readers to validate passengers' tokens during the journey.
- b. Passengers without valid tokens are fined, and relevant data is recorded.

05. User Accounts

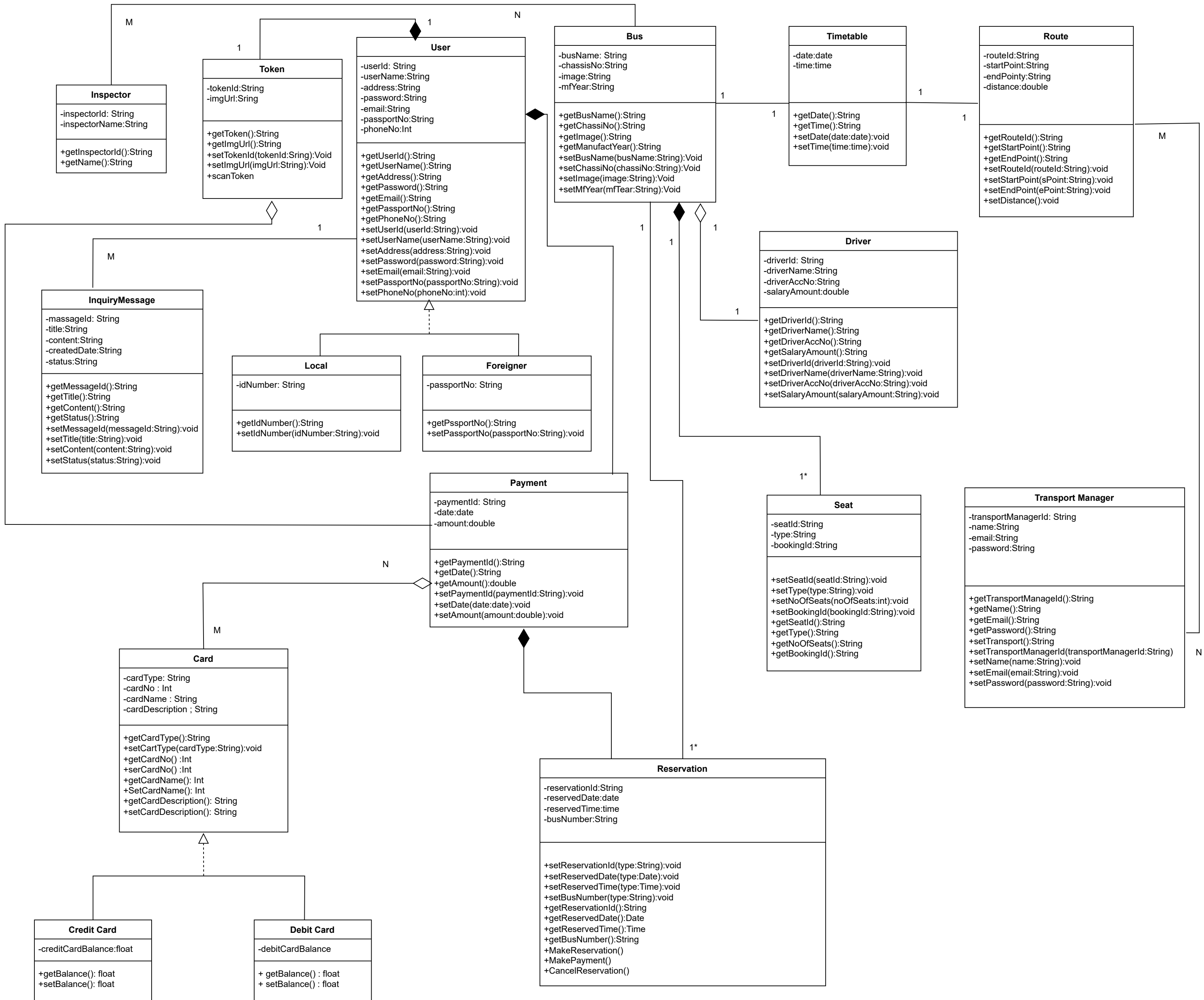
- a. Public transport managers and administrators have access to the system with different privileges.
- b. Passengers can access their account to view journey history and fare details.

06. Token Readers

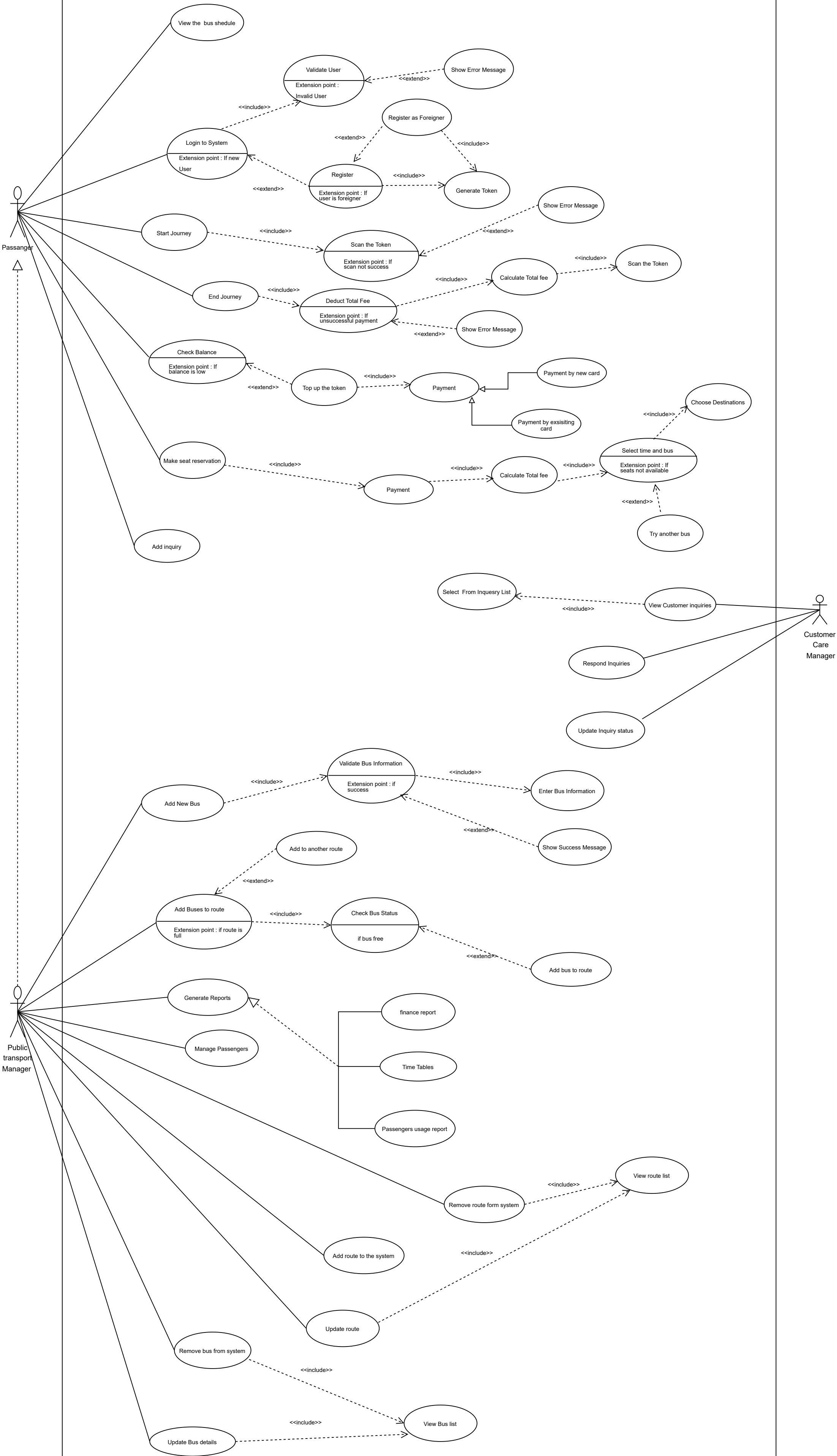
- a. The digital reader on the bus can read and validate tokens.

