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Project Document Structure

1. cover page:

- Project Title
- Project Logo
- Team Members Name, ID and Emails (ugu email).

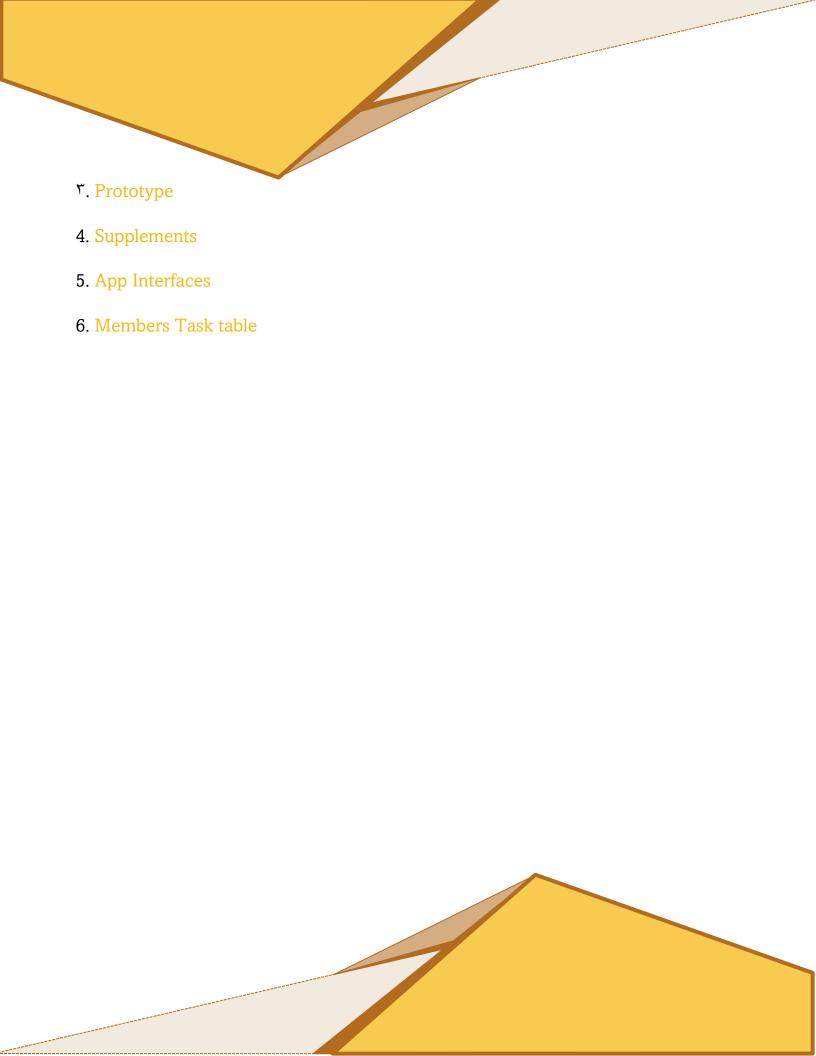
2. chapters:

Chapter 1 (Introduction):

• Brief Description of The Project Idea (Answering the three questions).

Chapter 2 (Analysis Phase):

- Functional Requirements
 - User Requirements
 - System Requirements
- Non- Functional Requirements
- System Modeling Phase:
 - Context Diagram
 - o Data Flow Diagram
 - o Class diagram
- Use Case Diagram
 - o Tabular Description of Use Cases
- Activity diagram
- State diagram
 - o State and stimuli tabular description
- Interaction diagram (sequence)
- Component and deployment diagram



Chapter 1 (Introduction)

Project idea

UQU bus is an Arabic app that helps UQU students to manage their transportation using the bus, and it helps the drivers and their companies, by offer many services. the most important service is that bus driver can arrange the students numerically in a public map, and shows the order for the students, the map will also have the student and bus location to help students tracking driver, and there is also a timer for each student, the app offer notifications to make the students and drivers up to date, also drivers and students can communicate with each other, and student can easily ride the bus anytime without communicate with driver, just by scan QR code. finally, students and drivers can submit complaints and suggestions to reach the officials.

Problems solved by the project

You can indicate the problem of student transportation with buses once you see the crowd and lack of organization and communication between drivers and students So, our project makes it a lot easier to communicate, schedule, edit and notify for both sides. This project Will solve some type of issues:

- 1. The amount of time students wastes it during waiting for the bus to transfer them to the university by providing some features to help them arrive faster.
- 2. Drivers usually waste their time besides student's time when they randomly pick students from their home. The solution in our app is to let both sides share their location so their drivers can arrange them self to pick the nearest locations from them.
- **3.** Lack of communication between student and bus drivers. So, we make it easier by allowing them to communicate through WhatsApp.
- **4.** Both students and drivers can decide not to go suddenly for any certain circumstances. This can affect the time and effort of both. That's why it's important in our app to provide the service to allow a notification to let the other know of any delays or quitting.
- 5. Toxic environment inside the bus can affect the student and driver mood and energy despite the other problems. It's important for us to hear from them things they struggle in by letting them send comments and suggestions.

Gathering information methods

There are three key methods for we used it to efficiently be gathering information and it helped us keep on our project.

1. Team Meetings

The first and foremost method for gathering and managing project information refers to organizing team meetings. By conducting consistent weekly internal meetings with the UQU-BUS project team, we have collected information about the UQU-BUS project which is designed for the students of Umm Al-Qura University. As if we put ourselves in the client's place and in turn understand the requirements of the project.

2. Resolution

We have conducted a questionnaire to measure the reality of the problems that female students of Umm Al-Qura suffer from while using the bus for transportation. Also, we found that there are indeed several problems that female Umm Al-Qura students suffer from: such as the difficulty in communicating with the drivers, also some suffer from the time and lack of scheduling trips with drivers, so we choose this idea UQU-BUS to solve all the problems that we are facing.

3. Interview

We have also collected information on the most prominent problems female students of Umm al-Qura encountered while using the university bus for transportation by conducting interviews for students from several different disciplines, Where the idea won their admiration, and they supported the idea and welcomed it.

