

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
**Requirements Specification**  
**Final Version**  
**June 17, 2022**

**GROUP MEMBERS:**

Adri CARA

Estref KATILLARI

Joni HASIMJA

Eridon CUNI

Herta BRARI

Jasim LIKA

# **EPOKA TRANSPORT MANAGEMENT SYSTEM**

## **REQUIREMENTS SPECIFICATION**

### **Table of Contents**

<b>1. Executive Summary .....</b>	<b>3</b>
1.1. Project Overview .....	3
1.2. Purpose and Scope of this Specification .....	3
<b>2. Product/Service Description .....</b>	<b>3</b>
2.1. Product Context .....	3
2.2. User Characteristics .....	4
2.3. Assumptions.....	5
2.4. Constraints.....	5
2.5. Dependencies.....	6
<b>3. Requirements .....</b>	<b>6</b>
3.1. Functional Requirements.....	6
3.2. Non-Functional Requirements.....	9
3.2.1. Product Requirements .....	9
3.2.1.1. User Interface Requirements.....	9
3.2.1.2. Usability .....	12
3.2.1.3. Efficiency.....	12
3.2.1.4. Dependability.....	12
3.2.1.5. Security .....	13
3.2.2. Organizational Requirements.....	13
3.2.2.1. Environmental Requirements .....	13
3.2.2.2. Operational Requirements .....	13
3.2.2.3. Development Requirements.....	14
3.2.3. External Requirements .....	14
3.2.3.1. Regulatory Requirements .....	14
3.2.3.2. Ethical Requirements .....	14
3.2.3.3. Legislative Requirements.....	15
3.3. Domain Requirements .....	16
<b>4. Software Design .....</b>	<b>16</b>
4.1. User Scenarios/Use Cases .....	16
4.1.1. User Scenarios.....	16
4.1.2. Use Cases Diagram.....	24

## ***EPOKA TRANSPORT MANAGEMENT SYSTEM***

### **REQUIREMENTS SPECIFICATION**

4.1.3. Use Cases Extended .....	25
4.2. Diagrams .....	38
4.2.1. Activity Diagrams .....	38
4.2.2. Swimlane Diagrams.....	55
4.2.3. State Charts.....	71
4.2.4. Sequence Diagrams.....	77
4.2.5. Collaboration Diagrams .....	87
4.2.6. Class Diagram.....	95
4.2.7. Object Diagram .....	96
4.2.8. ERD.....	97
4.2.9. Relational Schema.....	98
4.2.10. Data Flow Diagrams .....	99
4.2.11. Component Diagram.....	101
4.2.12. Deployment Diagram .....	101
4.2.13. Project Management Diagrams .....	102
<b>5. Last Part .....</b>	<b>104</b>
Appendix A. Sketches .....	104

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

## 1. Executive Summary

### 1.1 *Project Overview*

Epoka University has always provided their students with a parking space available for them at no cost and buses that depart hourly from different locations. With the increasing flux of students that Epoka University has had in the past years a few problems arise. As we saw earlier this academic year, the parking space oftentimes happened to be overpopulated and almost every day, the bus drivers struggle in deciding how many buses should depart at certain hours because of the lack of information they have. An information system that would make managing the parking space and the process of booking a bus seat more efficient would be beneficial in both fronts.

### 1.2 *Purpose and Scope of this Specification*

The purpose of this software project is to provide Epoka University with a tool that would make transport management as easy as possible. The key component of the Information System would be:

Online bus seat booking

Online parking space reservation

Record keeping of all the employees within the transportation sector

Efficient ways to have multiple buses depart from the same location when the need arises

Providing the users with information regarding bus seat and parking space availability

Managing the parking space so it won't get overpopulated

## 2. Product/Service Description

Our software will be accessed by students, faculty members, guests who wish to use any of the transport services that Epoka University has to offer and also make it able for the managers and the employees to easily cooperate. We want for the manager to be able to take care of the transportation business in a more sophisticated way and also provide high-quality services by editing the timetable of the buses at any time to fit the need of the user.

### 2.1 *Product Context*

A transport management system is a very popular system that can be found very easily however this independent and self-contained product is meant to fit the needs of Epoka University so it does not relate or communicate to any other system. Existing products exist in even bigger scales, much bigger than the one our university would need and that's why we wanted to create a system that fit the requirements of Epoka.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

## **2.2. User Characteristics**

The users who will be using our product:

- Guest

In our case guests may be people who want to book a seat or parking space when they want to visit Epoka University. In order for them to gain access they need to log in or sign up. Then, they can view the available bus seats for a certain route and decide if they want to book a seat. If they decide that they want to book a seat then a ticket which hold a QR code that will be later scanned by the busman will be generated. A guest can also view the parking space and decide if they want to book a parking space for a limited amount of time.

- Student

Students, who are the most frequent users of the 2 services have a number of characteristics. Firstly, they log in on the system with their Epoka e-mail so they don't need a sign up form. As soon as they become part of Epoka university they will also have access to our system and log in will be done through their google account. Our system will make it able for them to book a bus seat or a parking space and provide managers with information that would help them properly manage the transportation system. They can look at the bus routes, available bus seats and the parking space at certain times. When they book a bus seat they will be assisted with a digital receipt paired with a QR code for the busman to scan. Student can also check their personal information like bus pass or credit.

- Faculty Staff

Faculty Staff, just like students get their access from their Epoka email. Even though faculty members don't pay for a bus ticket the intention of this part is for the managers to make sure that they have the right number of buses available for their staff.

- Manager

Manager is a very crucial user in our system having two main responsibilities. Firstly, the manager deals with bus management, adding routes at needed times when there's a large number of requests from students. For example, some days the staff may only need one bus but other days there may be a larger number of faculty staff wanting to use a bus so the managers has to put 2 buses at the same route. This is very helpful to the manager because they provide a good quality service to their users while also avoiding extra costs by not having more buses at the same time when they are not available. The manager also deals with student information like bus passing and credit. On the other hand the manager also has to deal with the employees by making sure they are part of the system. Only

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

after the manager has registered them in the system they will be able to access their functionalities that will be mentioned in the following sections.

- Employees

The employees of the transport system (which include guard, busman, bus driver) will have access to our system to check information about their work. The guard will be able to look at information about each parking space booking to make sure that there are no overstays or cases where a space is booked but no one shows up. The busman will be able to check students' ticket digitally. Our strategy is to keep track of all the tickets sold to also provide better functionality to the transport business.

### **2.3. *Assumptions***

- 1) It is assumed that user and employees are familiar with the English language considering the software will be in English.
- 2) It is assumed that every user has access to an electronic device like a smartphone or computer.
- 3) It is assumed that the employees have all the computers and devices they need and they are all set up for them.
- 4) It is assumed that each user will have an internet connection in order to have full access to the website's functionality.
- 5) It is assumed that the employees, especially the manager, who will be using the system have enough computer skills to accordingly use the system.
- 6) It is assumed that the information of users is completely confidential and can only be seen by the manager or guard for work purposes only.
- 7) It is assumed that student requests are deleted after a certain time passes.

### **2.4. *Constraints***

- Internet connection is a constrain. The system supposed to be a web application so a connection to the internet is necessary.
- The employees need to have access to electronic devices in order to access the web application.
- The employees should understand and respect the privacy of the users and not misuse their personal information.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

## 2.5. *Dependencies*

- An employee cannot access the system if the manager hasn't added them in the system.
- In order to start working on the employee dashboards we need to work on functional requirements and complete the ERD and RS schema.
- Student cannot buy a bus pass if manager is not available.
- Manager cannot add a new bus to a route if the number of student requests is lower than 10.

## 3. Requirements

### 3.1 *Functional Requirements*

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
ETMS_01	The system will be branched in two main parts: those who want to use the bus and those who want to use parking lot.	The users who want to use the system will have to decide between the two offered services.	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_02	The system should have different user profiles	Each user should have a different view depending on their characteristics	2	22/4/20 22	J. Hasimja, E. Katillari
ETMS_03	The users should authenticate themselves to have their different views and permissions	The system should be able to validate the user credentials and show the correct view to each user	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_04	A guest user should always sign up with their own personal e-mail beforehand.	Since a guest can't sign up with their Epoka email they need to fill a registration form first.	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_05	The system should not allow the manager to change any of the student's information.	Student information is obtained from Epoka university and is available only to view.	2	22/4/20 22	J. Hasimja, E. Katillari
ETMS_06	The passengers should be able to reserve their seats in the requested time and station	If there are no seats available the students can request for a new bus, these requests are later analyzed by the manager and he decided if a new bus should depart at that time frame.	1	22/4/20 22	J. Hasimja, E. Katillari

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
ETMS_07	The users should be allowed to book their lot in the requested timeline	Students and staff can book their parking lot for an unlimited time during the days but a guest cannot book for more than 1 hour.	1	22/4/2022	J. Hasimja, E. Katillari
ETMS_08	The system should provide to the manager a good point of view about buses situation	Manager has the right to edit and add or delete the time and location from which a bus departs in order to fit the user's needs.	2	22/4/2022	J. Hasimja, E. Katillari
ETMS_09	The system should give to the guard full information about the parking lot state	When guard checks on a reservation the necessary information will be displayed in order to check the parking slot.	1	22/4/2022	J. Hasimja, E. Katillari
ETMS_10	The busman should check their ticket at departure time.	By the use of the scanner that scans the QR code the busman will be assisted on the payment method.	1	22/4/2022	J. Hasimja, E. Katillari
ETMS_11	The student can have the possibility to pay the ticket in cash or directly by using the system	Students can decide to purchase a bus pass or at the manager or they can use student credit.	1	22/4/2022	J. Hasimja, E. Katillari
ETMS_12	The users have the possibility to have a wallet where he/she may deposit an amount of money which will be used to pay the tickets	Student go to the manager to update the credit in their wallet.	2	22/4/2022	J. Hasimja, E. Katillari
ETMS_13	The users may also have a monthly-subscription to access the system facilities	A bus pass could be purchased in the system.	2	22/4/2022	J. Hasimja, E. Katillari
ETMS_14	The wallet filling should be done directly with the manager	The manager updates student credit on the system.	1	22/4/2022	J. Hasimja, E. Katillari
ETMS_15	The manager should order to depart a new bus in case that one bus cannot fulfill the needs in a specific time (there may be more passengers than the number of seats)	The manager checks student requests and decides if they want a new bus to depart.	1	22/4/2022	J. Hasimja, E. Katillari
ETMS_16	The system should notify the passengers whether the seat reservation has been successfully done or not	If the seat reservation is done successfully then a receipt with a QR Code will be generated.	2	22/4/2022	J. Hasimja, E. Katillari

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
ETMS_1 7	The system should give the availability to the parking lot users in real time	After the user decided on the time frame they want to make a parking lot reservation, the available parking lots should be displayed.	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_1 8	The system should give the seats availability to the bus users in real time	After the user decided on the bus route they want to book a ticket the available bus seats should be displayed.	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_1 9	The passengers may be of different categories like student or staff.	Depending on the category of the user there will be some limitations. Student bus ticket is 120ALL, guest bus ticket is 150ALL and faculty staff bus ticket is 0ALL. Student and staff can have unlimited time at the parking slot meanwhile guests have a limited time of one hour.	2	22/4/20 22	J. Hasimja, E. Katillari
ETMS_2 0	The system should generate a ticket to the passenger in order to be checked later on by the busman	Each ticket will hold a QR code that will be scanned by the busman.	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_2 1	The manager should assign the bus driver for a specific time and station	The manager needs to set up the timetable for each route and assign a bus to a bus driver.	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_2 2	The bus driver should see when his turn to drive is and in which station to start	Bus driver logs in in the system and checks his timetable	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_2 3	Users' information should be kept private	Every employee that has access to student information should be aware that this information is confidential and shouldn't be shared.	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_2 4	Users should be able to see their money balance	Balance is updated by manager	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_2 5	The bus pass is bought at the beginning of every month and it expires at the last day of the month	A student who purchases a bus pass doesn't pay anything to the busman	2	22/4/20 22	J. Hasimja, E. Katillari

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
ETMS_2 6	While logging in, the students should provide their Epoka email to enter in the system	Every Epoka student will have access to the system as soon as they register.	1	22/4/20 22	J. Hasimja, E. Katillari
ETMS_2 7	Manager is able to add new employees or edit current information	Every employee (like busman, bus driver, guard) us registered in the system by manager and depending on their role they will have different functionalities.	2	22/4/20 22	J. Hasimja, E. Katillari

### ***3.2 Non-Functional Requirements***

#### **3.2.1 Product Requirements**

##### **3.2.1.1 User Interface Requirements**

The user interface must be convenient, extensible, easy to use and of course secure so it can avoid conflicts. Security requirements include the need to protect authorized information from unauthorized access, customer privacy and ongoing payment tracking. The user interface should work well in both speed and usage and speed of use is one of the most important aspects of the program.