07. Notifications

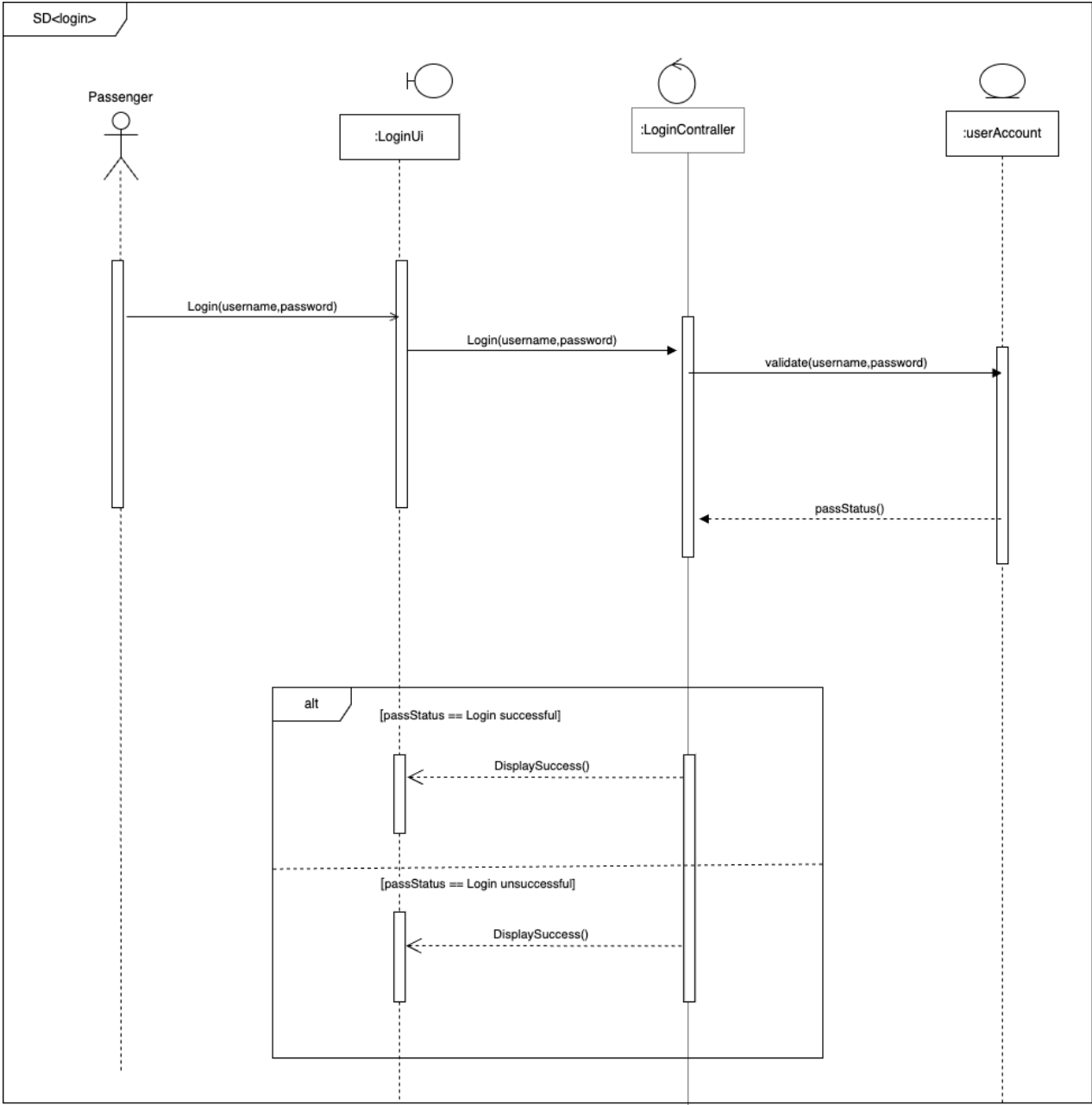
- a. Passengers receive notifications for low balance, successful journey validation, credit top-ups, and important system updates.

