

INFO 439
Lebanese Bus Transportation

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1- Introduction

Our project talks about bus transportation in Lebanon.
You can either sign in as a client or as an employee.

1.1 - Client

- *The client can buy a trip:*
For a trip you assign a source place, destination place and a time. Source and destination places are retrieved from Lebanese cities only using Google Places.
The application will then give the best path according to the time even if multiple buses will be taken, using Dijkstra algorithm, and show the user which bus to take and which station and in what hour.
- *A client can buy a zone ticket:*
There are 5 zones – Mount Lebanon – South – North – Bekaa – Beirut. Buying a zone ticket means you can choose any trip in the zone(s) you bought.
- *A client can check on the map where Stations are located:*
Stations are the place where a bus can stop (Where you can wait for a bus to pick you). The map check is a map where every station is pinned to it in its location.
- *A client can check departures:*
For a departure, the user assign a source station and a time and the program will give you all possible destinations from that source.

1.2 - Employee

- *An employee can improve the sales by checking and analyzing statistics :*
 - o Number of tickets bought and amount of revenue earned by zone, station, category and type of trips.
- *Update and insert new*
An employee can also Update or Insert information about Station, Bus or Bus Schedule.

For our Algorithm part of the project which is basically the main one: we decided to use Dijkstra's algorithm since it provides the shortest path between source and destination knowing that here the weight of the arc is calculated by distance.

2- Analysis

2.1 - Business Rules

Find shortest trip between source and destination and tell the user which bus to take at what hour.

When creating a busSchedule if no neighborhood is available where
to station = source and from station = destination:

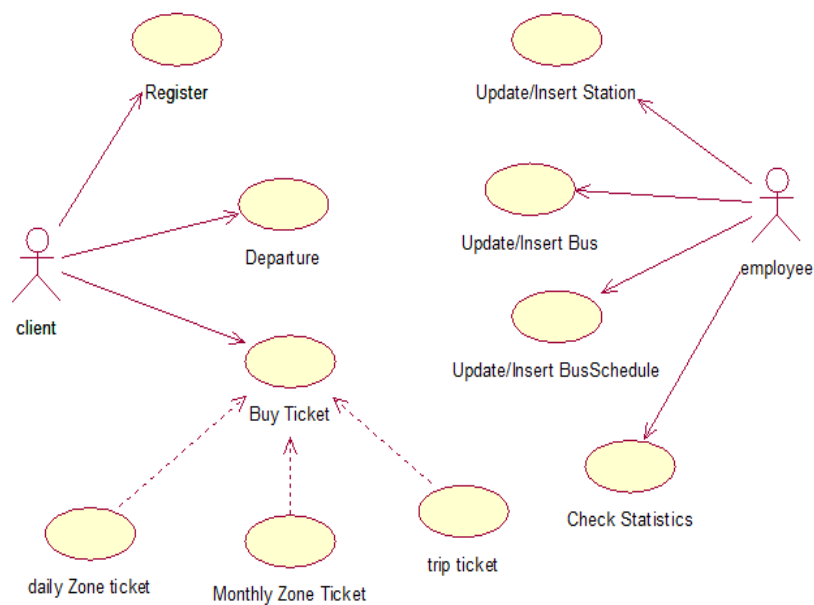
A neighborhood between to station and from station is created with a weight that
is the distance between them.

When modifying a station:

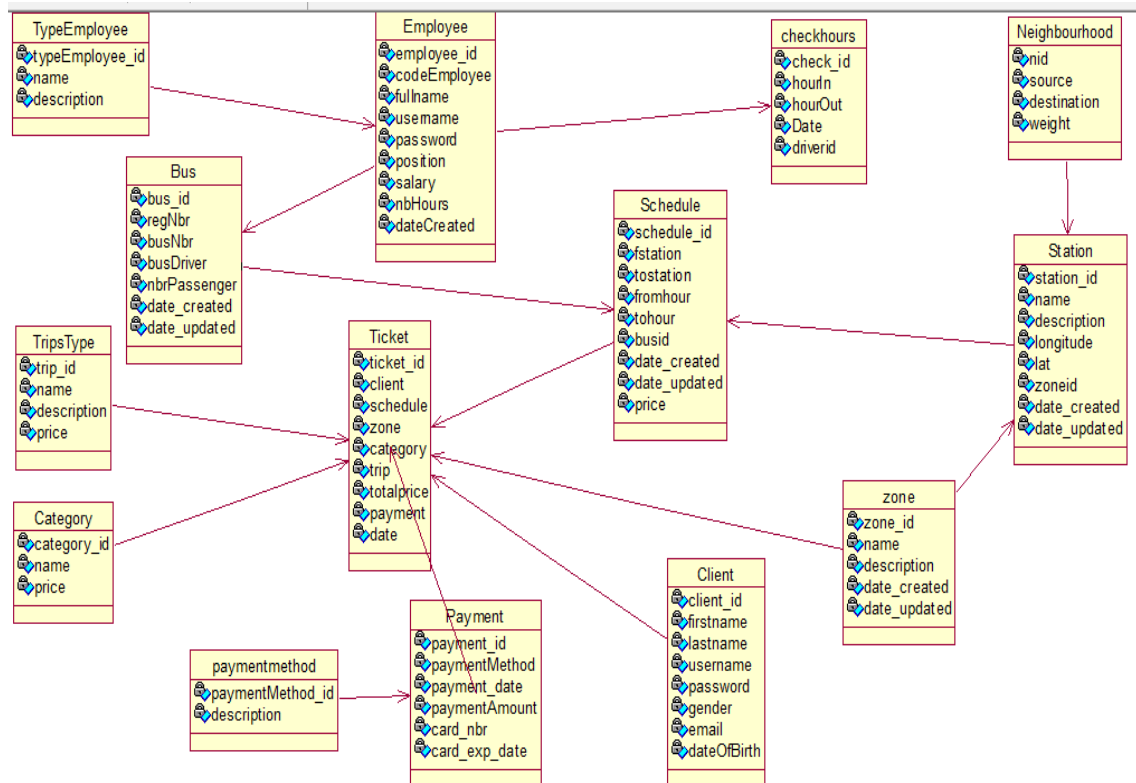
Check if the station is located in the table neighborhood:

If yes, recalculate the weight (distance) between the modified station and its
neighbor.