Software development tools

Adalo: it is an no coding tool, and its goal is to offer a platform to design and host websites and applications that include databases, workflow actions, and integrations. It also can publish to Android and iOS devices, thus creating native mobile apps.

Chapter 2 (Analysis phase)

- User requirements:
- 1. Students must make a profile in UQU-Bus system.
- System requirements:
- 1.1 System will ask student to log in or sign up for the first visit.
- 1.2 System will ask students for some information about them, like name, lectures time of each day and establish a fixed schedule for the student in the first visit.
- 1.3 Students can log in with their username and passwords.
- 1.4 The system will display error message if the user enters a wrong information in the sign up or log in.
- 1.5 Student must allow the system to access her location.
- 1.6 Student can change some information like location and passwords.
 - User requirements:
 - 2. Bus-Driver must make a profile in UQU-Bus system.
 - System requirements:
- 2.1 System will ask Bus-Driver to log in or sign up for the first visit.
- 2.2 System will ask Bus-Driver for some information about them, like name, number of the bus he drives, the area he drives the students in the first visit, and number of students he has.
- 2.3 Bus-Driver can log in with their username and passwords.
- 2.4 The system will display error message if the user enters a wrong information in the sign up or log in.
- 2.5 Driver must share his location with the system.

- User requirements:
- 3. Driver must have a schedule.
- System requirements:
- 3.1 The system will generate schedule for the driver depend on the students' schedules that he is responsible for.
- 3.2 The schedule will contain the time and the address of each student in his area.
- 3.3 System will enable the driver to see some information about the student like name, phone number and address.
- 3.4 Driver will determine the order of students to pick them up, and student will be notified about that.
- 3.5 System will show in the schedule if the student won't attend.
- 3.6 System will show the total of the students per day.
 - User requirements:
 - 4. Students and bus-driver can contact each other by WhatsApp.
 - System requirements:
- 4.1 Students can chat with the bus-driver by connecting the system to the WhatsApp application.
- 4.2 Student can be start chat by WhatsApp application with bus-driver also vice versa.

- User requirements:
- 5. Student and driver can modify their schedules.
- System requirements:
- 5.1 in the case of the lecture was canceled or student won't attend, she can cancel her appointment or change it to another time.
- 5.2 In the case of the driver is ill, he can inform the student, and notified them the number of the bus that will come to them.
- 5.3 Student can add her exams days from the exam's property.
 - User requirements:
 - 6. Bus-Driver and Student can share location on the public map
 - System requirements:
- 6.1 Student must share her location on the public map with the system to save it on its profile.
- 6.2 Bus-Driver must share his location on the public map with the system so that the student can see where he has arrived.
- 6.3 The student will know if the bus is on the university parks.
- 6.4 Student will get a notification when bus driver is near by the student house.
- 6.5 When the bus has arrived at a student house, student will get notified and the 4 minutes timer will start decreasing.
- 6.6 The student will notify if the timer is done, and after that the bus will leave.

- User requirements:
- 7. Every student and driver can complain and suggest.
- System requirements:
- 7.1 Student can evaluate the Bus-Driver anytime she wants.
- 7.2 The system allows the student and driver to suggest some improvements or complain.
- 7.3 Admin can view suggestion and complains and answer.
 - User requirements:
 - 8. Each bus has a QR-code.
 - System requirements:
- 8.1 Students must scan the QR-code on the bus so the driver can check that the student gets on the bus or not in a specific time slot.
- 8.2 The driver will confirm that the student has taken the bus.

Non-Functional requirements:

1. Security

- 1.1 Student's information will be secure.
- 1.2 Bus-Driver information will be secure.
- 1.3 The generated schedules will be for the female student only, so only the bus driver and the female student can see them.

2. Fast

- 2.1 The system will generate the notifications fast.
- 2.2 The system will generate the modifications fast.
- 2.3 The system will find the right bus-driver fast.

3. Reliability

- 3.1 Notify the bus-driver to cancel the appointment to attend university.
- 3.2 Notify the bus-driver if student modified appointment to attend or exit from university.

4. Availability

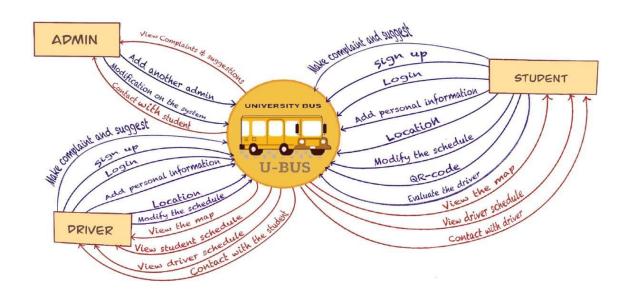
4.1 System must be available 24/7.

5. Usability and learnability

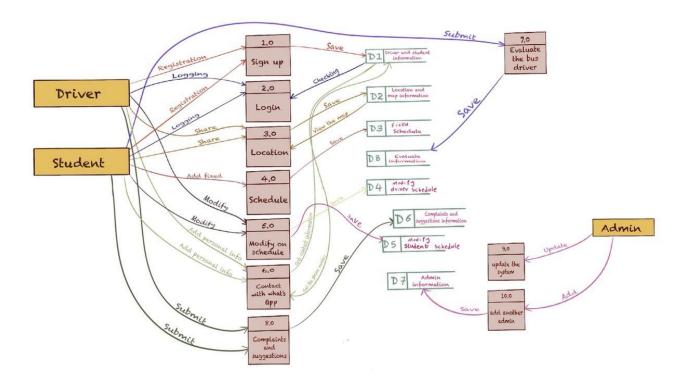
5.1 The system will be easy to learn.