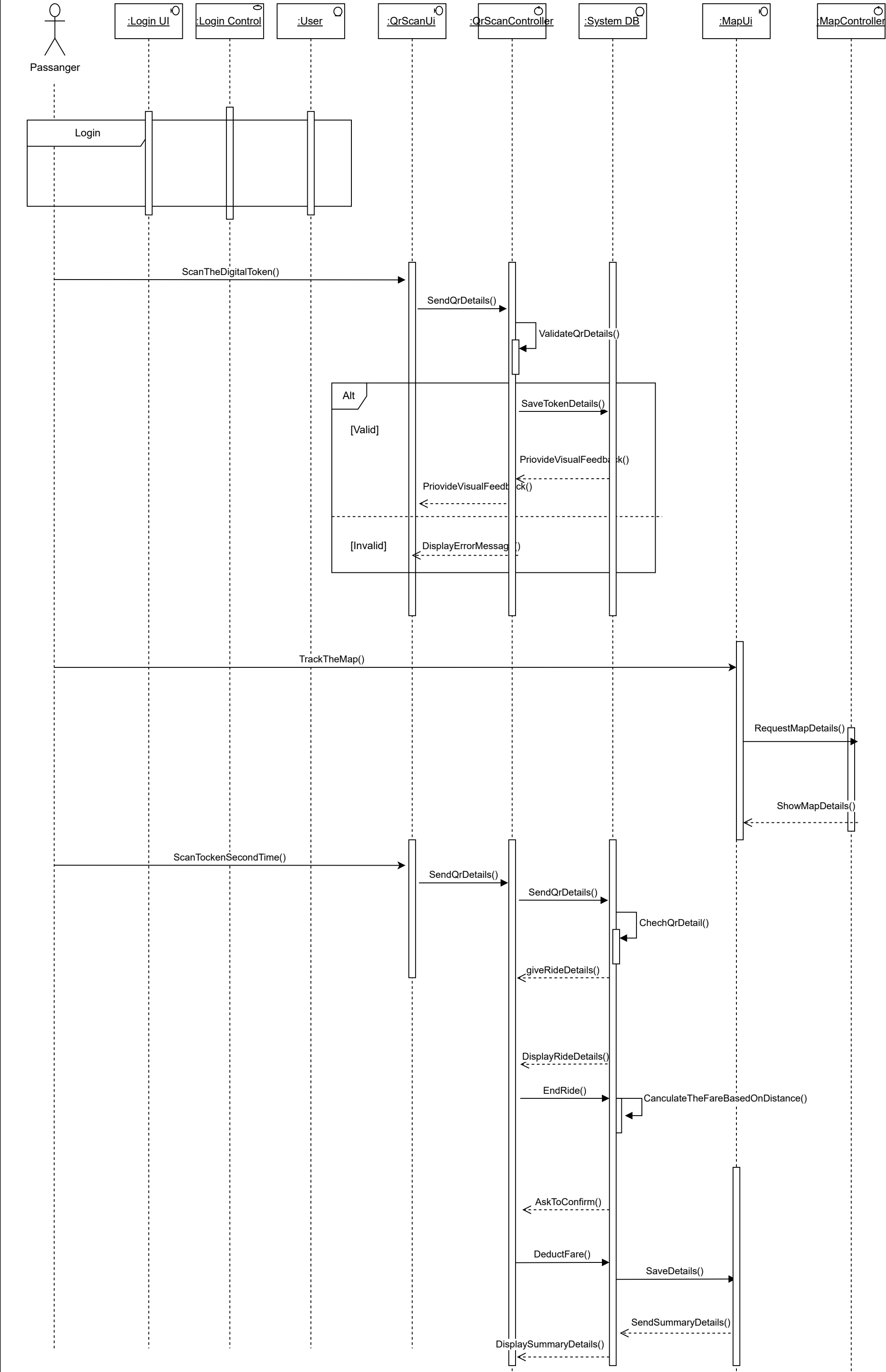


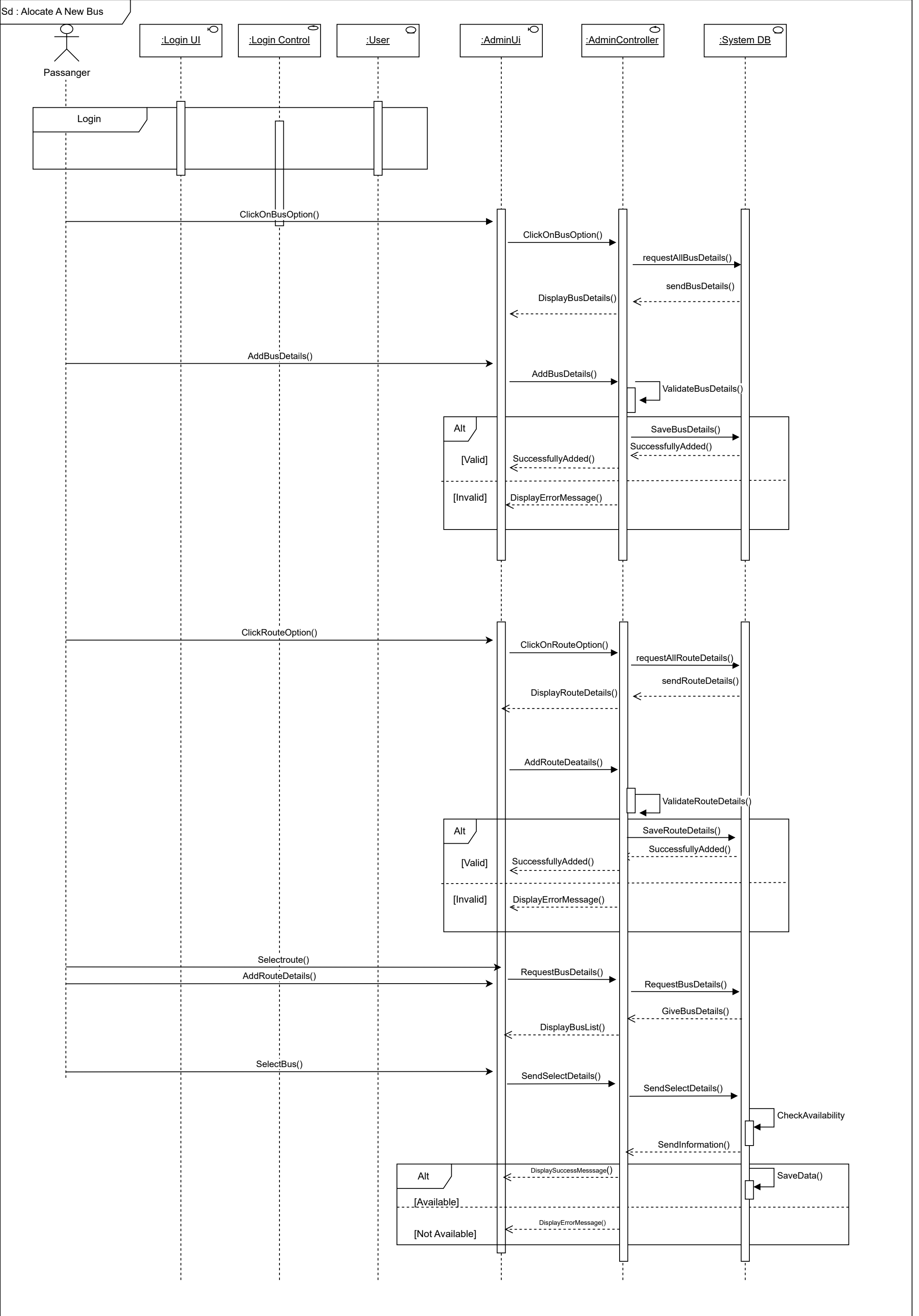
"TicketTrack" Ticketing System

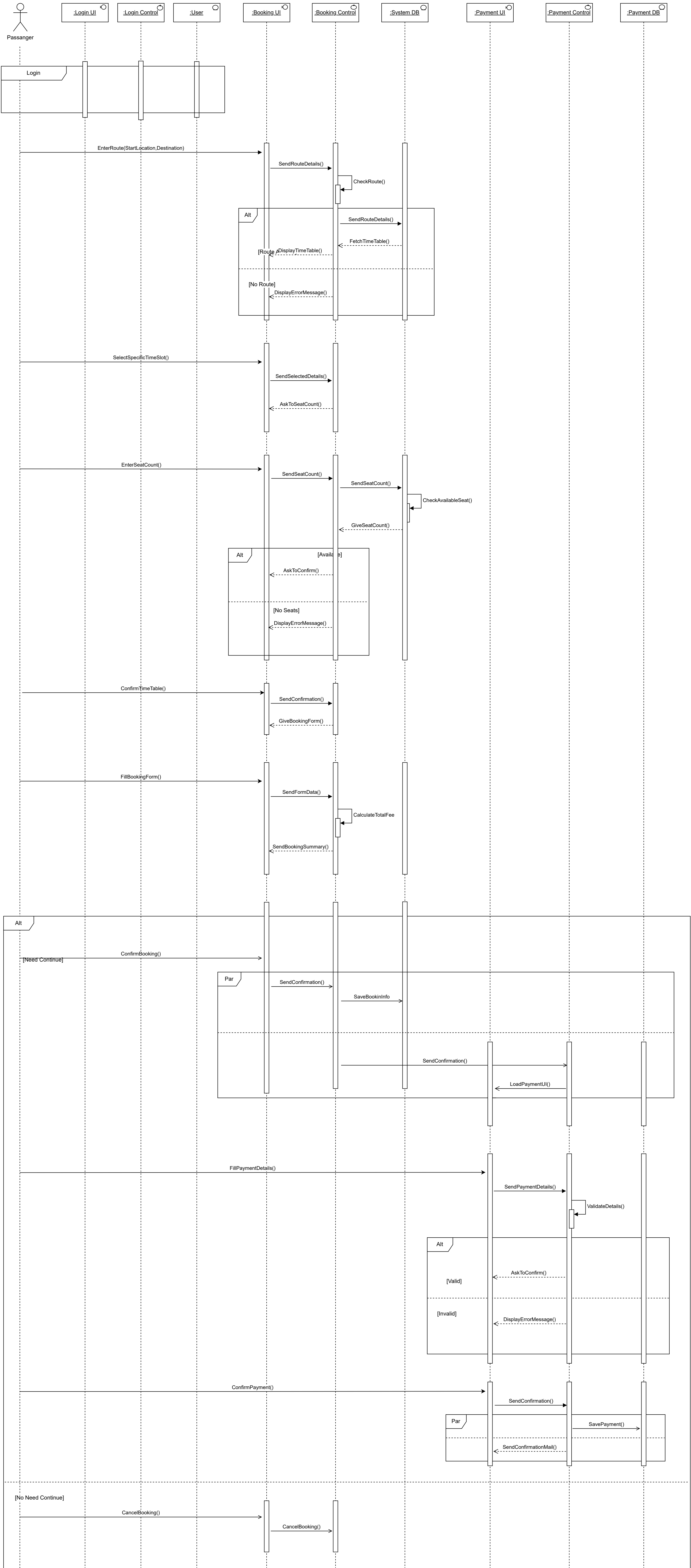


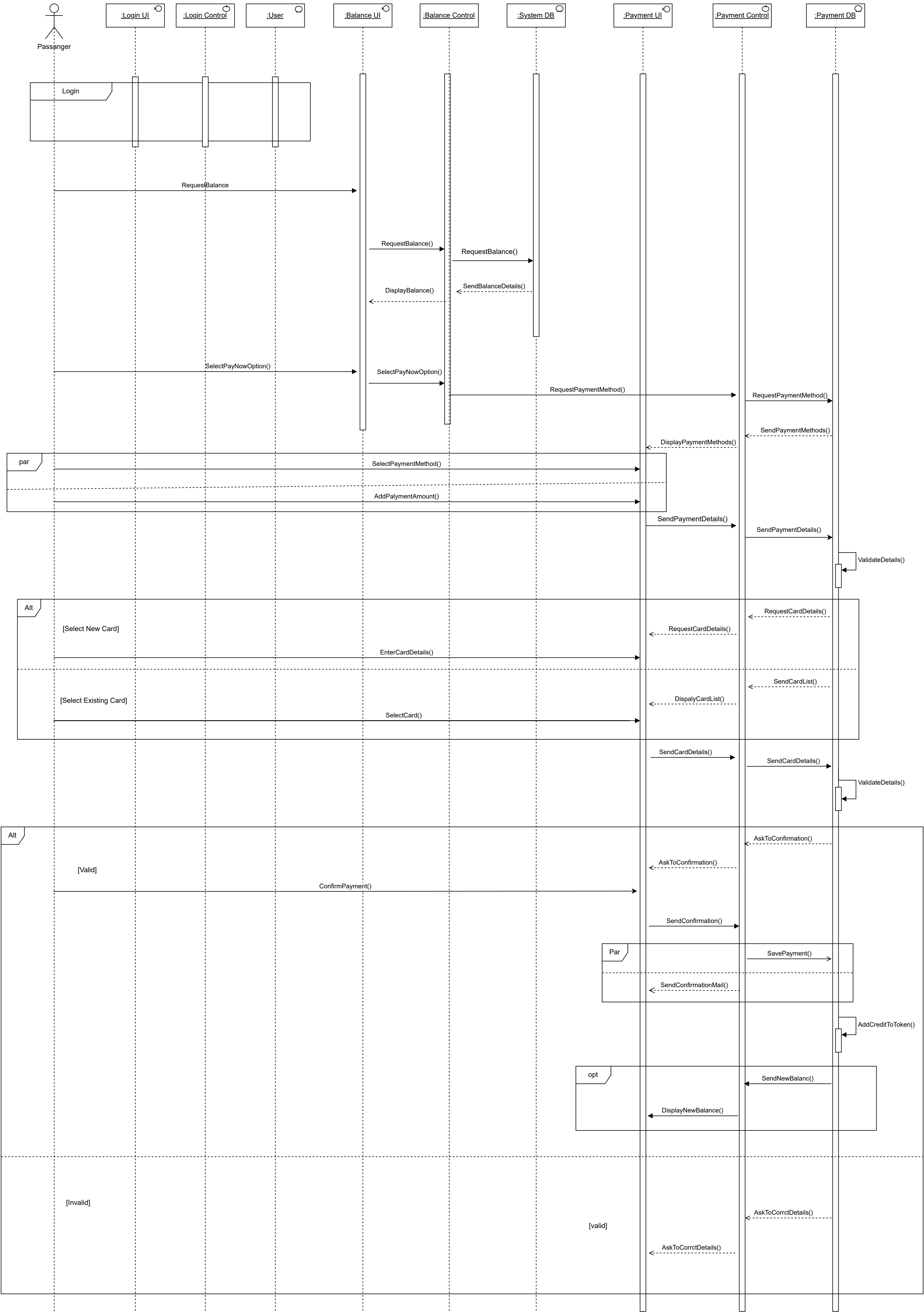
Sequence Diagrams







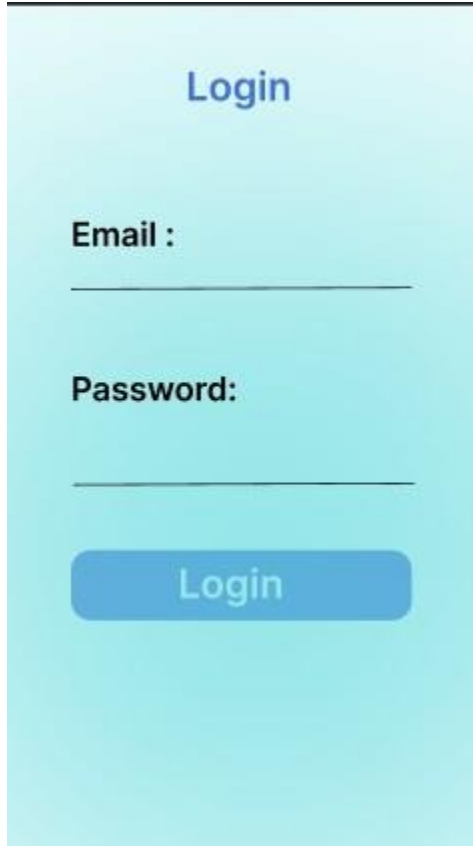




Wire Frame – High Fidelity

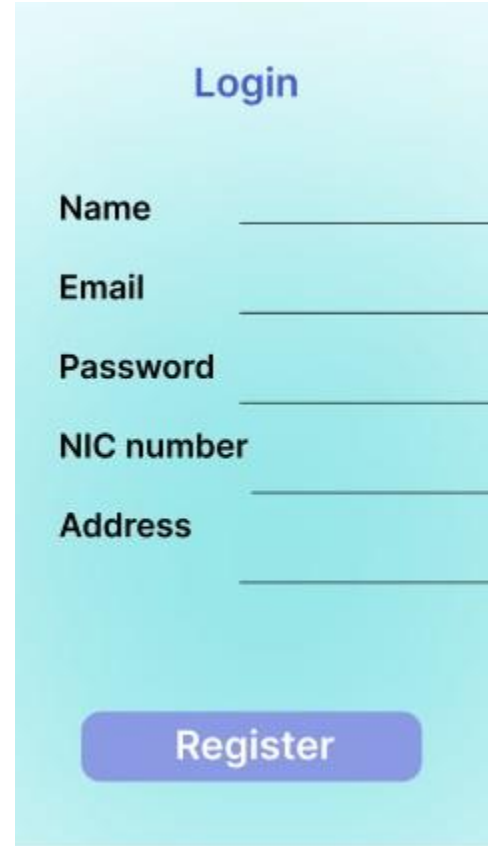
Main UI

Login user



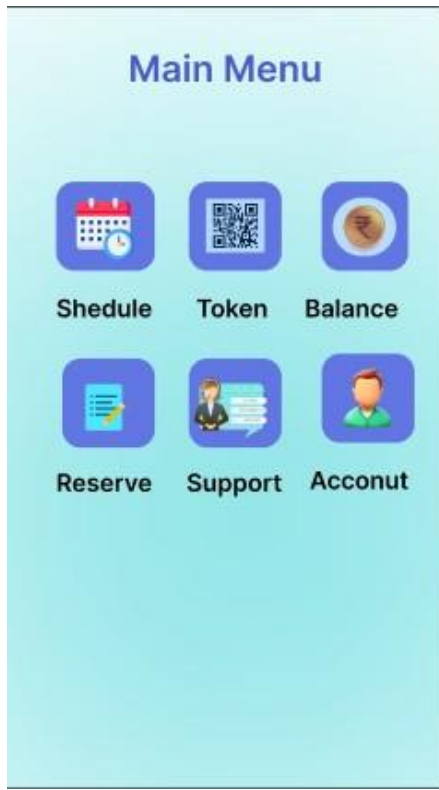
A wireframe for a login page. It features a light blue background. At the top, the word "Login" is centered in