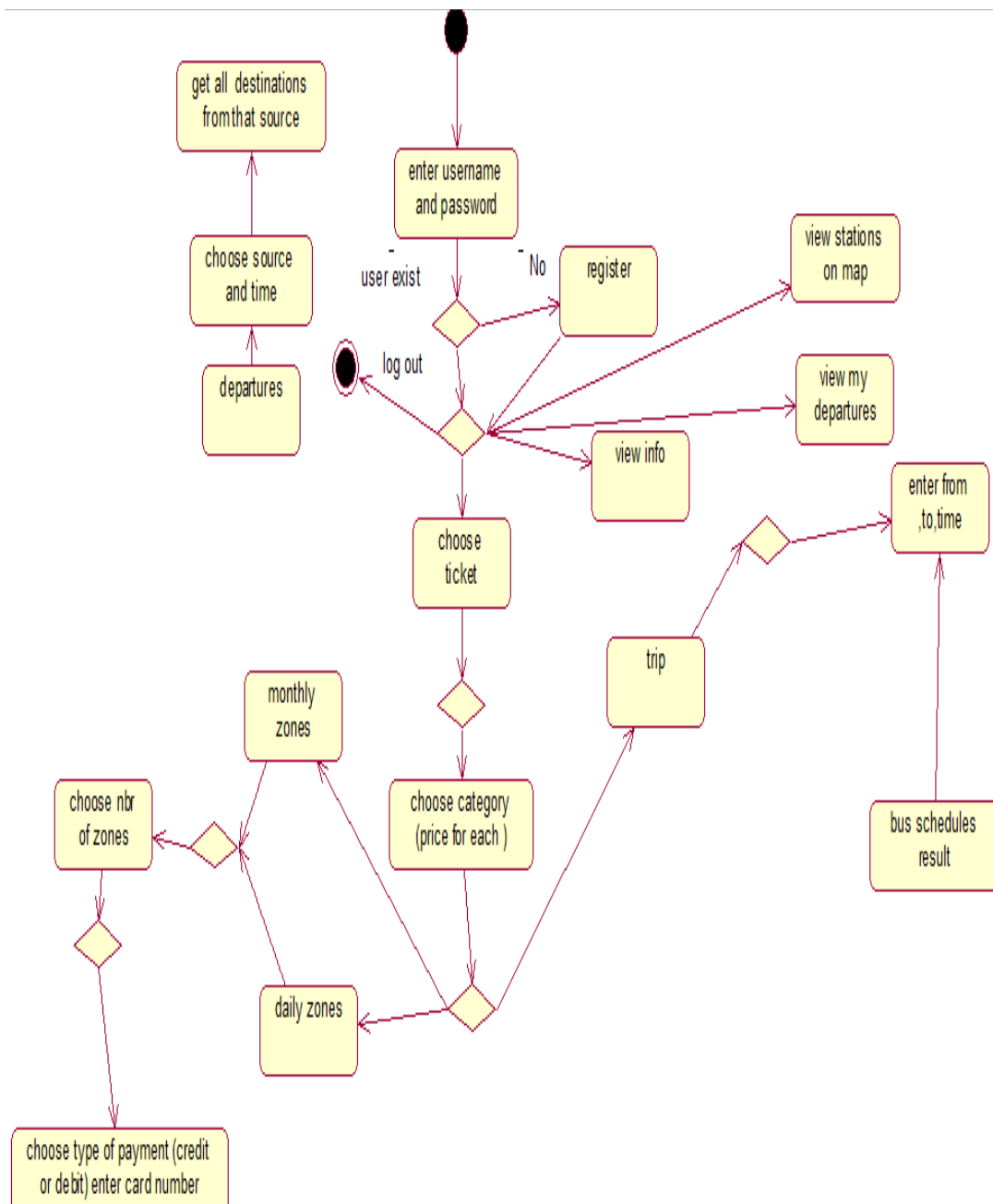
2.2 - Use case



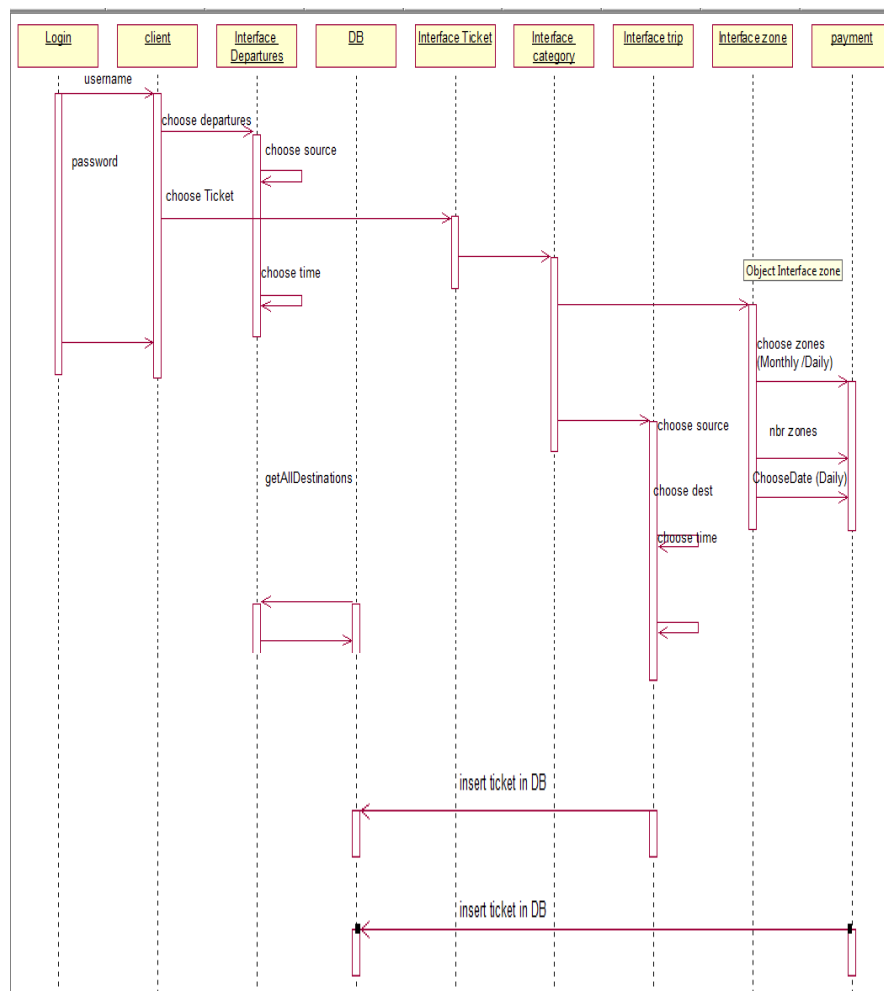
2.3- Class diagram



2.4 - Activity Diagram



2.5 - Sequence Diagram



3- Implementation

3.1 - Technical environment used

Our application is implemented in Java using android studio since it is an application that is more useful on mobile.

Screens description

Username

Password

SUBMIT

Not a user? Click here to register

Firstname

Lastname

Username

Password

Email

Sender

☒ Male ☐ Female

Date Of Birth

Click me to enter Date

SIGN UP

3.1.1- If EMPLOYEE:

1- UPDATE OR INSERT NEW

Update Stations

Update Bus Schedule

Update Bus

Check Statistics

Add Employee

NEW	
Abdeh	Zone name: North Lebanon
Tripoli	Zone name: North Lebanon
Chekka1	Zone name: North Lebanon
Chekka 2	Zone name: North Lebanon
Batroun1	Zone name: North Lebanon
Batroun2	Zone name: North Lebanon
Jbeil	Zone name: Mount Lebanon
Nahr ibrahim 1	Zone name: Mount Lebanon
Nahr ibrahim 2	Zone name: Mount Lebanon
Casino 1	Zone name: Mount Lebanon

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IF WE CLICK ON ABDEH LIST

name	Abdeh
description	
longitude	35.977805
lat	34.517605
zoneid	Akkar
SUBMIT	

IF WE CLICK ON NEW

name	
description	
longitude	
lat	
zoneid	Akkar
SUBMIT	

2- Check Statistics

Update Stations
Update Bus Schedule
Update Bus
Check Statistics
Add Employee



Show statistics by **Number of Tickets Sold**

From

2018
Wed,
Jun 6

<

June 2018

>

S	M	T	W	T	F	S
			6	7	1	2
3	4	5			8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