###### **1. Log in Interface:**

- The landing page which asks the user as who they want to log in as.
- A log in form that asks the user to enter their sign in with their Epoka email if they are a student or staff, their personal email if they are a guest (they have to sign up first) or their work email if they are an employee.

###### **2. Student Interface**

- Student decide between the “Parking” section or the “Transport” section which are represented by two buttons. Whichever the student clicks it should lead them to that page.
- The student transport space has the header bar with the log out option. It also has the several dropdown menus where the user needs to choose information about their route.
- The available bus(es) will be displayed with the available seats so the student can book it.
- Once a student clicks on an available bus seat the “Book seat” button should appear.
- A request another bus button in case there are no buses available. The button is located at the right of the page.

## **EPOKA TRANSPORT MANAGEMENT SYSTEM**

### **REQUIREMENTS SPECIFICATION**

- Next to the request another bus button there is a “Check my credit or bus pass” button where the student checks their credit or bus pass. On click this button will redirect the student to their corresponding page.
- The student parking space will show the available parking spaces after the student decides on the time-frame they want to book the parking space. After a student clicks on an available bus space it will show the “Book parking slot” button.

#### **3. Guest Interface**

- Guest decides between the “Parking” section or the “Transport” section which are represented by two buttons. Whichever the guest clicks it should lead them to that page.
- The guest transport space has the header bar with the log out option. It also has the several dropdown menus where the user needs to choose information about their route.
- The available bus(es) will be displayed with the available seats so the guest can book it.
- Once a guest clicks on an available bus seat the “Book seat” button should appear.
- The guest parking space will show the available parking spaces after the guest decides on the time-frame they want to book the parking space. After a guest clicks on an available bus space it will show the “Book parking slot” button.

#### **4. Faculty staff Interface**

- Faculty staff member decides between the “Parking” section or the “Transport” section which are represented by two buttons. Whichever the faculty staff member clicks it should lead them to that page.
- The faculty staff transport space has the header bar with the log out option. It also has the several dropdown menus where the user needs to choose information about their route.
- The available bus(es) will be displayed with the available seats so the guest can book it.
- Once a faculty staff member clicks on an available bus seat the “Book seat” button should appear.
- The guest parking space will show the available parking spaces after the faculty staff member decides on the time-frame they want to book the parking space. After the faculty staff member clicks on an available bus space it will show the “Book parking slot” button.

#### **5. Manager Interface**

- The manager interface has 4 sections that include “Bus pass”, “Bus timetable”, “Student balance”, “Employee management” that are displayed in four rectangles. When the manager clicks on each they will be led to the corresponding page. There is also a small button shaped like a mail that holds all the student requests for a new bus.

## **EPOKA TRANSPORT MANAGEMENT SYSTEM**

### **REQUIREMENTS SPECIFICATION**

- The bus pass page has a table with all the students that hold a bus pass for a month. A big green button with a plus in it to add a bus pass. You can add a bus pass to a student by clicking on the button and entering their student ID.
- The bus timetable pass holds all the buses that will depart from different locations throughout the day. They are displayed on a table that holds information about the route ID, bus driver, busman, departing time, departing location etc. There are 2 big button shaped like a plus and minus where the manager can add or delete a bus.
- The student balance page is very similar to the bus pass page, it holds a table with all the students and their credit. If manager wants to add credit to a student he clicks on the button and enter the student ID and the amount they want to add.
- The employee management page holds a table with a list of all the employees of the section and three buttons. One to edit employee information, one to add and one to delete an employee from the system. When you click on the delete button you put the employee ID of the employee you want to remove. When you click on the add employee button you fill a form with all the information for an employee. The edit button allows you to make changes on the current information you have for the employee.
- The button shaped like a mail will send you to the page which holds the information about student requests about a new bus. These requests expire after a certain time so the manager doesn't need to delete them.

#### **6. Bus driver Interface**

- The bus driver page consists of a header that also has the log out option
- Additionally, the bus driver page also has a table that holds information about all the routes, the bus that the bus driver will drive and departing location. This table is updated daily.

#### **7. Busman Interface**

- The busman page consists of a header that also has the log out option
- The busman interface also has a timetable which shows the buses that the busman has to check tickets of.
- There is also a button shaped like a camera which will be used by the busman to scan the tickets.

#### **8. Guard Interface**

- The guard interface has a header with the logout option.
- Another section in a form of a button will lead the Guard to the parking space viewing page. There the guard can check which of the parking space is booked at certain hours or just click

## **EPOKA TRANSPORT MANAGEMENT SYSTEM**

### **REQUIREMENTS SPECIFICATION**

on a parking space and check at what hours is that particular parking space booked. In this section there is also a button which allows the guard to delete a reservation in case on any irregularities.

#### **1. Usability**

The software will be built with the intention of being as user-friendly as possible, meaning that it shouldn't be hard to use from the user, however a manual will be provided to the managers and employees who will use the system to avoid any misunderstanding. Every log-in and sign-up form will be validated and if any of the input is wrong or doesn't fulfill the requirements the user will be alerted. This alert should also advise the user on what a correct input would look like. Every time the manager or any of the employees tries to delete a record additional confirmation from the user would be needed.

#### **2. Efficiency**

##### **Performance Requirements**

As we previously mentioned in order for our web app to run an internet connection is needed.

This is an internet-based web app so the number of active users is highly important.

##### **Space Requirements**

The amount of traffic that we expect for our web app would be from 700 to 1200 students each day. This number remains static throughout the academic year since around the same number of students use the bus everyday. The amount of storage needed would be around 350GB and a lower bound throughput for our application is around 100 transaction per seconds which would ensure us that the application would run smoothly in real life.

#### **3. Dependability**

##### **Availability**

Include specific and measurable requirements for:

- The system will operate 24/7 every day of the week.
- On average our system should be available 99.9% of the time.
- The geographic area of our system is Albania since it is intended for a university located in it.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

- Considering the bus system isn't available on Sundays and the parking space is rarely used during the weekend the downtime maybe be around 30 minutes at midnight on Sunday with no expected negative impact on the user.

### **Reliability**

#### **Monitoring**

In order to monitor the overall operational health of a computer system we will keep track of all the log ins from every user.

#### **Maintenance**

This system will be maintained by the developers who will make sure to keep the website up to date with any changes that may happen in the structure of the transportation system to fit the demands of the users and employees. There will also be continuous maintenance regarding correcting errors that may be found by the users while interacting with the system.

#### **Integrity**

#### **4. Security**

- A SQL injection is one of the most common web hacking techniques that happens when you ask user for an input and they give a SQL database that will unknowingly run on our database, revealing private information and may also destroy our database. The solution to preventing these injection would be to use prepared statements and parametrized queries or filter our data. Since we are working with MySQL, we will put single quotes around all values in your SQL statements.
- The idea and goal is to make us of the function password\_hash() which encrypts the password.
- Our system will make use of the HTTPS connection protocol which is a highly secured version of HTTP. Every information exchanged through HTTPS protocol is encrypted which provides us with high level security.

## **ii.Organizational Requirements**

#### **1. Environmental Requirements**

The two main resources that our system needs to provide high efficiency are power supply for the computers at the office of the manager and guard etc and high-speed internet connection for all users. This internet connection may be sourced by Wi-Fi, Ethernet or other internet suppliers that may fit the need of our system.

#### **2. Operational Requirements**

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

Our system is a web application that will make seat booking and parking slot reservation a digitalized and efficient process while also helping the management of the whole sector of transportation and its employees.

Students will find this application really beneficial and useful because they won't have to worry if they are late and all the seats may be booked or if they will find a parking slot available at the time of their arrival when all this information will be available for them on the web app. The manager will have it easier for them to manage all the buses and the timetable and it will be easier to deal with a large influx of students without causing panic. Manager has access to CRUD operations meanwhile the guard can delete a reservation.

### **3. Development Requirements**

<b>Front End (CLIENT SIDE)</b>	<b>Back End (SERVER SIDE)</b>
1. HTML 2. CSS 3. JavaScript	1. PHP 2. MySQL

#### **iii.External Requirements**

##### **1. Regulatory Requirements**

- As we have mentioned several times by now our system will be a web based app by now and a Privacy Policy is necessary. This privacy policy should state how the data collected from the user will be used.
- Our website is protected from copyright infringement

##### **2. Ethical Requirements**

- Since our Web Application is expected to be an extension of Epoka Interactive System the students have to agree that they will share the following personal information:

1. Name
2. Surname
3. Student ID
4. Department
5. Photo
6. Study program
7. Email address

- The faculty staff members will have to share with us their:

1. Faculty Staff ID
2. First name

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

- 3. Surname
- 4. Photo
- 5. E-mail
- 6. Faculty position

- The guest users will have to share with us their:

- 1. E-mail
- 2. First name
- 3. Surname
- 4. Password

- The employees will have to share with us their:

- 1. First name
- 2. Surname
- 3. Employee ID
- 4. Job position
- 5. E-mail
- 6. Salary
- 7. Photo

### **3. Legislative Requirements**

Our web application will fully comply to all the legislations and laws within the Republic of Albania. Data Management policies will be in full effect.

The employees who have access to the user's personal information should in no way share this information or put them to use for anything other than anything related to the services that Epoka Transport Management System provides.

Personal information of each user shall be private and accessible only by the specified actors, according to law No.9887, dated 10.03.2008, as amended by law No.48/2012, "On the Protection of Personal Data."

#### **a. Accounting Requirements**

Transportation just like many other businesses has to deal with accounting at some point. The most obvious one is paying for bus tickets. Each user who wants to book a bus seat has to pay a price (unless you're a faculty staff member). Our system is responsible for charging the users for their bus seat booking (120ALL for students and 150ALL for guests). Additionally, the student has credit which they update at the manager to an amount they decide. Our system keeps track of:

- Tickets sold
- Bus passes sold
- Student credit

#### **b. Security Requirements**

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

The information that our database will maintain is sensitive information that shouldn't be accessed by anyone other than the people who own or manage them. Therefore, we should make sure that the security on our system is of a high level. We should specifically avoid MySQL injections that may cause a leak or destroy our database. Every password should be encrypted by using hashed password and every legislation regarding data security should be applied. Every user should be extremely cautious in regards to how they use the information they have access to.