System modeling phase

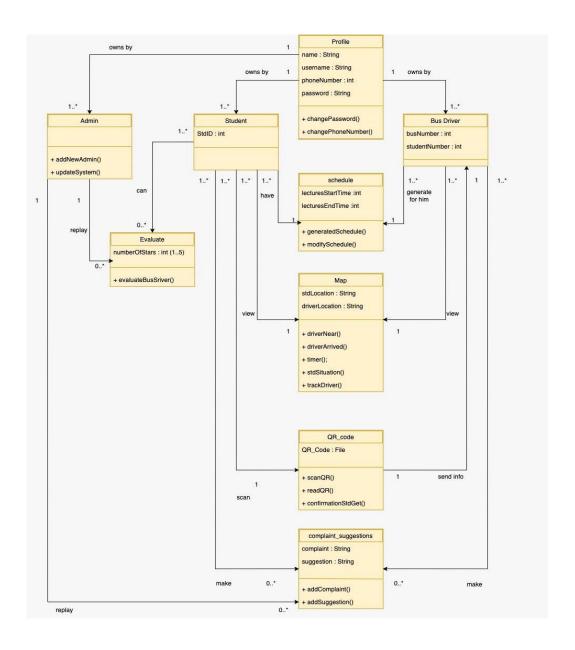
Context diagram:



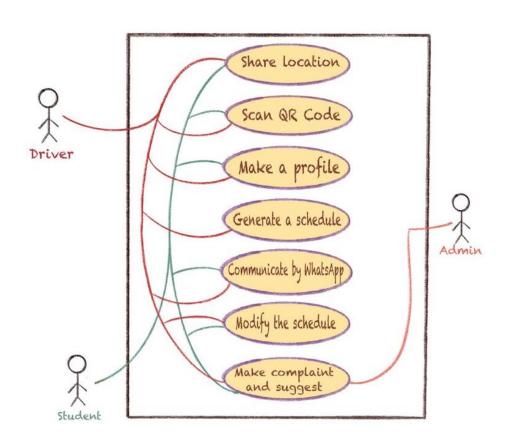
Data Flow Diagram level1:



Class diagram:



Use cases:



Tabular description of use cases:

Make Profile

Make profile	
Actors	Students, Driver, Admin
Descriptions	System will ask student and driver to log in or sign up for the first visit. Also, system will ask student for some information about her, like name, phone number, lectures time of each day and address in the first visit and will ask driver for some information about him, like name, phone number, number of the bus he drives and number of students he has and his area in the first visit. Students and drivers must share their locations with the system. Students and drivers can log in with their usernames and passwords. The system will display error message if the user enters a wrong information in the sign up or log in.
Data	Student's information (name, phone number, lectures time of each day, username, password, location). Driver's information (name, phone number, number of the bus he drives, number of students, area, username, and password).
Stimulus	None
Response	Student and driver must make a profile in UQU-BUS system.
Comments	The student and driver will be able to use UQU-BUS services after making their profile.

Share location

Share location	
Actors	Students, Bus-Driver.
Descriptions	When the female student shares her location, then it will be saved on its profile, and she will know if the bus is on the university parks or get a notification when bus driver is near by the student house. The Bus-Driver must share his location on the public map with the system so the student can see where he has arrived.
Data	Student's information (Location). Driver's information (Location).
Stimulus	Student and driver must make a profile in UQU-BUS system.
Response	The female student and Bus-driver locations will be saved in the system and shown in the public map.
Comments	When the female student shares her location, Only the Bus-driver will be able to see her location.

Scan QR code

Scan QR code	
Actors	Students, Driver
Descriptions	When the students must return from UQU to their homes they have to scan the QR code that in the bus to make their information transfer to driver and the driver will know the number of student and their information in specific time slot.
Data	Student name and location
Stimulus	Student and driver must make a profile in UQU-BUS system The bus must be in the bus area
Response	The driver will know number of students in the bus in a specific time slot and their information (names and locations).
Comments	None

Generate a schedule

Generate a schedule	
Actors	Driver
Descriptions	The system will generate schedule for the driver depend on the students' schedules that he is responsible for. Also, the schedule contains time and the address for each student to help the driver for determine the order of students to pick them up and student will be notified about that. if the student won't attend the system will show that in the schedule. also, the system will show the total of the students per day and will enable the driver to see some information about the student like name, phone number and address.
Data	Student's information (name, phone number, address of student). schedule information (time, address of student).
Stimulus	Student and driver must make a profile in UQU-BUS system.
Response	Driver has schedule to pick up the student from there locations.
Comments	None

Communicate by WhatsApp

Communicate by WhatsApp	
Actors	Students, Driver
Descriptions	The female student can be start chat with bus-driver also vice versa by connecting the system to the WhatsApp application. e.g., for inquiries or questions about appointments
Data	Student's information (name, phone number). Driver's information (name, phone number).
Stimulus	Student and driver must make a profile in UQU-BUS system.
Response	The UQU-BUS system will transfer the female student and Bus-driver to the WhatsApp application when clicking on the chat icon.
Comments	None

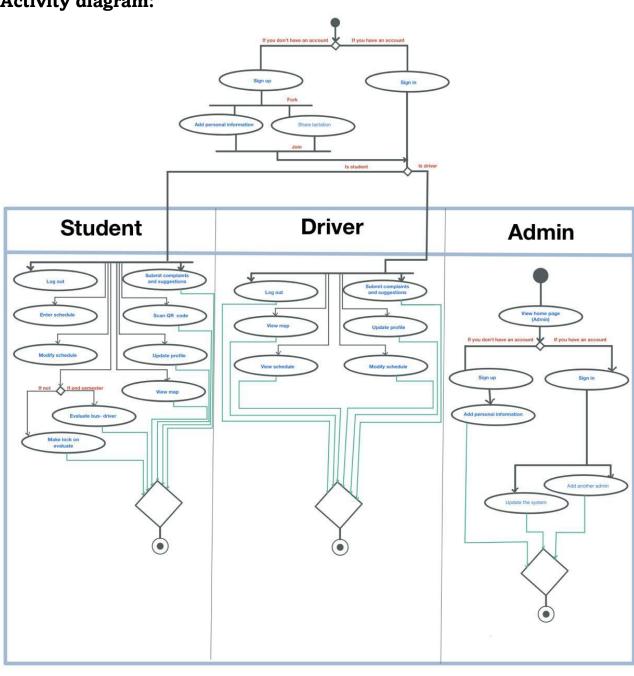
Modify the schedule

Modify the schedule	
Actors	Students, Driver, Admin
Descriptions	Drivers and students can modify their schedules at any time.
	Students can modify their schedule by changing their lectures times if the
	lecture is delayed or canceling the appointment. And if the lecture is canceled
	or students choose not to go. Also, students can add the exams scheduled on
	the exam's property.
	The drivers also can modify their schedule in case they cancel the appointment
	they must notify the student and convert them to a new driver.
Data	Student's information (name, gender, faculty major, id, password).
	Driver's information (name, gender, id, password).
	Schedule information (time, address of student).
Stimulus	Student and driver must generate a schedule in UQU-BUS system.
Response	Student and driver schedules will be modified.
Comments	None