a dark blue font. Below it, there are two input fields: "Email :" followed by a horizontal line, and "Password:" followed by a horizontal line. At the bottom, there is a blue rounded rectangular button with the word "Login" in white text.

Register user



A wireframe for a registration page. It features a light blue background. At the top, the word "Login" is centered in a dark blue font. Below it, there are five input fields, each with a label followed by a horizontal line: "Name", "Email", "Password", "NIC number", and "Address". At the bottom, there is a purple rounded rectangular button with the word "Register" in white text.

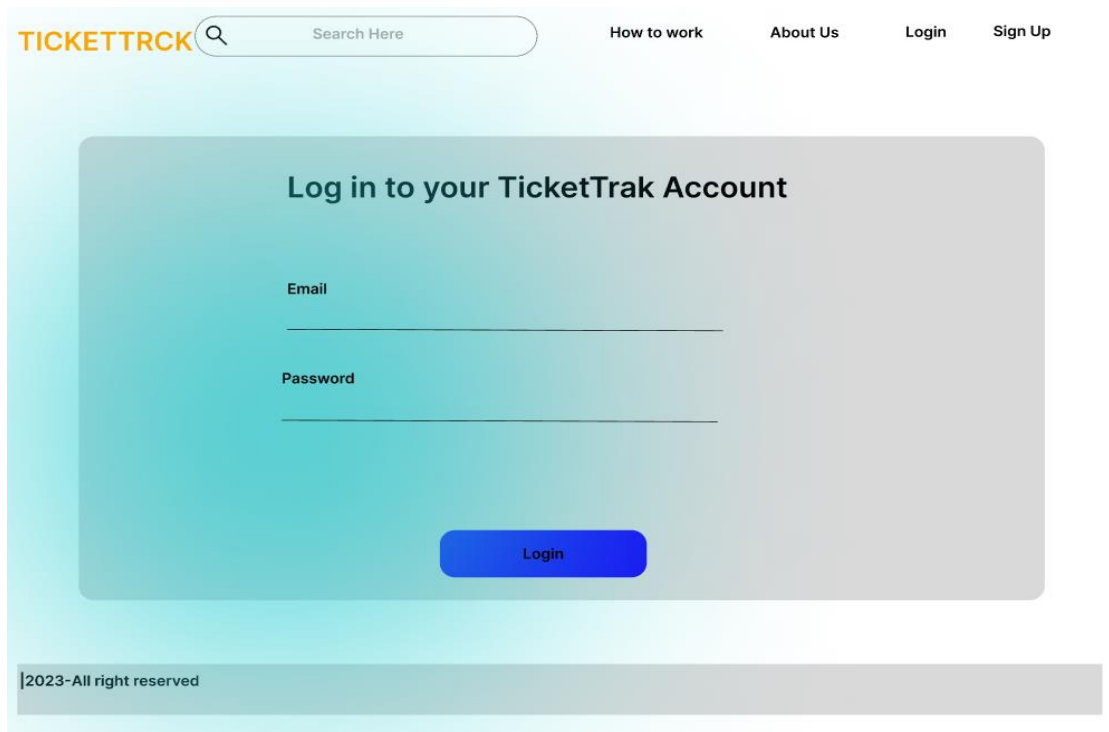
User account dashboard



token generate page



Login User



Register user

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REGISTER TO THE TICKETTRACK


First Name	<input type="text"/>	Last Name	<input type="text"/>
Email	<input type="text"/>	Password	<input type="text"/>
NIC Number	<input type="text"/>	Address	<input type="text"/>