**b.     *Domain Requirements***

This system will be a web app used in Epoka University based in Albania which has as its goal to digitalize the traditional process of slot reservation and bus seat booking in this institution. This web app also offers additional help to the administrative management of the employees that deal with the section of transportation. The domain requirements will reflect the environment of a Bus Transportation System. A concern within this project is the data security of the personal information of the users. This web app is going to be used only within the private network of the transportation office and each user can only access his personal information.

## SOFTWARE DESIGN

### 4. User Scenarios/Use Cases

#### 4.1 User scenarios

##### 1. Scenario I: **User successfully logs in**

- a. The user goes at the Epoka Transport System's home page.
- b. The user clicks on one of the sections depending on their position (student, guest, busman, manager e.t.c) and they are redirected to the corresponding page.
- c. At the login page user enters their email and password.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

- d. The log in appears successful and the user will be redirected to their dashboard designed to fit their user rights.

Student scenarios:

**2. Scenario II: Students books a bus seat**

- a. Student clicks on the “Book a bus” section.
- b. Students decides on the time and route of the bus
- c. The available bus seats will be displayed and student will click on of the available seats
- d. Student will click on the book button
- e. The receipt will be generated

**3. Scenario III: Student does a parking slot reservation**

- a. Student clicks on the “Parking” section.
- b. Student selects the time they want to make the parking spot reservation and the date.
- c. Student clicks on one of the available parking slots that is displayed.
- d. Student click on the place booking and the system should let the student know that the reservation was successful.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

**4. Scenario IV: Student check on their credit**

- a. On the right of their screen the student will find a “My balance” button. Student will click the button
- b. After student clicks the button they will be redirected to a page which will show their balance.

**5. Scenario V: Student checks their bus pass**

- a. On the down right of their screen student will find a “Bus pass” button.
- b. Student clicks on the button and gets redirected to another page which holds the bus pass
- c. The bus pass will be displayed with information that includes the months which the bus pass is available and student information like name and ID.

**6. Scenario VI: Student requests another bus**

- a. Student clicks on the “Book a bus” section.
- b. Students decides on the time and route of the bus
- c. The available bus seats will be displayed and there are no seats available.
- d. When there are no seats available a small button will show at the end of the screen that makes it able for the student to request a new bus. This request will be sent to the manager.
- e. Student clicks on the button and the request is sent.

Guest scenarios:

**7. Scenario VII: Guest sign-up**

- a. Guest opens the main page of the website.
- b. Guest click on the “Enter as a guest” section.
- c. Guest fills the sign-up form with all the necessary information that is required.
- d. Guest clicks on the sign-up button and all his information is validated.
- e. The system lets guest know that the sign up was successful.

**8. Scenario VII: Guest books a bus seat**

- a. Guest clicks on the “Book a bus” section.
- b. Guest decides on the time and route of the bus
- c. The available bus seats will be displayed and guest will click on of the available seats

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

- d. Guest will click on the book button.
- e. The receipt will be generated and displayed to the guest.

**9. Scenario IX: Guest does a parking slot reservation**

- a. Guest clicks on the “Parking” section.
- b. Guest selects the time they want to make the parking spot reservation and the date.
- c. Guest clicks on one of the available parking slots that is displayed.
- d. Guest click on the place booking and the system should let the guest know that the reservation was successful.

Faculty staff scenarios:

**10. Scenario X: Faculty staff member books a bus seat**

- a. Staff member clicks on the “Book a bus” section.
- b. Staff member decides on the time and route of the bus
- c. The available bus seats will be displayed and staff member will click on of the available seats
- d. Staff member will click on the book button.
- e. The system will let the faculty member know that the booking was successful

**11. Scenario XI: Faculty staff member does a parking slot reservation**

- a. Staff member clicks on the “Parking” section.
- b. Staff member selects the time they want to make the parking spot reservation and the date.
- c. Staff member clicks on one of the available parking slots that is displayed.
- d. Staff member click on the place booking and the system should let the guest know that the reservation was successful.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

**Manager scenarios:**

**12. Scenario XII: Manager deletes an employee**

- a. Manager clicks on the employee section and after the click a list of all employees with the particular information will be displayed.
- b. On the last column an “Delete employee” button will appear.
- c. Manager double checks the information of the employee they want to delete and then press the button.

**13. Scenario XIII: Manager adds a new employee**

- a. Manager clicks on the employee section and after the click a list of all employees with the particular information will be displayed.
- b. On the upper right corner an “Add new employee” button will appear.
- c. Manager clicks on the button and fills the form with all the information regarding the new employee, double checks the information they put and then clicks the confirmation button.
- d. The system will let the manager know if the new employee was added successfully.

**14. Scenario XIV: Manager edits employee information**

- a. Manager clicks on the employee section and after the click a list of all employees with the particular information will be displayed.
- b. On the second last column an “Edit employee” button will appear.
- c. A form with all the current information as the input will appear. Information includes their ID, job title, email, full name e.t.c
- d. Manager can make an edit on any of the particular fields and double checks the information they changed.
- e. The system will let the manager know if the update they did on the employee information was successful.

**15. Scenario XV: Manager updates student credit**

- a. Manager clicks on the student credit section and a list of all students and the credit they have on their account will appear.
- b. If manager wants to add credit to a student they have to click on the “add” button on the upper right corner and a form will appear.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

- c. The form only asks to fill the unique student ID and the amount the manager wants to add. Manager enter the students ID and the amount and also double checks the value.
- d. The manager clicks on the update balance button.
- e. The system lets the manager know if the amount was added successfully to the student.

**16. Scenario XVI: Manager adds a bus pass to a student**

- a. Manager clicks on the “Bus pass” section and a list of all students that hold a bus seat for the particular month will appear.
- b. Manager clicks on the “Add bus pass” button on the right left corner.
- c. After manager clicks on the button a form will appear with only one input which is the student ID and the manager enters the ID of student which wants to buy a bus pass.
- d. Manager double checks the ID and then clicks on the confirm button.
- e. The system lets the manager know if the bus pass was added successfully.

**17. Scenario XVII: Manager checks student requests**

- a. In the bottom left corner of the manager page there is a button shaped like a mail that holds all the student requests
- b. The manager clicks on the button and a table of all student requests with information like the route, date and time alongside information about the student who requested it will appear.
- c. The manager checks all the student requests and decides if it is enough to enter a new bus to that particular route with that information.

**18. Scenario XVIII: Manager adds a new bus**

- a. After reading all the student requests the manager may decide to add a new bus due to the high flux of students trying to book a seat.
- b. Manager clicks on the “Route timetable” section on his dashboard and is redirected to the page that holds all the information about all the bus departing from different locations.
- c. Manager clicks on the “Add new bus” button and a form will appear. Manager has to add all the correct information such as bus ID, bus driver ID, departing time, route e.t.c.
- d. After double checking all the information manager clicks on confirm button.
- e. The system lets the manager know if the adding was successful

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

**19. Scenario XIX: Manager edits bus route information**

- a. Manager clicks on the “Route timetable” section on his dashboard and is redirected to the page that holds all the information about all the bus departing from different locations
- b. On the last column an edit button will appear. Manager clicks on the button and a form will appear
- c. The form holds all the current information and the manager does changes to that particular route such as departing time or the bus driver.
- d. Manager double checks his changes and clicks on the edit button
- e. Route information is deleted and the system lets manager know that the editing was successful.

**20. Scenario XX: Manager checks seat details**

- a. Manager clicks on the “Route timetable” section on his dashboard and is redirected to the page that holds all the information about all the bus departing from different locations
- b. Manager clicks on the route ID and will be redirected to a page that holds information about which seat is booked and which user is booking this particular seat with information such as the name or other information.

Bus driver scenarios:

**21. Scenario XXI: Bus driver checks timetable**

- a. The bus driver dashboard only holds one section which is checking their time table.
- b. The timetable consists of information such as the departing time, location, bus ID, the busman who will scan the passenger QR code

Busman scenarios

**22. Scenario XXII: Busman scans QR code**

- a. Busman clicks on the scan QR code section on their dashboard
- b. After clicking the busman will be redirected to the page that scans every ticket and as soon as a ticket is scanned information regarding the ticket payment method will be displayed.
- c. The busman clicks on the “Submit scan” to close the current display in order to scan another ticket

**23. Scenario XXIII: Busman checks timetable**

- a. The bus man will click on their “Timetable” dashboard on their page

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

- b. The timetable consists of information such as the location where the busman will scan the QR code, the route and Bus ID and also the Busman ID.

Guard scenarios:

**24. Scenario XXIV: Guard checks parking space reservations**

- a. On their dashboard the guard click on the “Parking space view” section.
- b. The guard will be redirected to the page where he can:
  1. Click on a parking slot and see all the time frames which this particular spot has reservations to it
  2. Choose a time frame and see all the spots that are reserved in that particular time frame.

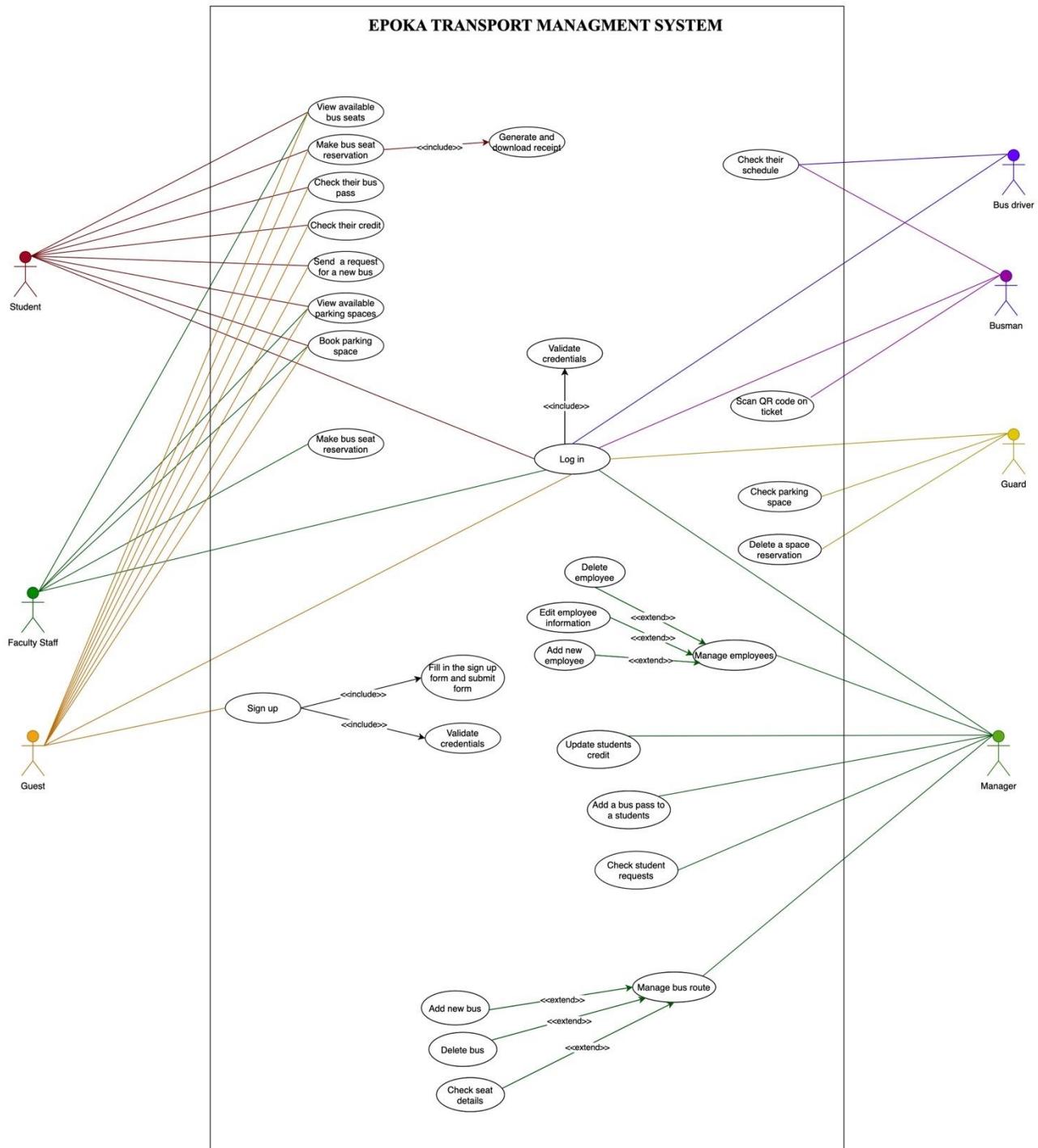
In either of the options the guard can also see information about the parking slot reservation such as information about the user who made the reservation.