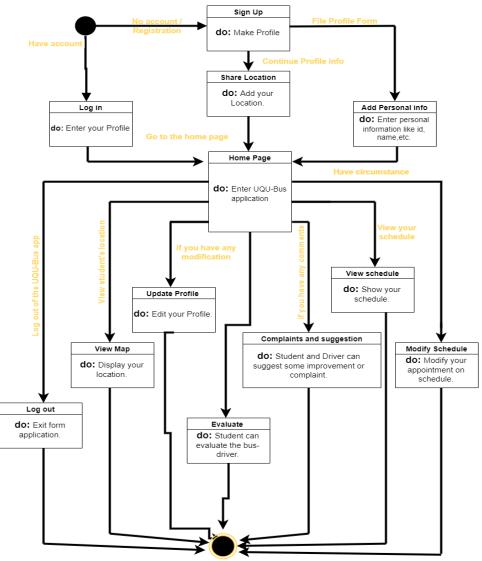
Make complaint and suggest

Make complaint and suggest	
Actors	Students, Drivers, Admin
Descriptions	Student can evaluate the Bus-Driver anytime she wants. also, can suggest some improvements or complain, and for the driver he can complains and suggest improvements.
Data	Students must enter some information about the driver like his name and bus number also she can include pictures or any type of multimedia. Driver can also enter some information about the student like her name and her phone number also he can include pictures or any type of multimedia
Stimulus	None.
Response	The admin will receive these massages and interacts with it or takes some actions.
Comments	None.

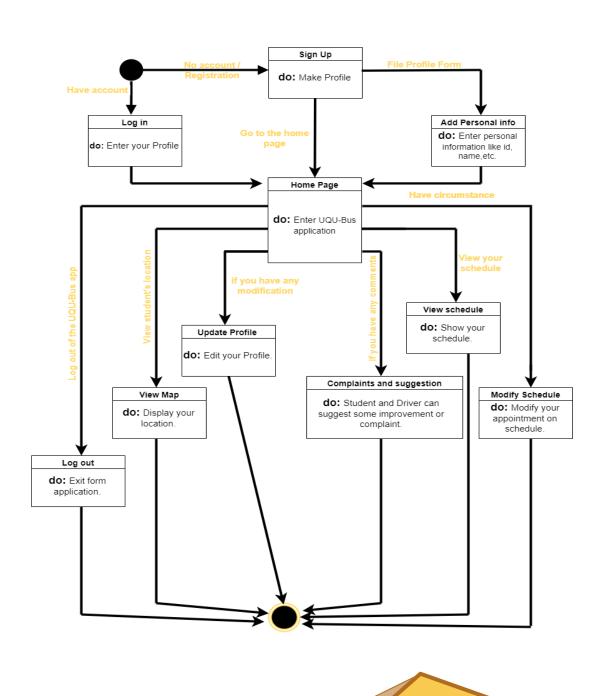
Activity diagram:



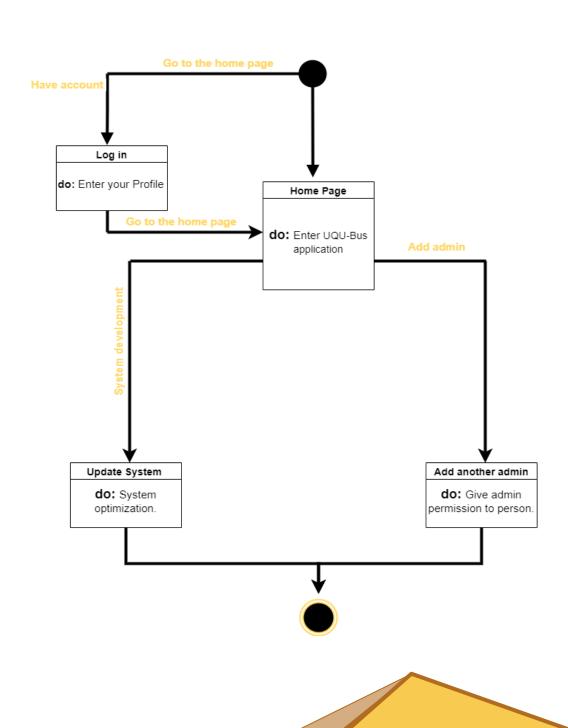
State diagram: student



Driver state diagram:



Admin state diagram:



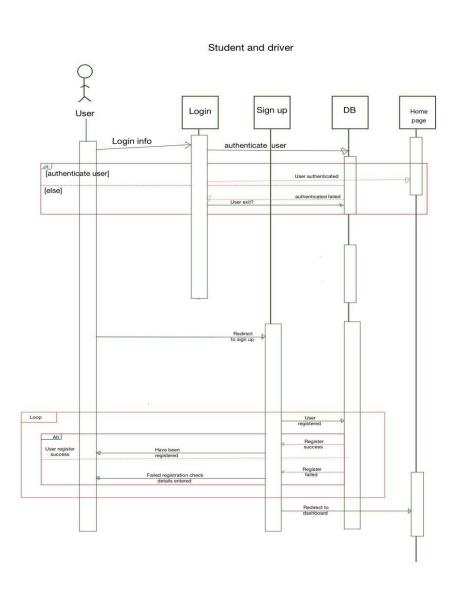
State and stimuli tabular description: state description

state	Description
Sign up	The system will ask the student and the driver to sign up on the first time using the application
Log in	The system will ask the student and the driver to log in if they already signed up
Add profile	The system will ask the student and the driver to add some personal information like: name, phone number,etc.
Share location	The system will ask the student and the driver to accept sharing their location on the first time using the application
View map	The system allow the student to track the driver using the map
View schedule	The system allow the student and the driver to see the student's schedule
Modify schedule	The system allow the student and the driver to modify their schedules
Home page	The main page of the application
Evaluation	The system allow the student to evaluate the driver
Add schedule	The system allow the student to add a schedule
Complaints and suggestions	The system allow the student and the driver to write and send any complaints and suggestions about the application
Generate schedule	The system generate a schedule for the driver depending on the student schedule that he is responsible for.
Update profile	The system allow the student and the driver to update their personal information
Log out	The system allow the student and the driver to log out from their accounts on the application
Update system	The system allow the admin to update it
Add admin	The system allow the admin to add another admin