Register

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User account dashboard

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Shedule


Token


Balance


Reserve



Support


Acconut

Logout

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Token generate page

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You should scan this when you enter and leave from the vehicle



Download

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Allocate a new bus UI

Add new bus

Allocate Buses

Bus ID

Bus Name

Chassie No

Driver name

No of Seats

Bus Route

Add

Cancel

Display successful message



Display bus details

Allocated Bus Details

Bus ID	B102
Bus Name	Private
Chassie No	0990451
Driver name	Thanuja
No of Seats	52
Bus Route	None

Update

Delete

Add route

Add Route

Route No

177

Distanase

20km

Start location

Kaduwela

End Location

Kottawa

Add

Cancel

All routes

All Routes

Route No

177

Distanase

20km

Start location

Kaduwela

End Location

Kottawa

Update

Delete

see the list of buses that have already added to system

list of buses that have already added to the system

type	Length (km)	Number of Bus Stops	ADBS (m)	Drop of Bu Leng
an	14.4	19	800	
	20.8	31	693	
	33.0	36	943	1
	17.2	22	819	6
wn	16.9	25	704	3
wn	12.4	18	729	4
wn	12.6	20	663	2
e	6.4	12	582	8


Show bus timetable

Bus timetable

Bus Time Table							
Bus Destination							
Bus No	1 Bus Stop	2 Bus Stop	3 Bus Stop	4 Bus Stop	5 Bus Stop	6 Bus Stop	7 Bus Stop
Bus No	1	2	3	4	5	6	7
Bus to Kottawa							
1	08:00	08:10	08:20	08:30	08:40	08:50	09:00
2	08:10	08:20	08:30	08:40	08:50	09:00	09:10
3	08:20	08:30	08:40	08:50	09:00	09:10	09:20
4	08:30	08:40	08:50	09:00	09:10	09:20	09:30
5	08:40	08:50	09:00	09:10	09:20	09:30	09:40
6	08:50	09:00	09:10	09:20	09:30	09:40	09:50
7	09:00	09:10	09:20	09:30	09:40	09:50	10:00
8	09:10	09:20	09:30	09:40	09:50	10:00	10:10
9	09:20	09:30	09:40	09:50	10:00	10:10	10:20
10	09:30	09:40	09:50	10:00	10:10	10:20	10:30
11	09:40	09:50	10:00	10:10	10:20	10:30	10:40
12	09:50	10:00	10:10	10:20	10:30	10:40	10:50
13	10:00	10:10	10:20	10:30	10:40	10:50	11:00
14	10:10	10:20	10:30	10:40	10:50	11:00	11:10
15	10:20	10:30	10:40	10:50	11:00	11:10	11:20
16	10:30	10:40	10:50	11:00	11:10	11:20	11:30
17	10:40	10:50	11:00	11:10	11:20	11:30	11:40
18	10:50	11:00	11:10	11:20	11:30	11:40	11:50
19	11:00	11:10	11:20	11:30	11:40	11:50	12:00

Add new bus

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Add New Route

Route No	<input type="text"/>	Distance	<input type="text"/>
Start Location	<input type="text"/>	End Location	<input type="text"/>


Cancel Add Route


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Display successful message


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Bus Add Successfully

OK

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Display bus details

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Alocated Busses

Bus Id	Bus Name	Cassie Number	Driver Name	Bus Type	Bus Route	Update	Delete
B102	Thanuja Putha	99900099	Thanuja	52	None	<input type="button" value="Update"/>	<input type="button" value="Delete"/>

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Add route

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Add New Route




Route No

Distance

Start Location

End Location


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All routes

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All Routes

Route Id	Route No	Distance	Start Location	End Location	Update	Delete
Route1	R0002	20Km	Malabe	Kaduwele	<input type="button" value="Update"/>	<input type="button" value="Delete"/>


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See the list of buses that have already added to system

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Buses & route details

Route Id	Route No					
Bus Route	Route Type	Length (km)	Number of Bus Stops	ADBS (m)	Proportion of Bus Lane Length (%)	ADI (m)
An'ting 7	Suburban	14.4	19	800	0	403
Route 74	Local	20.8	31	693	0	408
Bei'an	Local	33.0	36	943	06	805
Route 779	Local	17.2	22	819	61.8	399
Route 55	Downtown	16.9	25	704	39.1	317
Route 818	Downtown	12.4	18	729	42.4	430
Route 792	Downtown	12.6	20	663	21.1	376
Route 614	Shuttle	6.4	12	582	84.6	374

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Show bus timetable

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BUS Timetable

Route No

Search

Route Id	Route No					
Bus Destination:						
Bus No.	Bus Stop Name	Bus Stop Name	Bus Stop Name	Bus Stop Name	Bus Stop Name	Bus Stop Name
B	A	B	C	D	E	F
Stop ID	1	2	3	4	5	6
Route No.	Monday To Saturday					
	AM			PM		
8	6:00	6:10	6:20	13:30	14:40	15:50
6	7:00	7:10	7:20	14:30	15:40	16:50
5	8:00	8:10	8:20	15:30	16:40	17:50
9	9:00	9:10	9:20	16:30	17:40	18:50
3	10:00	10:10	10:20	17:30	18:40	19:50
5	11:00	11:10	11:20	18:30	19:40	20:50
7	12:00	12:10	12:20	19:30	20:40	21:50
8	13:00	13:10	13:20	20:30	21:40	22:50

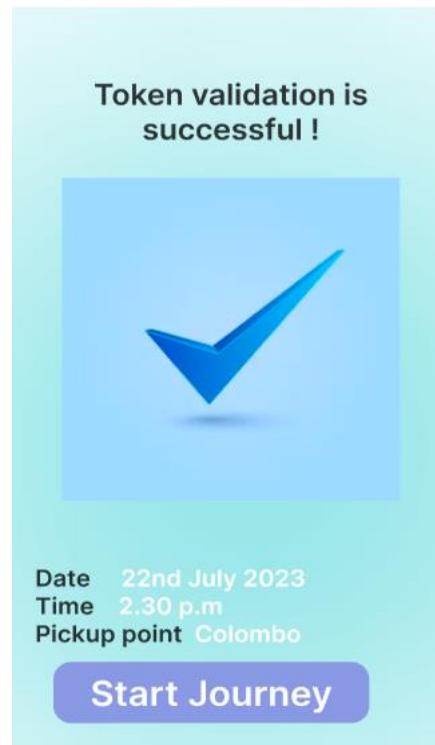
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Make a ride