To

2018
Wed,

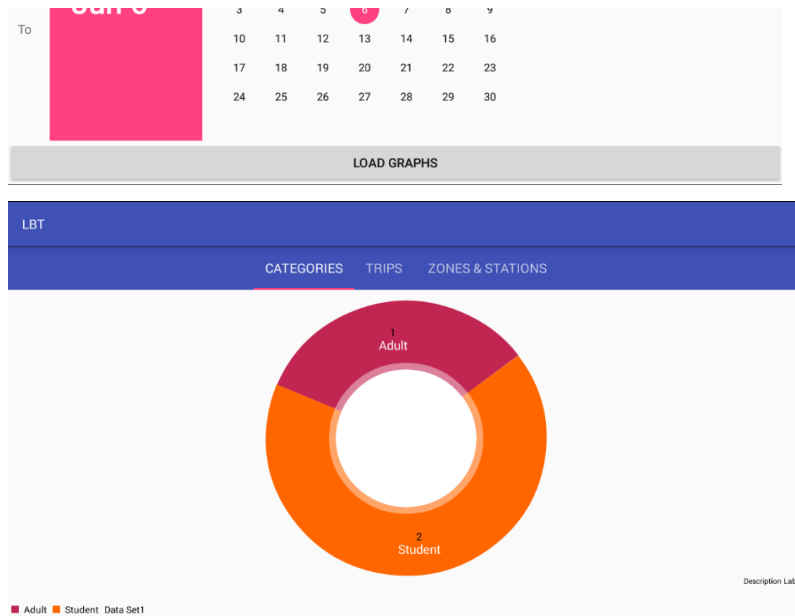
<

June 2018

>

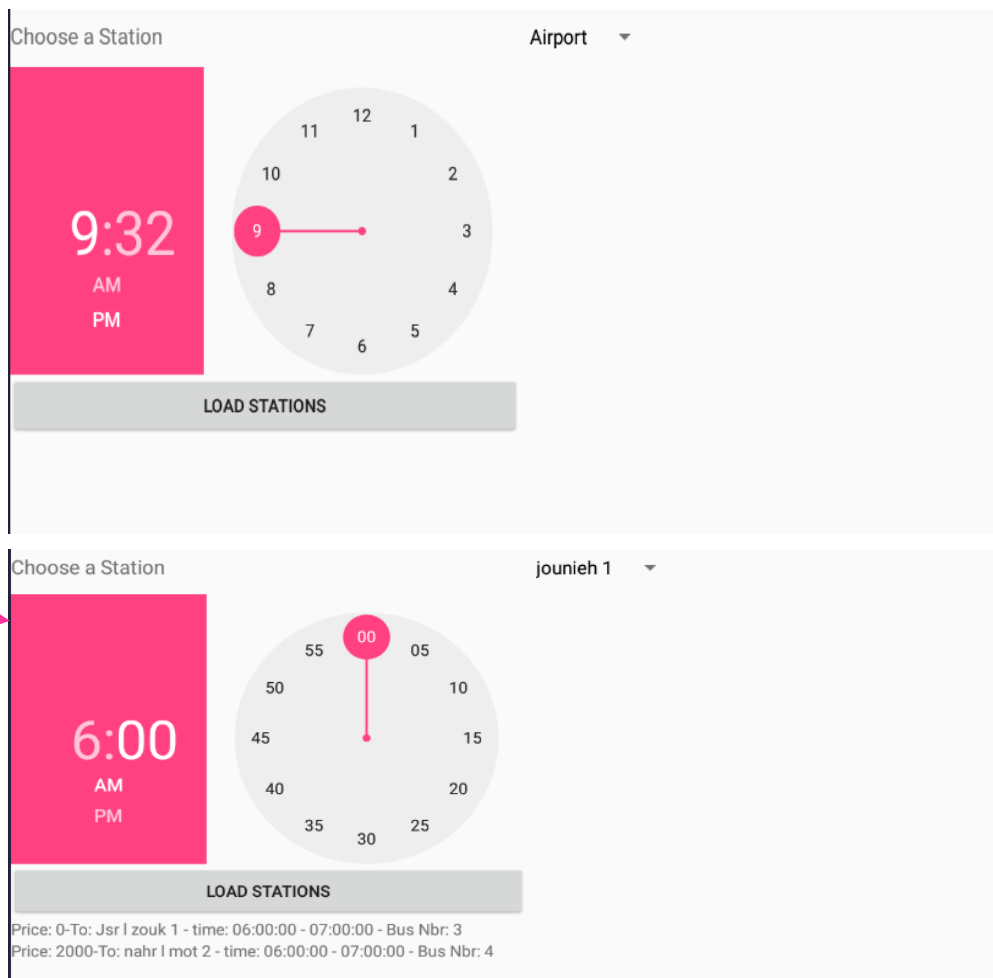
S	M	T	W	T	F	S