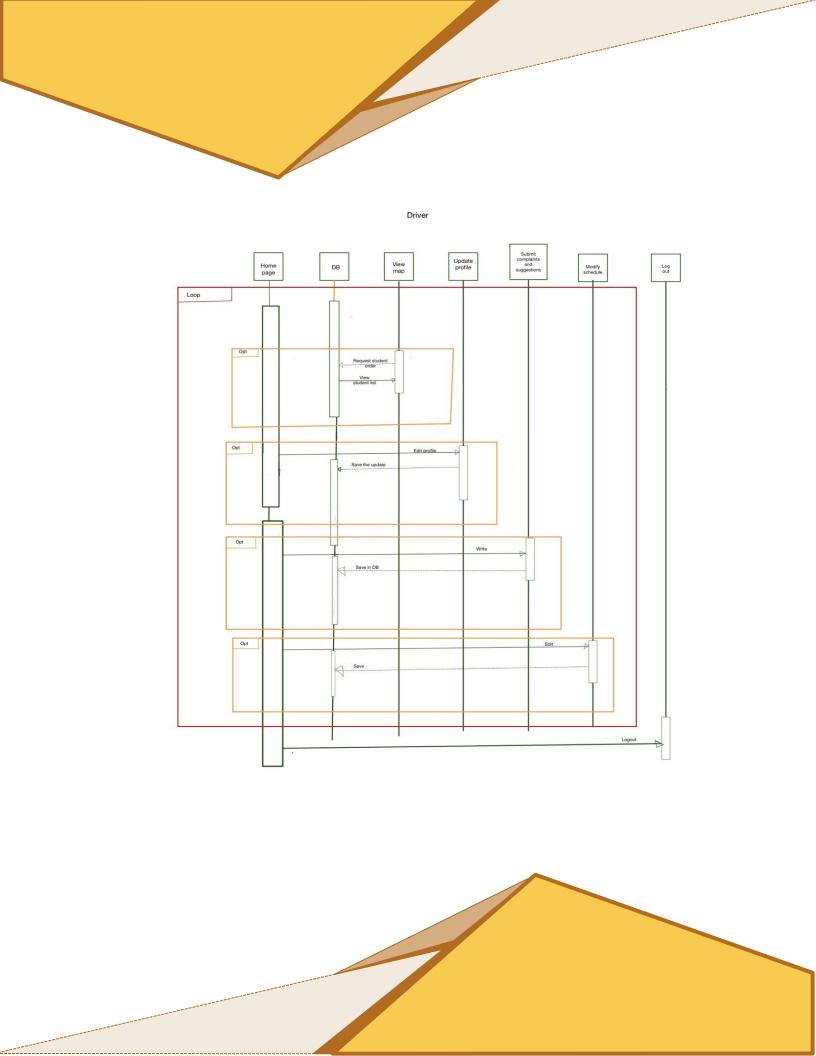
State and stimuli tabular description: Stimulus description

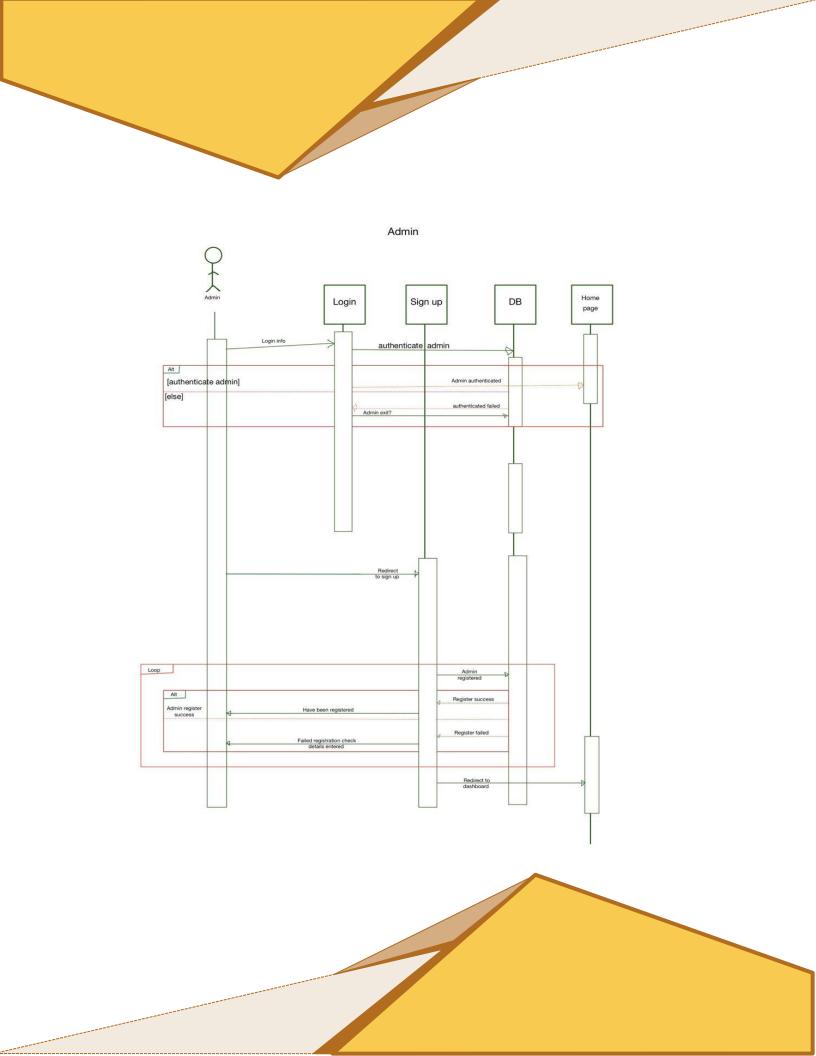
stimulus	Description
No account? register	The user registration on the application
Have account?	The user logs in to the application
Fill profile form	The user enter data to make a profile on the application
Continue profile form	The user enter data to complete the profile on the application
Log out	The user can exit from the application by clicking "log out" button
Go to home page	The system will transform the user to the home page after he sing up or log in
Connect it	The system will transform the student to chat with the driver through WhatsApp if he clicks on "start a chat" button
Have a circumstance?	The system allows the user to modify his schedule and appointments at any time for any reason
System development	The system allows the admin to make any changes
modification	The system allows the user to modify his schedule at any time for any reason
View student's location	The system allows the driver to see the student's location
Add admin	The system allows the admin to add another admin
If you have any comments!	The system allows the user to write and send any complaints and suggestions about the application