Scan the QR



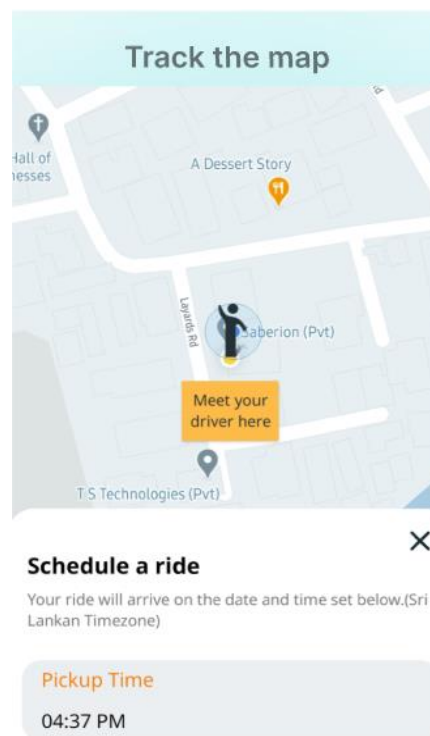
Token validation



Token validation



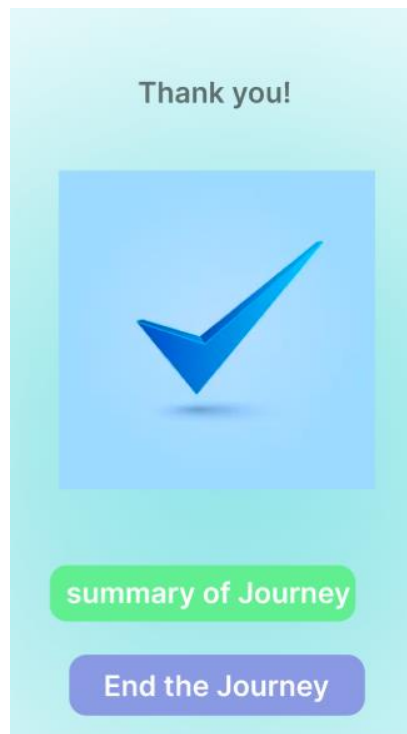
Track the map



After arriving at the destination,
the passenger scans the digital token.



show summary of journey



Show summary of journey



Wire Frame – High Fidelity

Mobile UI


01. Plan Journey

Book Tickets

Start

End

Select on Map



Next

02. Select Time / Bus

Select Time

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

Change Travel

Cancel

03. View summary of specific time and select seat count

9.00AM - 10.15AM
NQ - 4534

BUS ID - 00BG/90/T6

Route NO - 166 1/3

Driver - Kamal Ariyarathe

No of Seats - 56

Select Seat Count

1

2

3

4

5

6

7

Confirm

Cancel

04. Display Availability of Seats

SORRY!
No Seats Available

✗

OK

05. Display Booking Summary

SUMMARY

9.00AM - 10.15AM
NQ - 4534

BUS ID - 00BG/90/T6

Route NO - 166 1/3

Driver - Kamal Ariyarathe

No of Seats - 56

Rs. 567/=

Confirm Booking

Cancel

06. Payment Page

Card Number
42xxx xxxx xxxx xxxx


VISA

Payment
Rs. 567.00

Expire Date
11/23

CVV
255

Pay Now



Cancel

01. Plan Journey


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Q

Search Here

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Book Tickets

Start

End

OK



Select on Map

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02. Select Time / Bus


TICKETTRCK

Q

Search Here

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Select Time

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓


Change Travel


Cancel

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03. View summary of specific time and select seat count

TICKETTRCK

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9.00AM - 10.15AM | NQ - 4534

BUS ID - 00BG/90/T6

Route NO - 166 1/3

Driver - Kamal Ariyaratne

No of Seats - 56

Select Seat Count

1

2

3

4

5

6

7


Confirm


Cancel


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04. Display Availability of Seats

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SORRY!
No Seats Available


OK

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06. Display Booking Summary

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9.00AM - 10.15AM | NQ - 4534

BUS ID - 00BG/90/T6

Route NO - 166 1/3

Driver - Kamal Ariyaratne

No of Seats - 56

Rs. 567/=

Confirm Booking

Cancel

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08. Payment Page


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Card Number

42xxx xxxx xxxx xxxx

Payment

Rs. 567.00

Expire Date

11/23

CVV

255

Pay Now

Cancel

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High-Fidelity UI (Mobile) – Top-Up User Account

01.View Balance

View Balance

ID200066601365

Namekamal

Emailkam@gmail.com

Phone No0702512947

Balance1423.44

pay now

pay later

02.Select Payment Method

PAY

Select Payment Method

New Card

Existing Card

VISA

V PAY

MasterCard

MasterCard

Discover

Discover

Google Pay

Apple Pay

Android Pay

confirm

Cancel

03.Enter Payment Details

PAY

Card NoXXXXXXX

NameH.D.Kamal perera

Amount4000.00

Description

Pay

Cancel

04.Display Successful Message

05.Display Unsuccessful Message

Payment successful

OK

Payment Unsuccessful

close

01.Check Balance

TICKETTRCK

Search Here

How to work

About Us

Saman Kumara

View Balance

ID	200066601365
Name	Saman
Email	sam@gmail.com
Phone No	0702512947
Balance	1423.44

Pay now

Pay later

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02.Select Payment Method

TICKETTRCK

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Pay

Select payment method

New card

Existing card

VISA

mastercard

Maestro

JCB

DISCOVER

AMERICAN EXPRESS

Diners Club INTERNATIONAL

UnionPay 银联

Confirm

Cancel

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03.Enter Payment Details

TICKETTRCK

Search Here

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About Us

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Payment Details

Card no

23XXXXXXXXXX

Card holder's name

Saman K.H.D.T

Amount

4000.00

description

Pay

Cancel

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04.Display payment Successful Message

TICKETTRCK

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Payment Successful

OK

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05.Display Unsuccessful Message