					1	2

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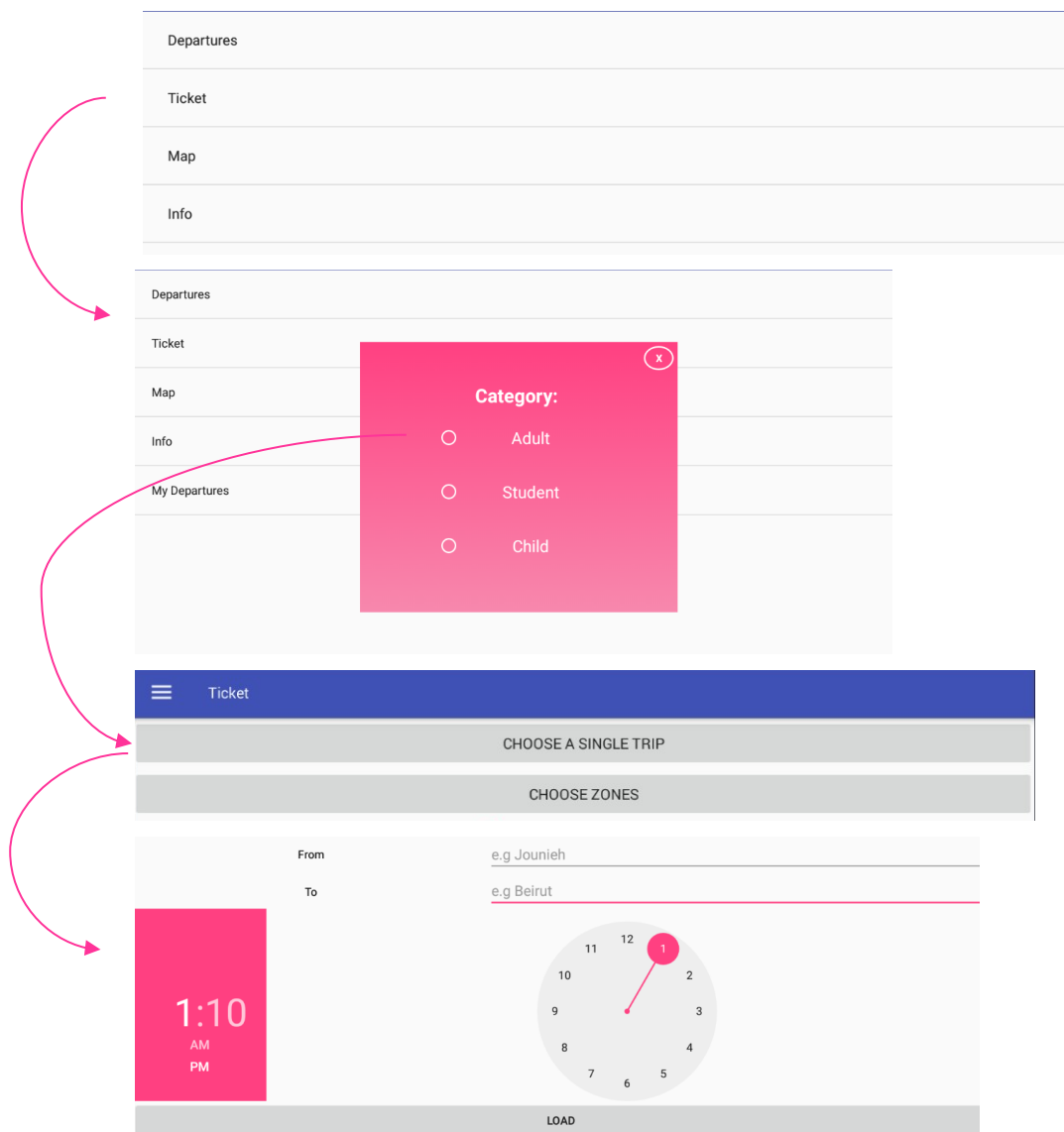
3.1.2 - If CLIENT:

1- Departures

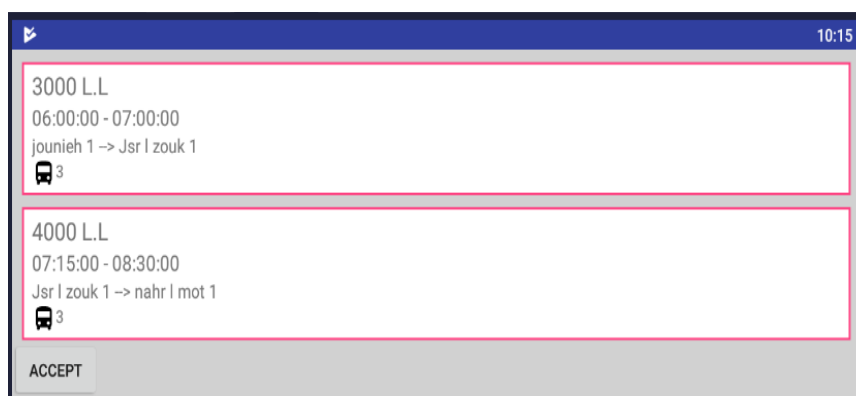


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2- Ticket



On Load:



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Ticket

CHOOSE A SINGLE TRIP

CHOOSE ZONES

CHOOSE ZONES

☐ Daily ☒ Monthly

Valid from Now

Zones of Validity 2 3

CONTINUE

On Daily :

Ticket

Number Of Zones maximum 2

Date Of trip

2018 Wed, Jun 6

June 2018

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Zones

CONTINUE

Continue (from Monthly and daily)

Ticket

Payment Method Master

Payment Amount 3000.0

Payment Date 2018/6/6

Card Number

Expiration Date

2018 Wed, Jun 6

June 2018

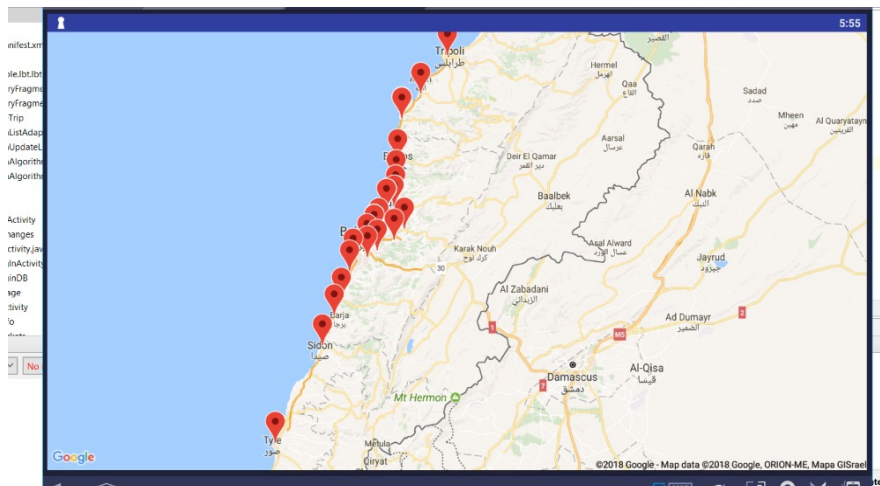
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

BUY

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3- Map

Departures
Ticket
Map
Info



4- Info

☰	Info
LBT	
Name	Lebanon Bus Transportation
Address	Zouk/Dekweneh
Email	info@LBT.con
Tel	76/730476
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4- Conclusion

The usage of our bus transportation application is developed in order to provide information to the user about bus schedules. We have the opportunity to choose the trip.

This application helps to reduce traffic and the waiting time of the people in bus stands and helps to save a lot of valuable time and energy.