Interaction diagram (sequence):



Student Update profile Home page Evaluate bus driver Log Loop Save in DB Depend on student location Choose the nearest driver by system Return to homepage for services Opt Edit profile Opt Save in DB Opt Opt Opt Save QR code Log out

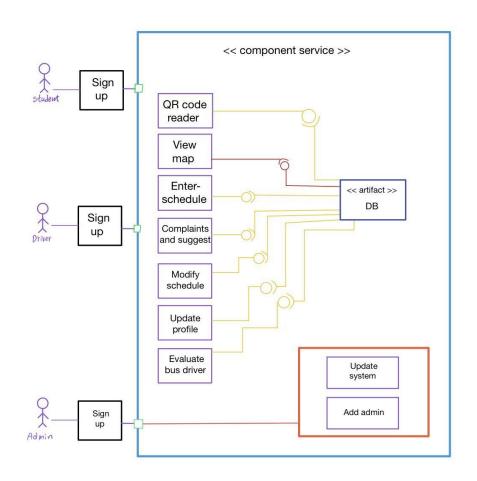




Admin Update the system DB Home page Logout Loop Opt Add admin Update Logout

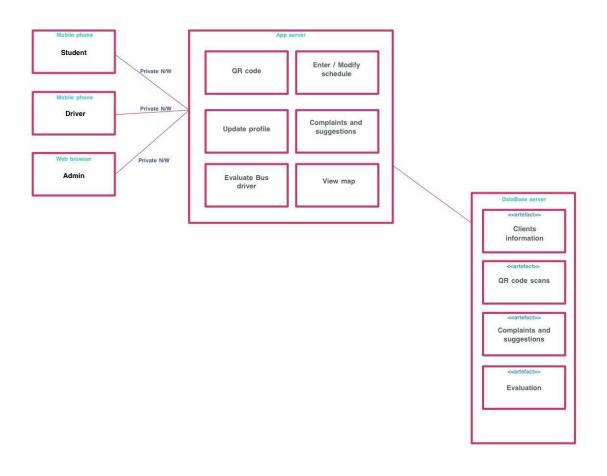
Component and deployment diagram:

Component diagram



Component and deployment diagram:

deployment diagram



Student





Prototype













Driver













Admin



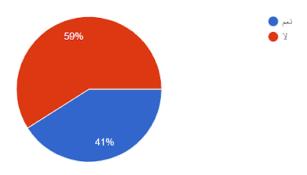






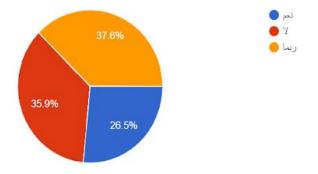
Supplements:



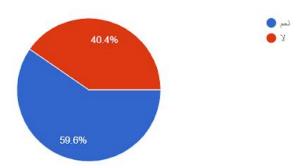


هل تفضلين ركوب الحافلة الجامعية ؟.

117 ردًا

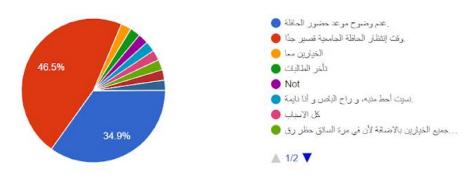


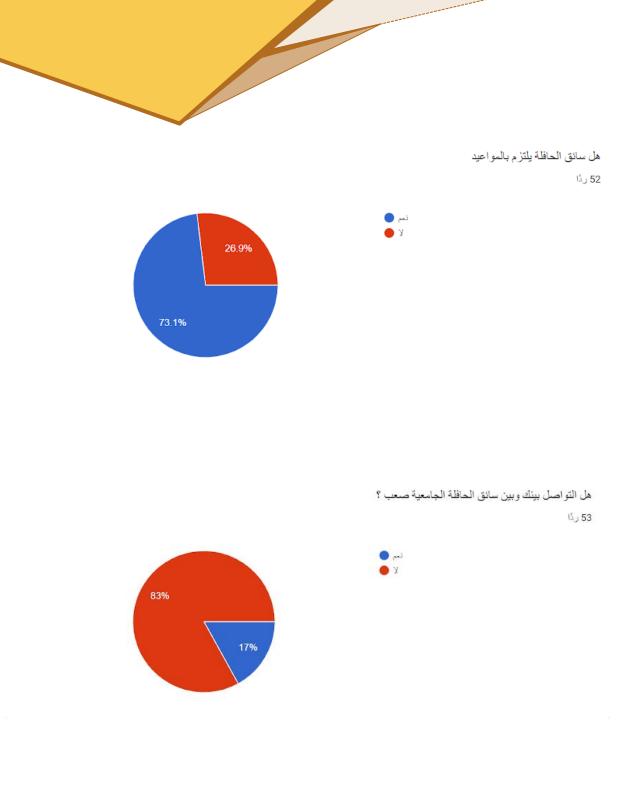
هل حدث وأن فاتتكِ الحافلة الجامعية ؟ 52 ردًا



ما سبب فوات الحافلة الجامعية ؟

43 ردًا





هل سبق وأن التبس سائق الحافلة الجامعية بينكِ وبين إحدى زميلاتك بالحافلة ؟ 53 ردًا

83%

App interfaces

App icon

First user has download the app, and this icon will appear in the home screen





Welcome page

it shows whenever the user opens the app. It has 5 options and information about the app.