**25. Scenario XXV: Guard deletes a parking space reservation**

- a. After the guard view the parking space information they can also check if this information matches the car that is parked. For example, he checks the license plate on the system and the license plate on the car that's trying to enter in the parking slot and see if they have made a reservation. Also if a user is late and doesn't show up in time to claim their reservation the guard can delete this reservation.
- b. When the guard clicks on a reservation a window will pop up with all the information and at the bottom of the window a delete reservation button will appear.
- c. Guard clicks on the button.
- d. Reservation is deleted and the system lets the guard know that the process of deleting was successful

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

**Use Case Diagram**



**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

## Use Cases Extended

UC_1.1	Student Login
<b>Summary</b>	Users log in on the system by adding the necessary credentials
<b>Dependency</b>	-
<b>Actors</b>	-Student, Faculty Staff, Guest, Busman, Busdriver, Guard, Manager
<b>Preconditions</b>	-User must have a valid account in the system. Accounts for the students and faculty staff are created by Epoka University. Accounts for the employees are created by the manager and the guest users have to sign up.
<b>Description of the Main Sequence</b>	-User enters the email and password and then click on the log in button.
<b>Description of the Alternative Sequence</b>	<ul style="list-style-type: none"> <li>▪ Invalid e-mail. The system will display an error system.</li> <li>▪ Invalid password. The system will display an error system.</li> </ul>
<b>Non-functional requirements</b>	-The log in form can be attacked by hackers through the usage of SQL injection. We have made sure that these injections are avoided. Additionally, the password is hashed and encrypted.
<b>Postconditions</b>	System will display a message that tells the user that the log in was successful and they will be redirected to the corresponding user dashboard where they can use a number of functionalities.

UC_2.1	Make bus seat reservation
<b>Summary</b>	User books a bus seat by choosing from all the available bus seats
<b>Dependency</b>	-
<b>Actors</b>	-Student, Faculty Staff
<b>Preconditions</b>	-User must be logged in in the system
<b>Description of the Main Sequence</b>	-User will click on the “Book route” section on their dashboard and then they will be redirected to a page that hold a table of all the available routes and bus

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

	seats. Student will click “book seat” on the one that they want.
<b>Description of the Alternative Sequence</b>	No bus seats are available in the route the user wants to book a seat
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	The system will generate a receipt with a QR code for the busman to scan that hold information about the payment method. User should save this receipt on their device. (This doesn't apply to faculty staff members since they don't pay any fee for their ticket)

UC_2.2	Make a parking slot reservation
<b>Summary</b>	User makes a reservation for the available parking slots
<b>Dependency</b>	-
<b>Actors</b>	-Student, Faculty staff, Guest
<b>Preconditions</b>	-Users must be logged in
<b>Description of the Main Sequence</b>	-On each of the user's dashboard they will click on the “Parking space” section. The users will have to decide on the date and time they want to make a reservation and the available parking slots will be displayed. User clicks on the one they want to book and also provide the system with their license plate which will be checked by the guard.
<b>Description of the Alternative Sequence</b>	-No parking slots are available at the time
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	The system will let the user know that the booking of the parking slot was successful.

UC_3.1	View available bus seats
<b>Summary</b>	-The users check bus seat availability
<b>Dependency</b>	-

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

<b>Actors</b>	-Student, Guest
<b>Preconditions</b>	-Users are logged in
<b>Description of the Main Sequence</b>	-After users are logged in they can click on the “Bus route” section and search for bus seat availability on that particular hour of the day.
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The list of all buses available will be displayed

UC_2.3	<b>View available parking space</b>
<b>Summary</b>	-User checks the availability of the parking space
<b>Dependency</b>	-
<b>Actors</b>	-Student, Faculty staff, Guest
<b>Preconditions</b>	-User must be logged in
<b>Description of the Main Sequence</b>	-The users will click on the “Parking” section of their dashboard and they will be redirected to the page that holds all the information about the parking space. They choose a date and time frame and check all the available parking spaces at the time
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-A view of all the available parking slots will appear

UC_4.1	<b>Student checks their credit</b>
<b>Summary</b>	-Student checks the available credit that they have
<b>Dependency</b>	-
<b>Actors</b>	-Student
<b>Preconditions</b>	-Student must be logged in

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

<b>Description of the Main Sequence</b>	-On their dashboard students can click on the “credit” section and they will be redirected to the page which shows the student credit.
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-Student’s credit will be displayed

UC_4.2	<b>Student checks their bus pass</b>
<b>Summary</b>	-Student checks if they hold a bus pass for the current months
<b>Dependency</b>	-
<b>Actors</b>	-Student
<b>Preconditions</b>	-Student must be logged in
<b>Description of the Main Sequence</b>	-On their dashboard student will click on the “Bus pass” section and they will be redirected to the page that lets the student know if they have a bus pass or not.
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-If they have a bus pass for the month it will be displayed for the student to see.

UC_4.3	<b>Student request a new bus</b>
<b>Summary</b>	-In case there are no bus seats available at the time students want they could request a new bus
<b>Dependency</b>	-
<b>Actors</b>	-Student
<b>Preconditions</b>	-Student must be logged in and they also must have chosen the date, time and route for which they decide to book a bus.
<b>Description of the Main Sequence</b>	-After the system displays that there are no available buses at that certain time for a certain route the student can click on the “Request another bus” button on the bottom of the page.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The request is sent to the bus manager.

UC_5.1	Guest sign up
<b>Summary</b>	-Guest signs up for a new account
<b>Dependency</b>	-
<b>Actors</b>	-Guest
<b>Preconditions</b>	-Guest must be connected to internet
<b>Description of the Main Sequence</b>	-In the guest landing-page a sign up form appears, the guest has to fill all the required fields and wait for their credentials to get validated by the system.
<b>Description of the Alternative Sequence</b>	-User already exist or the sing-up form wasn't filled properly.
<b>Non-functional requirements</b>	-The log in form can be attacked by hackers through the usage of SQL injection. We have made sure that these injections are avoided. Additionally, the password is hashed and encrypted.
<b>Postconditions</b>	-The guest will be registered in the system and his information will be added in the database

UC_6.1	Check their schedule
<b>Summary</b>	-Actors check their timetable
<b>Dependency</b>	-
<b>Actors</b>	-Busman, Bus driver
<b>Preconditions</b>	-Users must be logged in into their user accounts
<b>Description of the Main Sequence</b>	-After busman and bus driver log in they can click on the "Timetable" section and a table with all the routes and departing time will appear.
<b>Description of the Alternative Sequence</b>	-No routes available for them for the day

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-A timetable will be displayed for the actors to view.

UC_7.1	Scan QR code
<b>Summary</b>	-Bus man scans the QR code on each of the passenger's ticket
<b>Dependency</b>	-
<b>Actors</b>	-Busman
<b>Preconditions</b>	-Busman must be logged in on the system
<b>Description of the Main Sequence</b>	- Busman clicks on the scan QR code section on their dashboard. After clicking the busman will be redirected to the page that scans every ticket and as soon as a ticket is scanned information regarding the ticket payment method will be displayed. The busman clicks on the "Submit scan" to close the current display in order to scan another ticket
<b>Description of the Alternative Sequence</b>	-The user may have not saved their receipt
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The scan shows details for their payment method and busman makes sure each passenger has done the payment.

UC_8.1	Check parking space
<b>Summary</b>	-Guard checks the status of all the parking spaces
<b>Dependency</b>	-
<b>Actors</b>	-Guard
<b>Preconditions</b>	-Guard must be logged in
<b>Description of the Main Sequence</b>	-Guard can view if a parking space has a reservation, the time frames of each reservation and check information about the user who booked the parking space
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The information is displayed for the guard to view

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

UC_8.2	Delete a space reservation
<b>Summary</b>	-Guard deletes a reservation done by the user
<b>Dependency</b>	-
<b>Actors</b>	-Guard
<b>Preconditions</b>	-Guard must be logged in in his account
<b>Description of the Main Sequence</b>	-Guard can delete a reservation in case of any irregularities. If the user doesn't show up in time for their reservation the guard can delete the reservation and make it able for other users to book. After clicking on a parking slot at a given time frame the guard can click on the "delete reservation" button.
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The reservation is deleted and the space is free to be booked by someone else.

UC_9.1	Update student credit
<b>Summary</b>	-Manager updates student credit every time a student goes to their office to add credit to their account.
<b>Dependency</b>	-
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be logged in
<b>Description of the Main Sequence</b>	-Manager adds student credit by filling the form that appears after clicking on the "Add credit button" on the "Student credit" section of the dashboard. After putting the student ID and the amount they want to add and they click on the "add amount" button.
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The amount is added and student credit is updated.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

<b>UC_9.2</b>	<b>Add bus pass to a student</b>
<b>Summary</b>	-Student purchases a bus pass and manager needs to update it on the system.
<b>Dependency</b>	-
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be logged in
<b>Description of the Main Sequence</b>	-Student goes at the manager's office and purchases a bus pass, manager clicks on the "Bus pass" section of his dashboard and then clicks on the "add bus pass" button. Then he enters the student ID and then clicks the add button
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The bus pass will be displayed on student's account.

<b>UC_9.3</b>	<b>Check student requests</b>
<b>Summary</b>	-Manager checks all the student requests to add a new bus to a route
<b>Dependency</b>	-
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be logged in
<b>Description of the Main Sequence</b>	-The manager clicks on the button shaped like a mail on their dashboard and all the requests will appear grouped by route and time. The manager can decide if he wants to take these requests into consideration
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-A list of all requests is displayed

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

<b>UC_9.4</b>	<b>Manage employees</b>
<b>Summary</b>	-Manager can add a new employee, edit employee information or remove an employee from database
<b>Dependency</b>	-
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be successfully logged in
<b>Description of the Main Sequence</b>	-Manager clicks on the “Employee” section of the dashboard and from there he can manage employees by making changes to the current table of employees.
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The changes are saved in the system.

<b>UC_9.4.1</b>	<b>Delete employee</b>
<b>Summary</b>	-Manager deletes an employee from the system
<b>Dependency</b>	-Manage employees
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Managers must be logged in and he must've clicked on the “Manage employees” section
<b>Description of the Main Sequence</b>	-Manager clicks on the last column of the employee table displayed and clicks on the delete employee button.
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The employee is deleted from the database and has no longer access to the system.

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

UC_9.4.2	Add new employee
<b>Summary</b>	-Manager wants to add a new employee in the system
<b>Dependency</b>	-Manage employees
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be logged in and he must've clicked on the “Manage employees” section
<b>Description of the Main Sequence</b>	-Manager adds a new employee in the system by clicking on the “add” button and filling the form that will appear. When finished the manager clicks “add” at the end of the form
<b>Description of the Alternative Sequence</b>	-Employee may be already added in the system
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The new employee is added in the system and their information is saved in the database.