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Payment Unsuccessful

Close

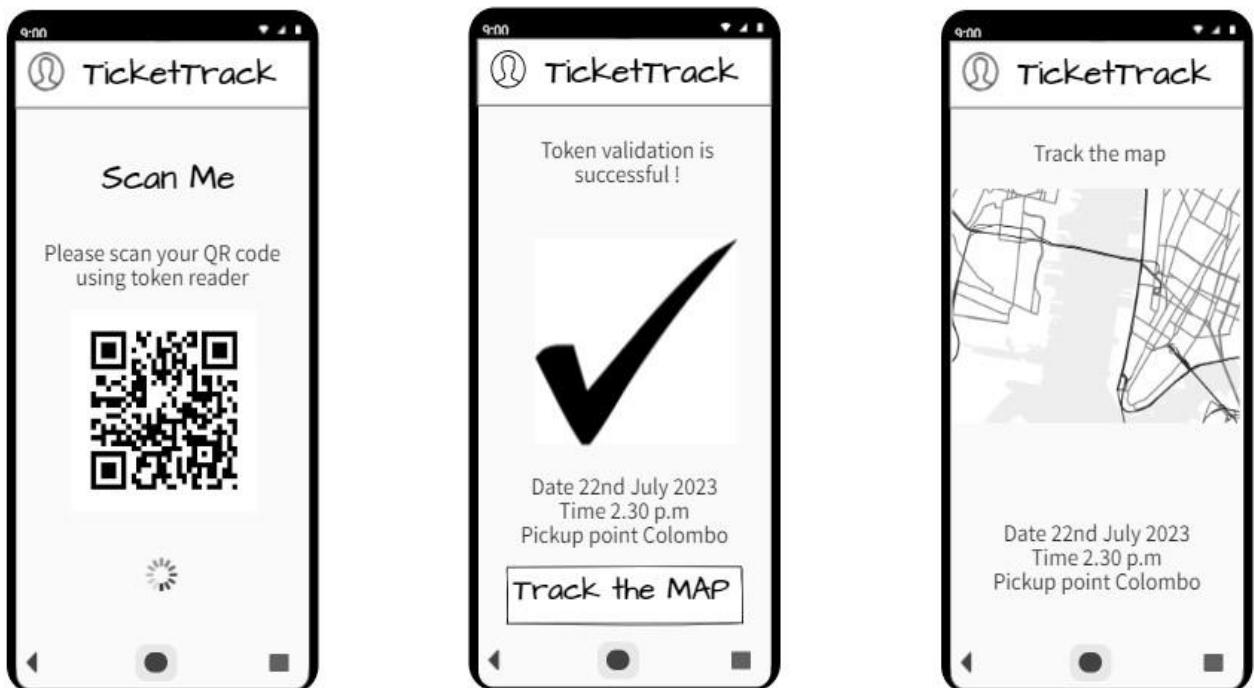
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Wire Frame – Low Fidelity

List of buses available to assign for the routes



Make a ride



Book tickets

Book Tickets


Start

End

Select On Map



Next


TicketTrak How to work About Us Kamal Perera 

Book Tickets

Start

End


Ok



Select On Map

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Top up

TicketTrak How to work About Us Kamal Perera 

View Balance

Transport ID	200056534523
Name	Kamal Perera
Email	Kamal@gmail.com
Phone no	070-2512345
Balance	1423 . 00

Pay Now Pay Later

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View Balance

Transport ID

200056534523

Name

Kamal Perera

Email

Kamal@gmail.com

Balance

1423 . 00

Phone no

070-2512345

Pay Now

Pay Later

User story

Allocate new bus



1 Transport Manager Logging to the System

Bus Route	Route Type	Length (km)	Number of Bus Stops	ADBS (m)	Proportion of Bus Lane Length (%)	ADL (m)
Art'ing 7	Suburban	14.4	19	800	0	403
Route 74	Local	20.8	31	693	0	408
Be'ian	Local	33.0	36	943	0	805
Route 779	Local	17.2	22	819	61.8	399
Route 55	Downtown	16.9	25	704	39.1	317
Route 818	Downtown	12.4	18	729	42.4	430
Route 792	Downtown	12.6	20	663	21.1	376
Route 614	Shuttle	6.4	12	582	84.6	374

2 Transport manager can see list of busses

3 System will check bus details

4 Transport manager can create timetable for allocated buses

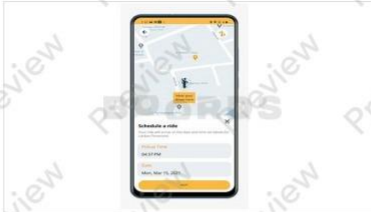


5 The driver of the bus will be notified of the route details and timetable via an email.

Make a ride



1 The passenger scan the digital token before start the journey



2 The system will record details



3 After arriving at the destination, the passenger scans the digital token



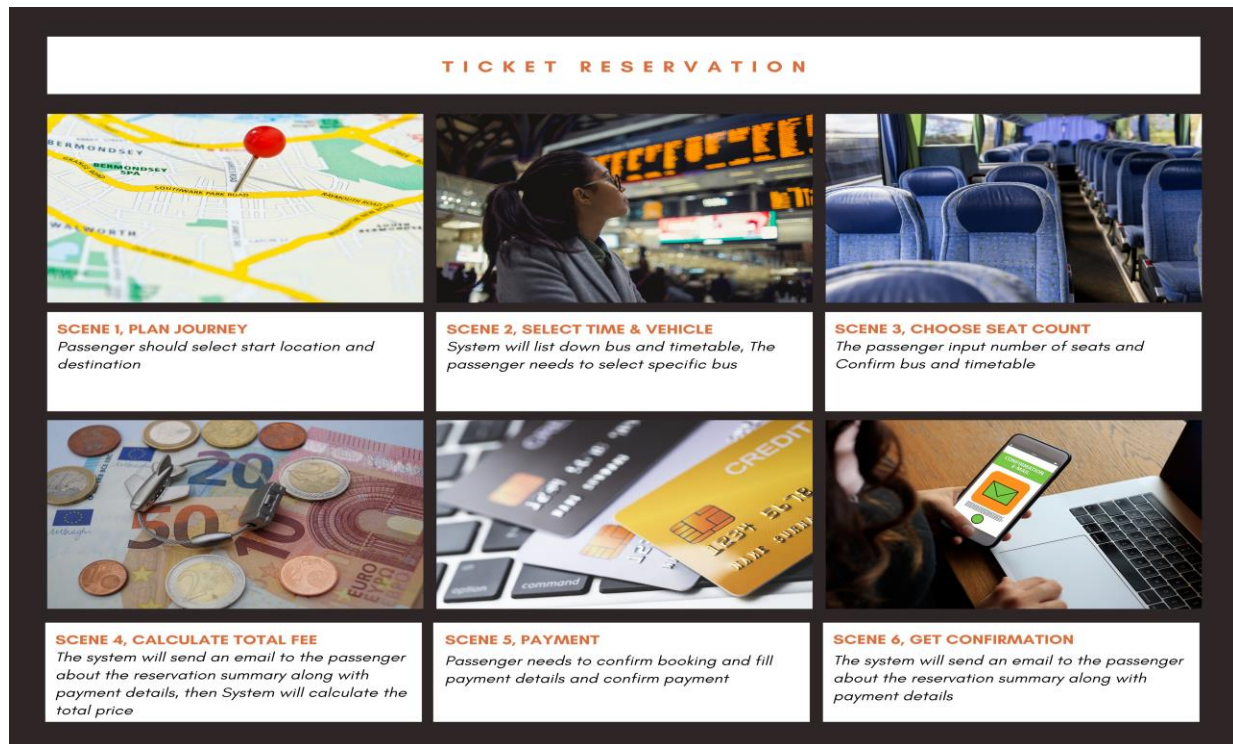
4 System calculate the fare



5 pay the bill

6 Summary Of the payment

Ticket reservation



Top up