- First option is "إنشاء حساب طالبة
 - It takes the user to the student sign up page.
- Second is "انشاء حساب سائق باص
 - It takes the user to the bus driver sign up page.
- Third is "'هل تملك/ين حساب?"
 - This option is for students and bus drivers, it takes them to the login page.
- Fourth page is "؟"
 It takes the admins to their login page.
- And last "'من نحن"
 - It is a page that shows information about UQU BUS app.

Student - sign up page

It has a form contains 6 input fields, and every field have a place holder contains an example of the correct data.

- الرقم الجامعي •
- الاسم الثلاثي •
- رقم الهاتف المحمول •
- العنوان •

The address should be copied from google maps to work correctly.

البريد الإلكتروني •

It should be a correct email and not already taken.

كلمة المرور •

If student clicks on the "استمري لتختاري منطقتك" it will takes her to areas page, to complete her information.





Student - Area page

This page has the areas options, student must choose just one of the areas to complete her information. And to make the bus driver that is responsible of her knows her information.

When the student clicks "التالي" it takes her to create the schedule page.

Student - Create Schedule page

This form enables the student to enter thier schedule dates for all days of the week, so that she can enter the dates for going to and from the university for each day.





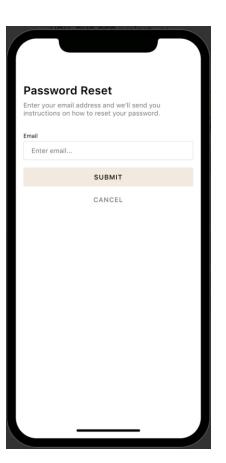
User - log in page

This page is sharable between students, drivers, and admins. The user to enter a valid data that is in database. In other words, this is the authentication page.

User - Authorization page

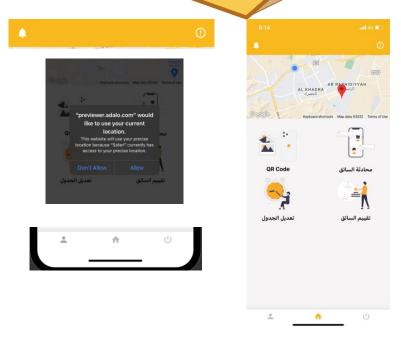
this page for authorize the user, is it a student or driver or admin? and after that shows the right home page for the user. In this situation the student home page will appears.





User - forget password page

This page will appear when user clicks on the forget password button, user must writes their email and after that a message will be sent to the email, contains a temporary password.



Student - home page

First when user log in or sign up the system take her to the home page, and it orders access to the student location. After student allow that the home page appears with a header has two icons, the lift icon (the ring) takes the student to the notifications page, and the right icon is for make a complaint or suggestion.

In the middle of page there are 4 pages and map

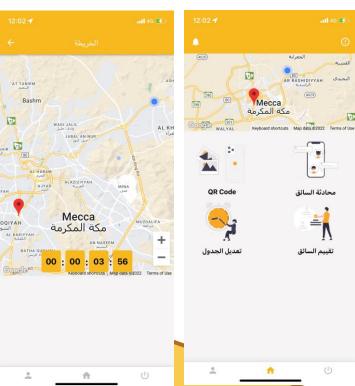
- Map has the student location and her driver location.
- First is the QR code scanner page.
- Second is communicate with diver.
- Third is to change the schedule.
- Fourth is for evaluate the drivers.

In the footer there is 3 icons

- First is for going to user profile
- Second is for going to home page
- Third is for log out and go to the welcome page again

Student - Map page

In the student map page student can see the driver location in the map, and her location. In this situation the student area is "الشوقية" so the driver that in her map is the driver for this area. If the student in another area it will appear to her the location for the driver that is responsible of her.



Student - QR code scanner page

This page is used by the student that want to go back to their home if they scanned the QR code that in the bust their information (name and location) will sent to the driver. Unfortunately, this function has to upgrade the plan in adalo so it doesn't work even with our many attempts.



Chat on WhatsApp with +966 50 550 1541

Continue to Chat

Students - Chat page

This page will appear when you click on the bus driver's conversation button, and then it will transfer it on WhatsApp to start the conversation with the driver.



Students - change schedule page

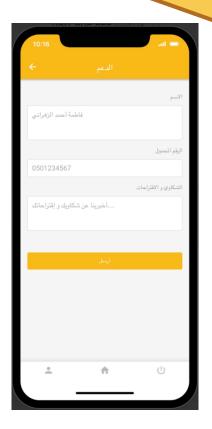
This form enables the student to change the schedule dates for all days of the week.

Student - Drivers evaluation page

First student must choose a driver from all the drivers that are in the system, after that she can evaluate the driver from 1 to 5 stars and clicks "ä" to send that to the database and shows in the admins pages.







Students - Support page

The form displays the support page through which the student can report any complaint or if she has any suggestion, she can write it through this form with her data:

- The name
- mobile number

and her voice will heard by the admins.

Student - personal information page

The form displays the student's information, as it displays the name, university number...etc.

The student can also modify the password that she set when creating the account, in addition to modifying the university number and the student's personal email.







Bus driver - sign up page

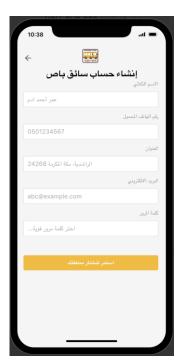
In this page there is four area to enable the bus driver choose one of these area:

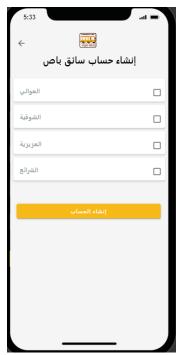
- العوالي .
- الشوقية •
- العزيزية •
- الشرائع •

and then click on "إنشاء الحساب" then the bus driver will have an account to use the services that app provide.

About us page

This page has the developers' names and the supervisor also the app aims and vision.