UC_9.4.3	Edit employee information
<b>Summary</b>	-Manager wants to edit information of a current employee
<b>Dependency</b>	-Manage employees
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be logged in and he must've clicked on the “Manage employees” section
<b>Description of the Main Sequence</b>	-Manager wants to edit certain information regarding an employee. He clicks on the button positioned in the second last column of the employee table and makes changes to the current information. When done manager clicks on “save”
<b>Description of the Alternative Sequence</b>	-

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The changes are saved in the system and database

UC_9.5	<b>Manage bus route</b>
<b>Summary</b>	-Manager wants to add, delete(edit) or check information regarding a bus.
<b>Dependency</b>	-
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be logged in
<b>Description of the Main Sequence</b>	-Manager can add a new bus, delete a bus or check seat details for each bus
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The manager is able to choose which one of the changes he can do to the bus route he wants to apply

UC_9.5.1	<b>Add new bus</b>
<b>Summary</b>	-Manager can add a new bus for a route.
<b>Dependency</b>	-Manage bus route
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be logged in
<b>Description of the Main Sequence</b>	-Given times where the influx of students wanting to book a bus seat is high the manager can decide based on the requests if they want to add a new bus. They can click on the add new bus button on the right upper corner and fill the form with all the necessary information.
<b>Description of the Alternative Sequence</b>	-There may not be any buses available to be added

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The bus is added in the system and the users can book it

UC_9.5.2	<b>Delete bus</b>
<b>Summary</b>	-Manager can delete a bus or edit the information
<b>Dependency</b>	-Manage bus routes
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be logged in
<b>Description of the Main Sequence</b>	-Manager clicks on the last column of the table on the “Edit bus” button. From there a form will appear where the manager can edit information regarding the bus route or just delete it.
<b>Description of the Alternative Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The changes are saved in the system

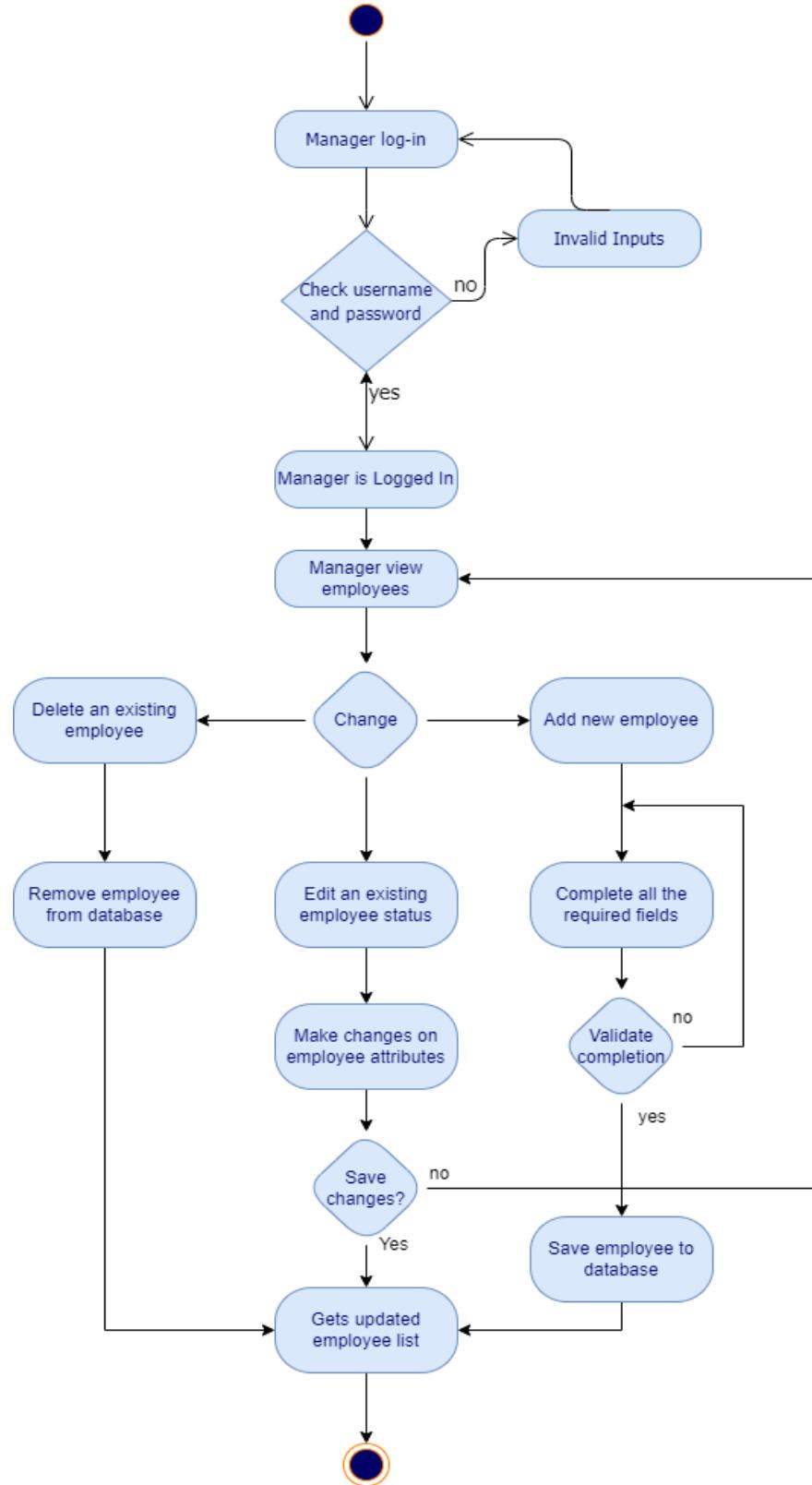
UC_9.5.3	<b>Check seat details</b>
<b>Summary</b>	-For each bus departing the manager can see details regarding the seats
<b>Dependency</b>	-Manage bus routes
<b>Actors</b>	-Manager
<b>Preconditions</b>	-Manager must be logged in
<b>Description of the Main Sequence</b>	-Manager can click on any of the buses on the table and check seat availability, how many of the seats were booked and more importantly the manager can see information regarding the user who booked this seat.
<b>Description of the Alternative Sequence</b>	-

***EPOKA TRANSPORT MANAGEMENT SYSTEM***  
REQUIREMENTS SPECIFICATION

<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The system will display the required information

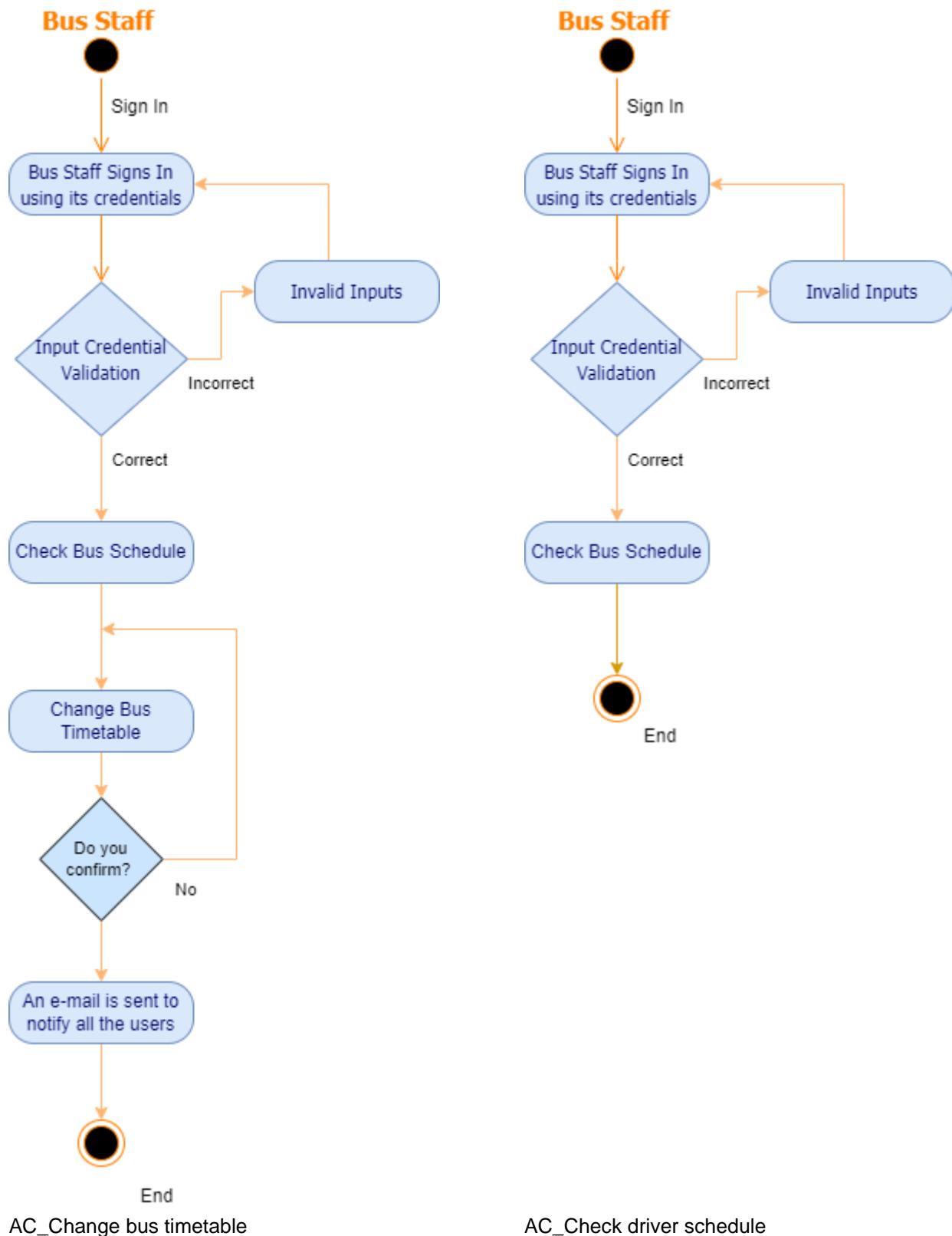
## 4.2 Diagrams

### 4.2.1 Activity Diagrams

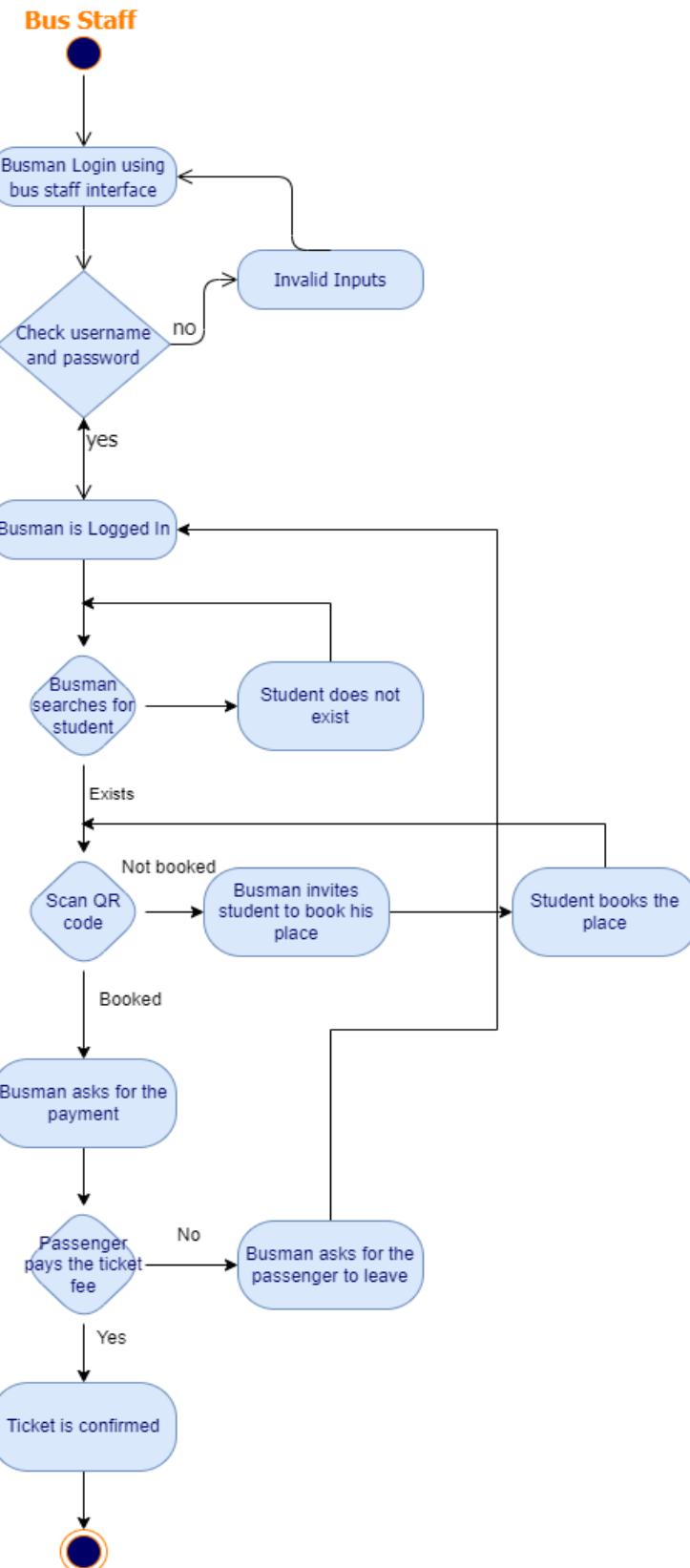


AC\_Add delete change employee

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

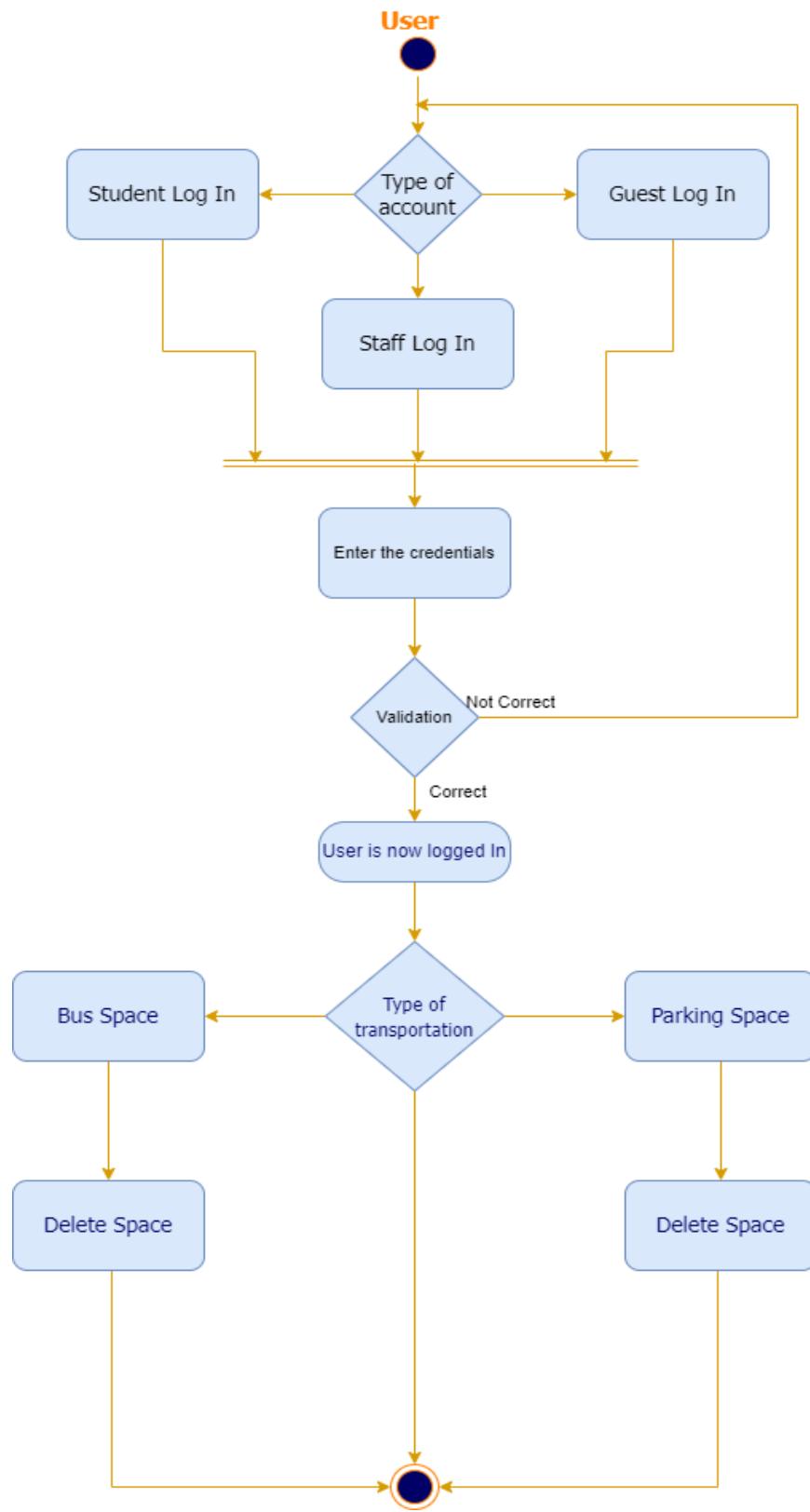


**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



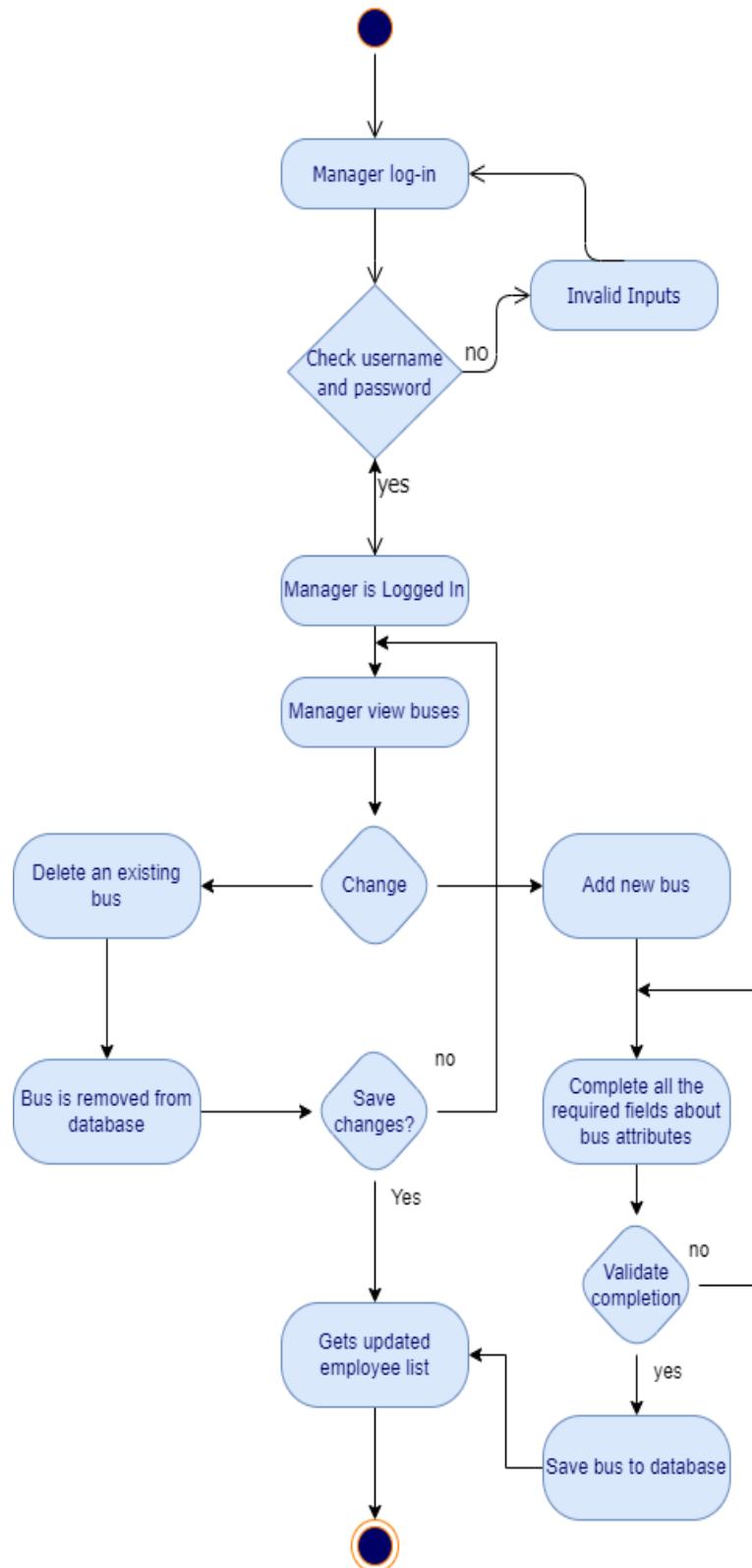
AC\_Check ticket availability