Bus driver - home page

this page shows the bus driver services that he needs which is:

- من بالباص؟
 - This page helps the driver to know who is in the bus right now.
- محادثة الطالبات → this page is related with what's up app to make a direct communication between the bus driver and students.
- QR code generator
- الجدول •

this page has a map to show the bus driver address. also, It's have an icon in the right top corner of the page which is for complaints and suggestion page for enable the bus driver to submit any suggest or complaints. In the footer there is the personal information page and home page and log out option.







Bus driver - Map page

In the bus driver map page driver can see his location, and all of the students location that he is responsible of them. In this situation the driver area is "الشوقية" so all of students in the same area are shown in the map. If the driver in another area it will appear to hem the location for all of students that is responsible of them.

Bus driver - who is in the bus? page

This page is for the students that are in the same area of the bus driver, and they have to scan the QR code to appears in this list.

For the driver it will appears their names and locations.





Bus driver - chat to the students page

This page has a list of all the students that the driver is responsible of them. If driver click on student name system will take hem to the WhatsApp chat with the student.

Bus driver - QR code generator page

Here the page show a code that bus driver put it in his bus to enable the students to read the code by using their phone to ensure that student is present in the bus .this page generate one special QR code for every driver.



Bus driver -schedule page

Here the page displays the days for the bus driver to see who he will pick up in each day with the time like the screen below. And every day has a page





Bus driver - support page

This page is the right top corner of the page which is actually for enabling the bus driver to submit his complaints and suggests for getting the support. It has three fields:

- الاسم •
- رقم الهاتف المحمول •
- الشكاوي والاقتراحات

After the bus driver done from enter the information, he will click on the submit button. And all of the support orders will goes to the admins.





Admin - home page

this page show admin services which is:

- QR code → display a notification of student scan the code when they enter to the bus, this page is used for security reasons.
- الشكاوى والاقتراحات show students and bus driver their complaints and suggestion.
- اضافة مشرف جدید
 This page offers to the admin to add a new admin
- تقبيمات السائقين show admin the evaluation of all bus drivers in the system.

Admin - QR code notification page

For this page it displays notifications of student scan the code when they enter to the bus and also is show another notification to bus driver if he make sure that student in the bus.





Admin –complaints and suggestion page

This page is showing some complaints and suggestion of students and bus driver

And the admin can delete the complaints or the suggest by click on the delete icon the red one after update the system .

Admin – add new admin page

This page have 4 fields to input the require information to add anew admin:

- الاسم الثلاثي •
- رقم الهاتف المحمول •
- البريد الإلكتروني > the email should be correct when write it
- كلمة المرور •

Then after the admin enter the information he will click on "النشاء حساب"

Admins cannot make their profile by themselves, the need another admin to add them, this is for security reasons.



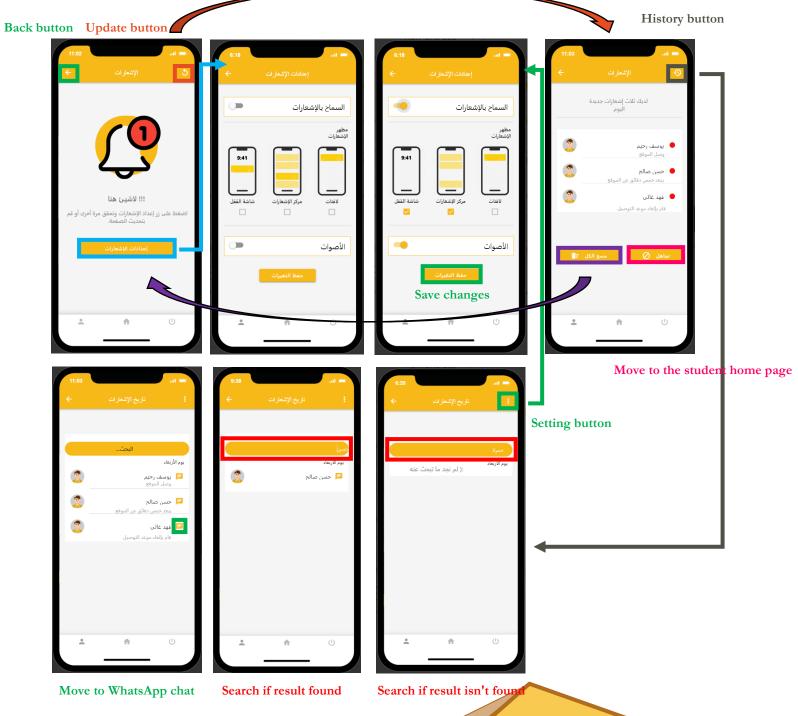


Admin – Evaluate bus driver page

The page show admin how many the evaluation of all the bus drivers which evaluated by students.







Notification Screens:

DRIVER

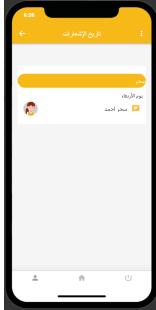














Same actions were preformed for the driver page

Members Task table:

Student	Task 1: Idea of project	Task 2: Scenario	Task 3: functional/no nfunctional requirements	Task 4: introduction	Task 5: Context diagra m	Task 6: Logo and style the report	Task7: Use case	Task8: Style the presentation
Afrah Alsaadi	~	~	~		~	~	~	
Jomanah Bajahlan	~	~	~	Write the idea of project in detail in report.	~		~	
Lujain Batooq	~	~	~	Write the tool that we use in the project and the gather of information.	~		~	
Sarah mansor	~	~	~	Write the problems that the project will solve in report.	~		~	~
Shrooq Alsalmi	~	~	~	Write the problems that the project will solve in report.	~		~	

Student	Task 9: DFD level1	Task 10: Class diagra m	Task 11: Activity diagram	Task 12: State diagram	Task 13: Sequen ce diagra m	Task 14: Component and deployment	Task 15: Prototype	Task 16: Implements Interfaces	Task 17: Impalement Functionalitie
Afrah Alsaadi	~	~	~	~	~	~	~	~	~
Jomanah Bajahlan	~	~	~	~	~	~		~	~
Lujain Batooq	~	~	✓	~	~	~		~	✓
Sarah mansor	~	~	~	✓.	✓	~		~	~
Shrooq Alsalmi	~	~	~	~	~	~			~