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



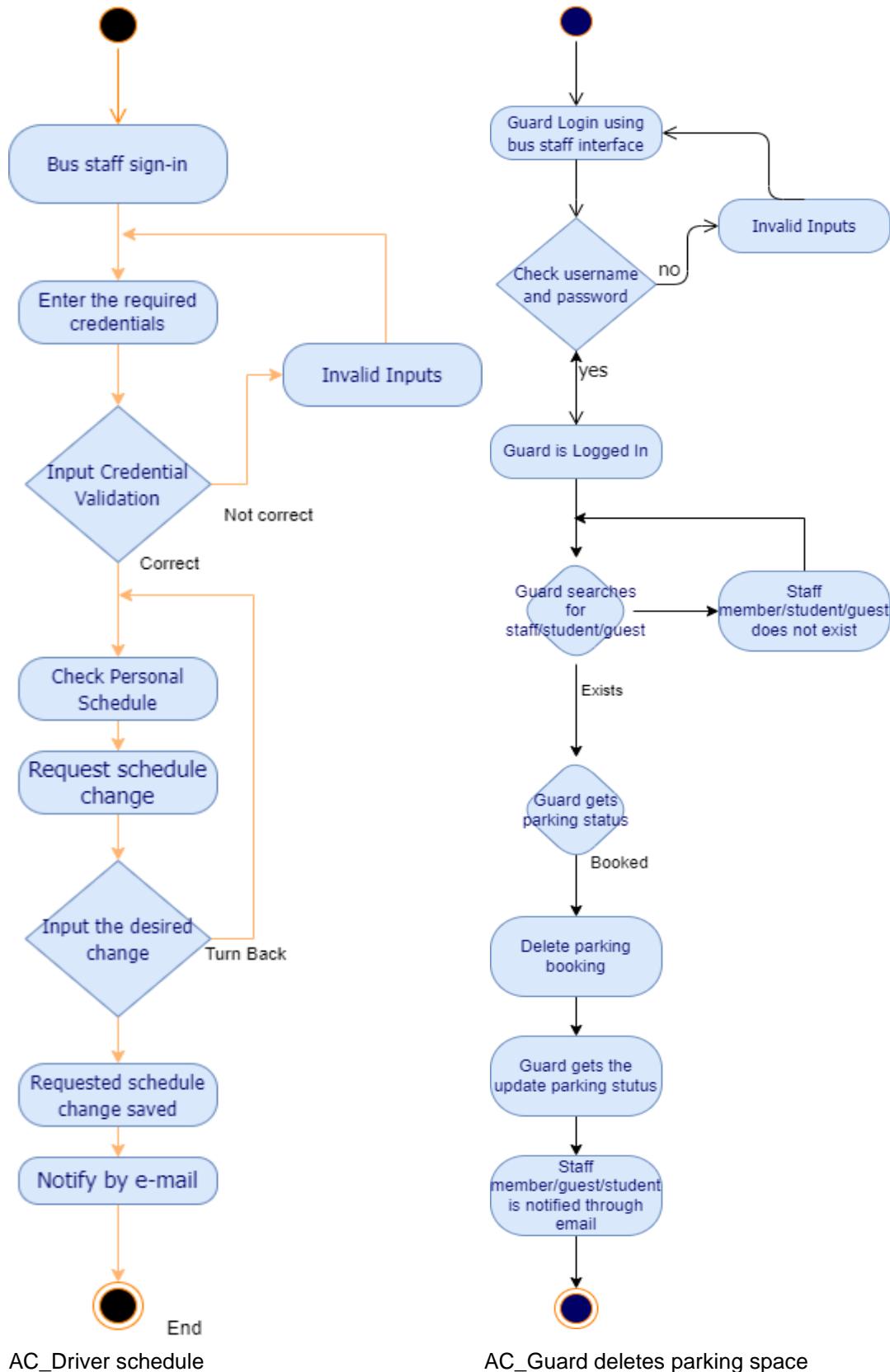
AC\_Delete booking

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



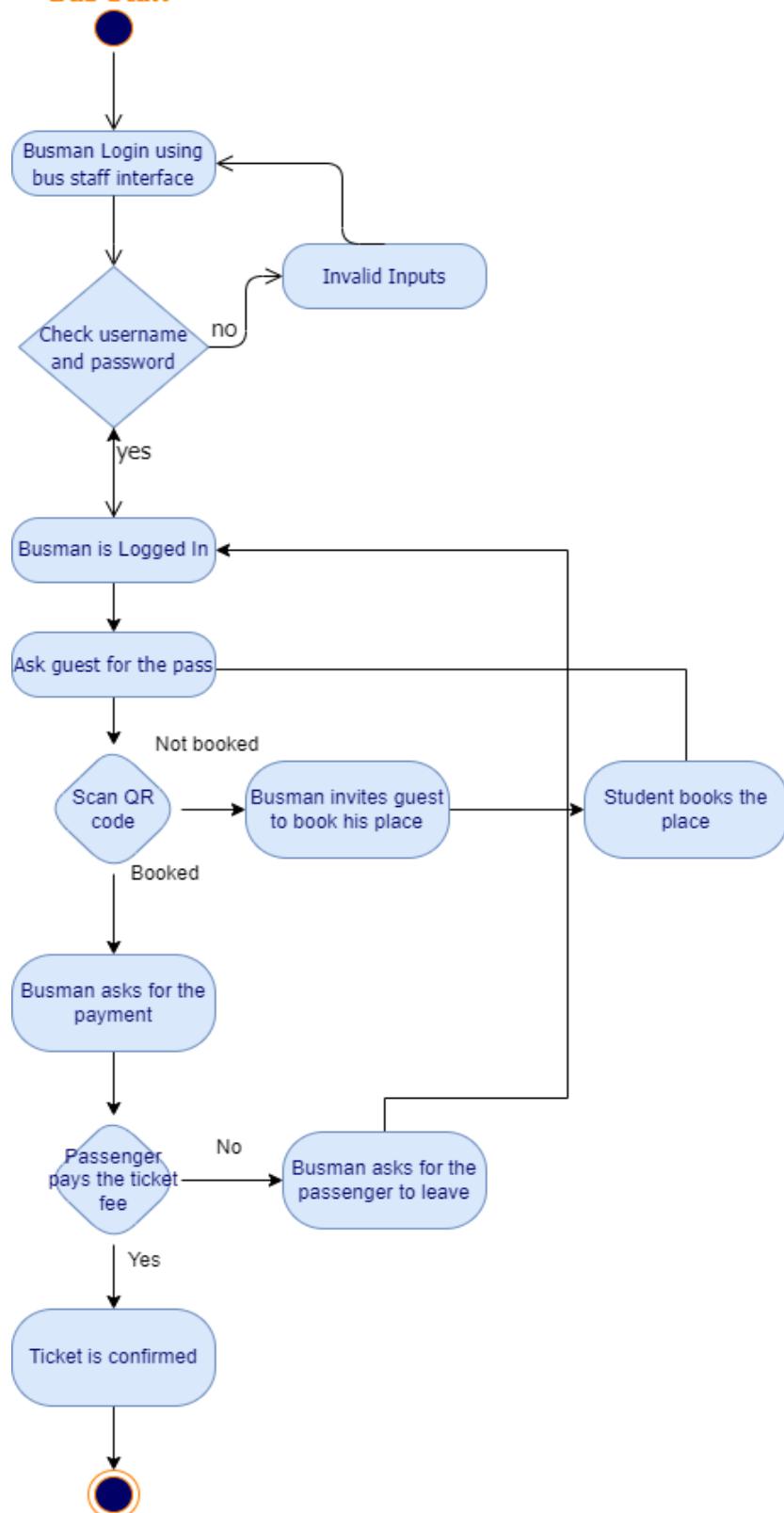
AC\_Delete bus

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



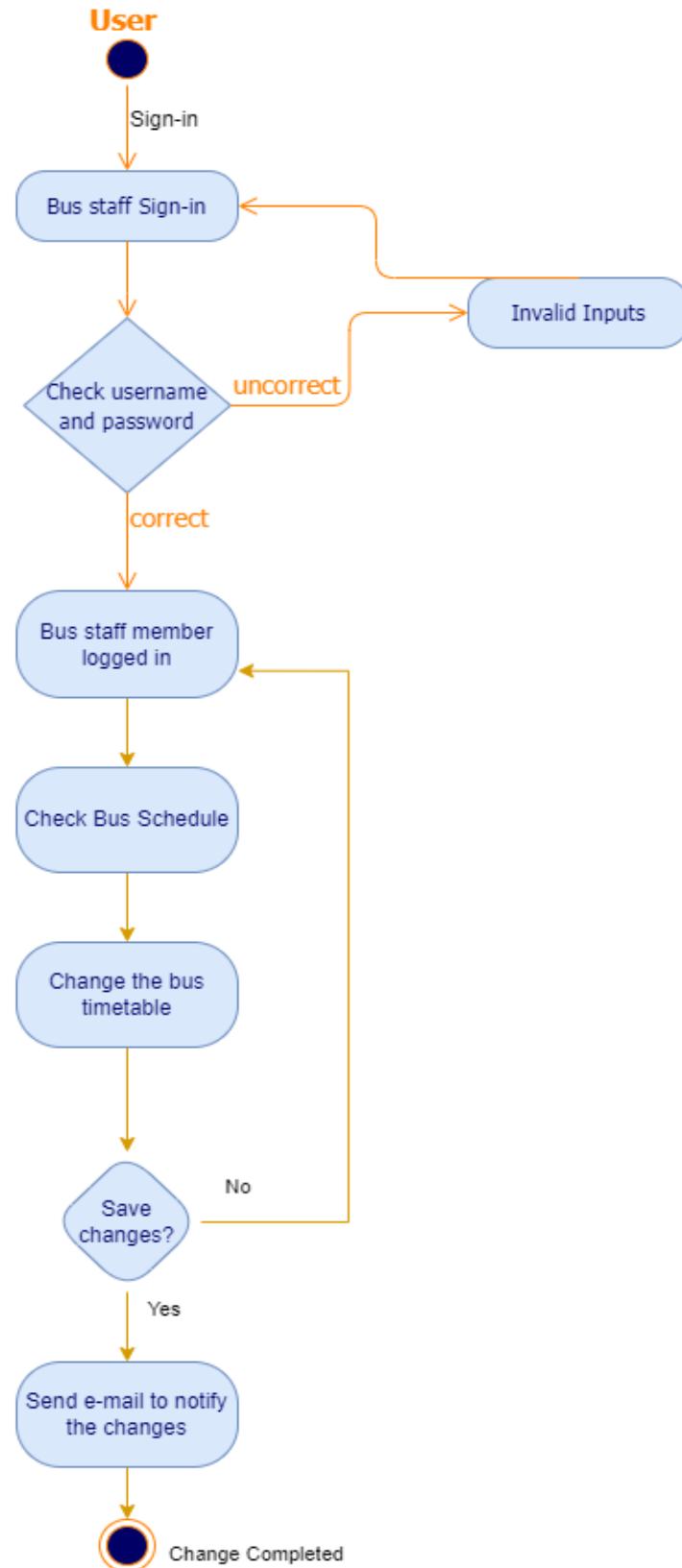
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

**Bus Staff**



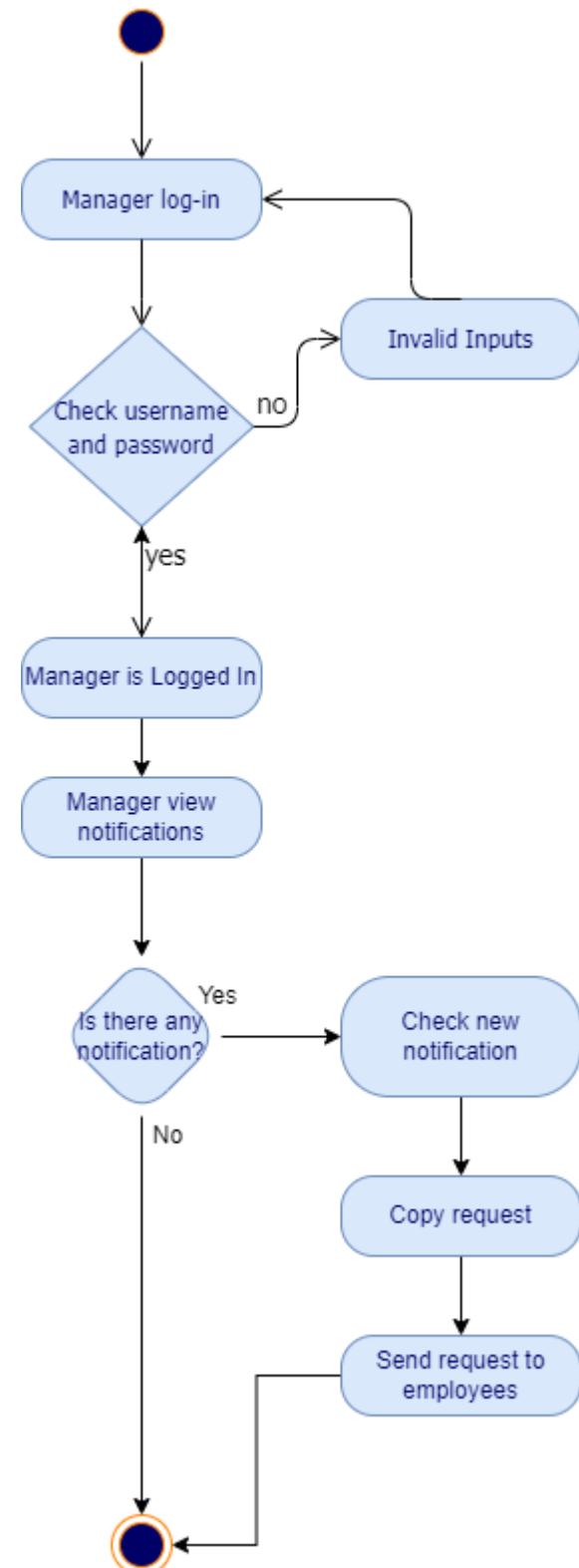
AC\_Guest check pass

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



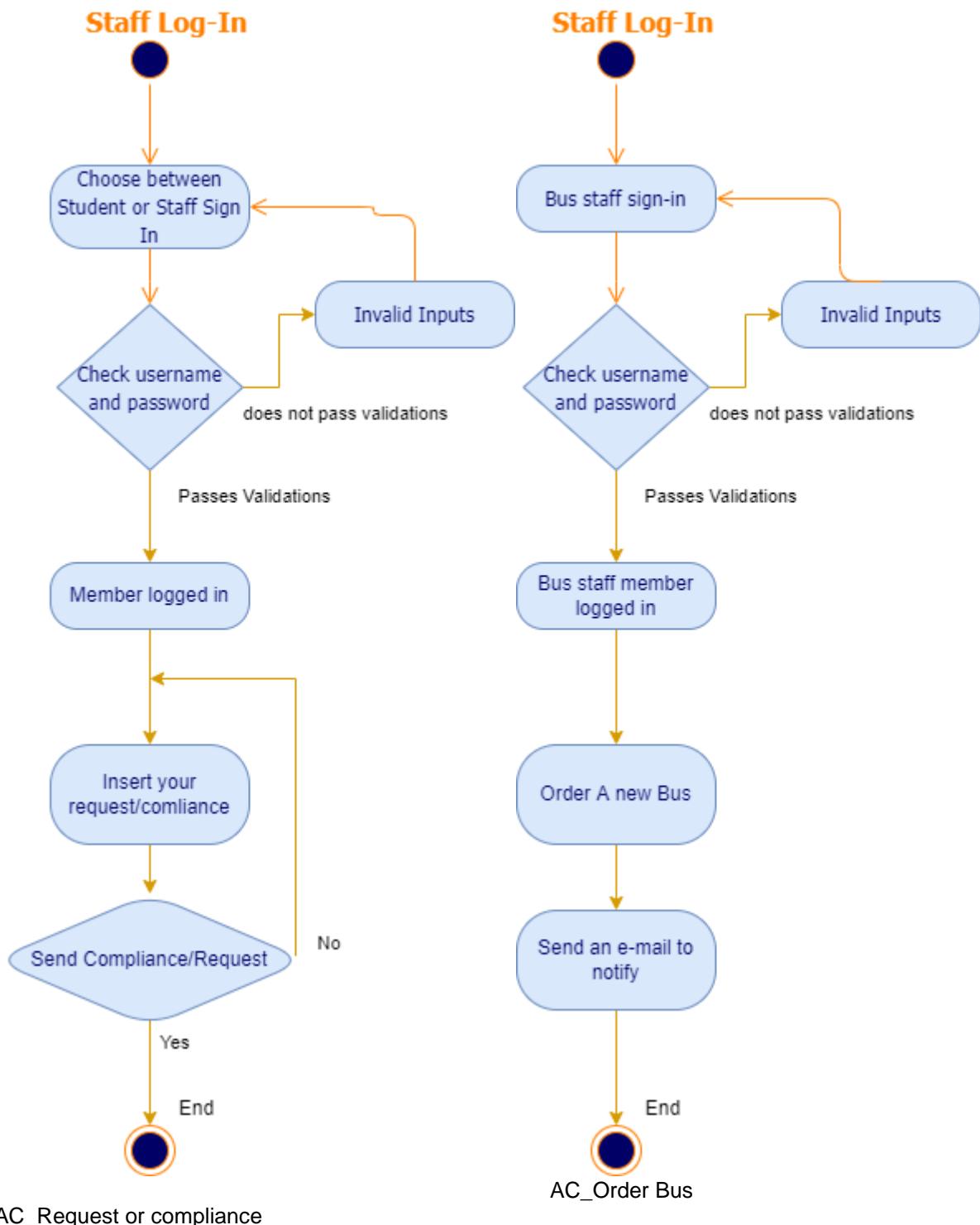
AC\_Login

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

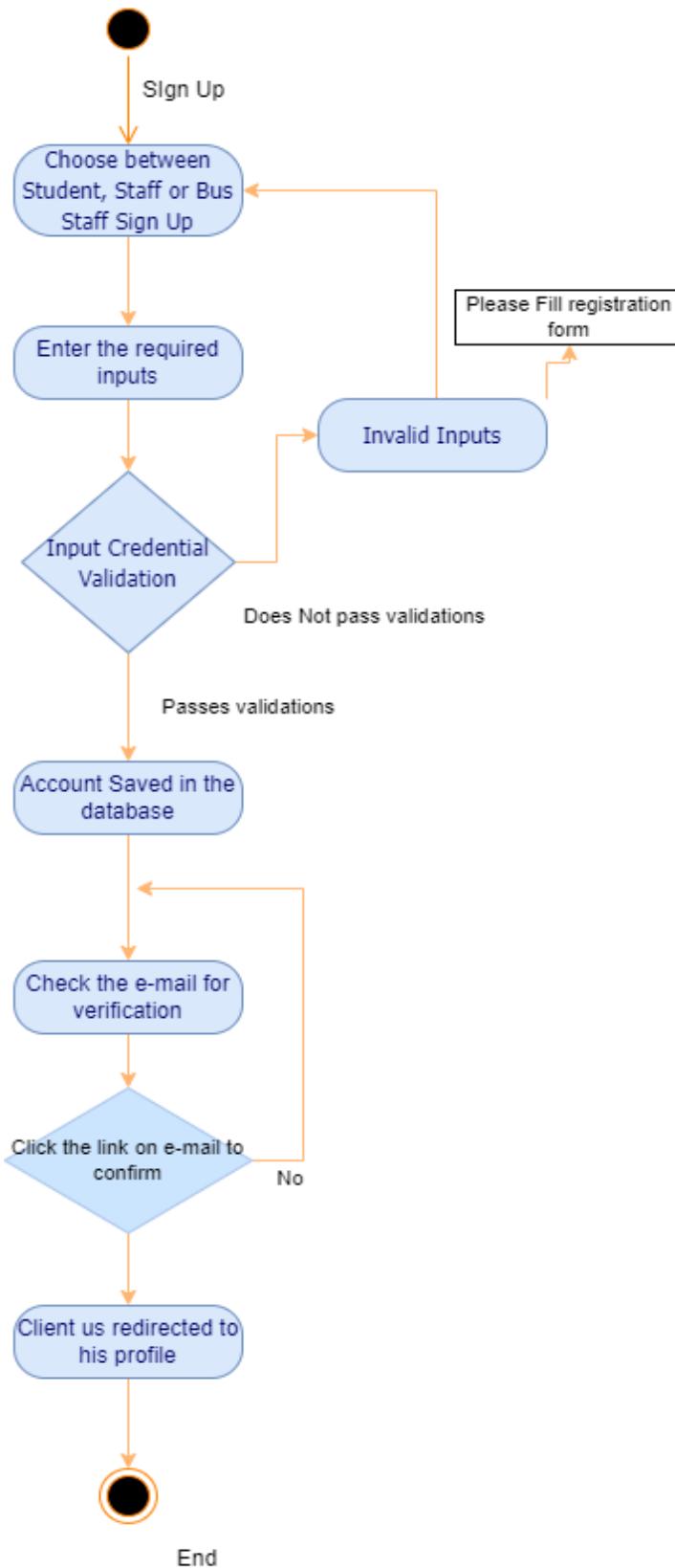


AC\_manager check requests

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

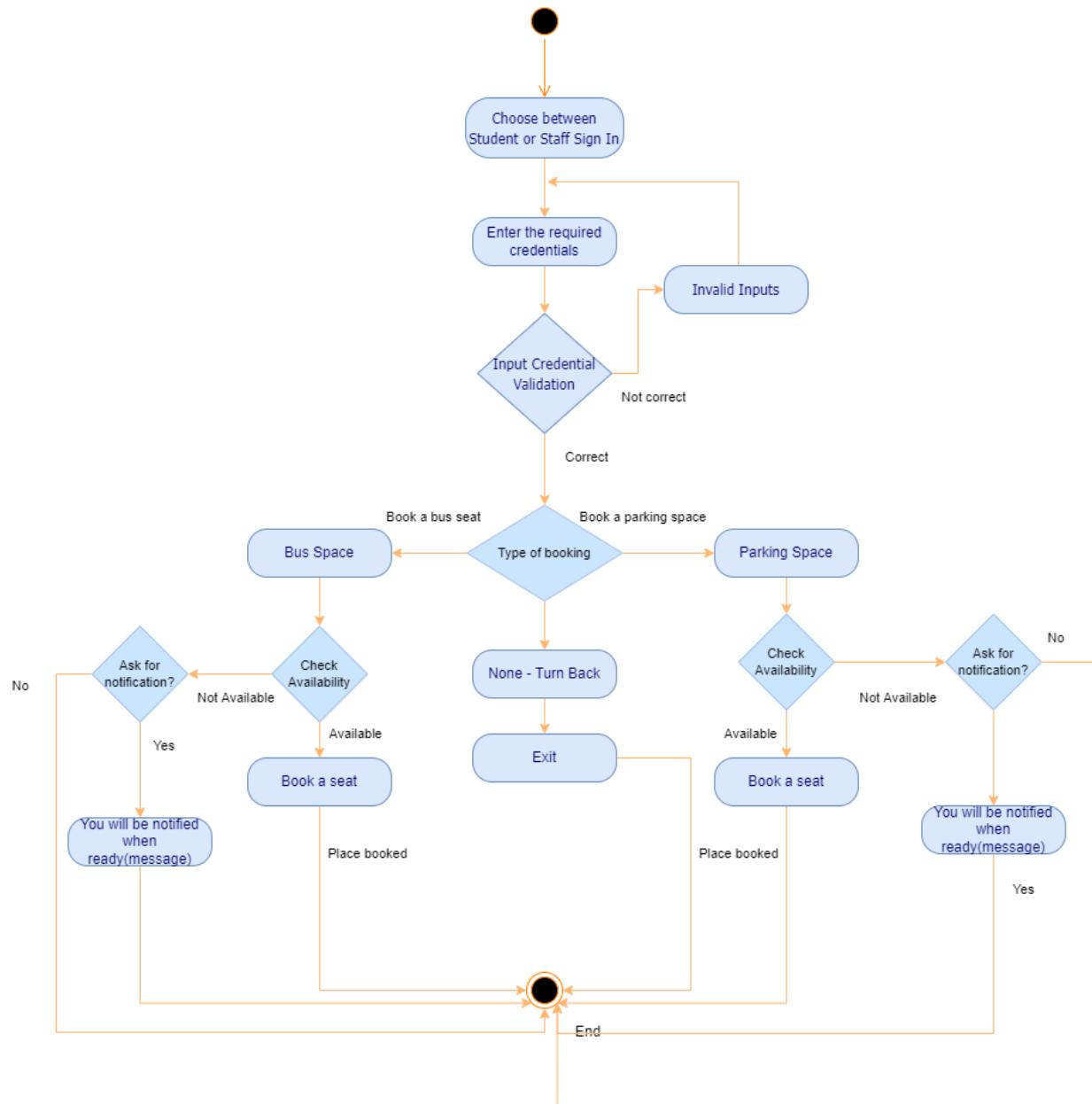


**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



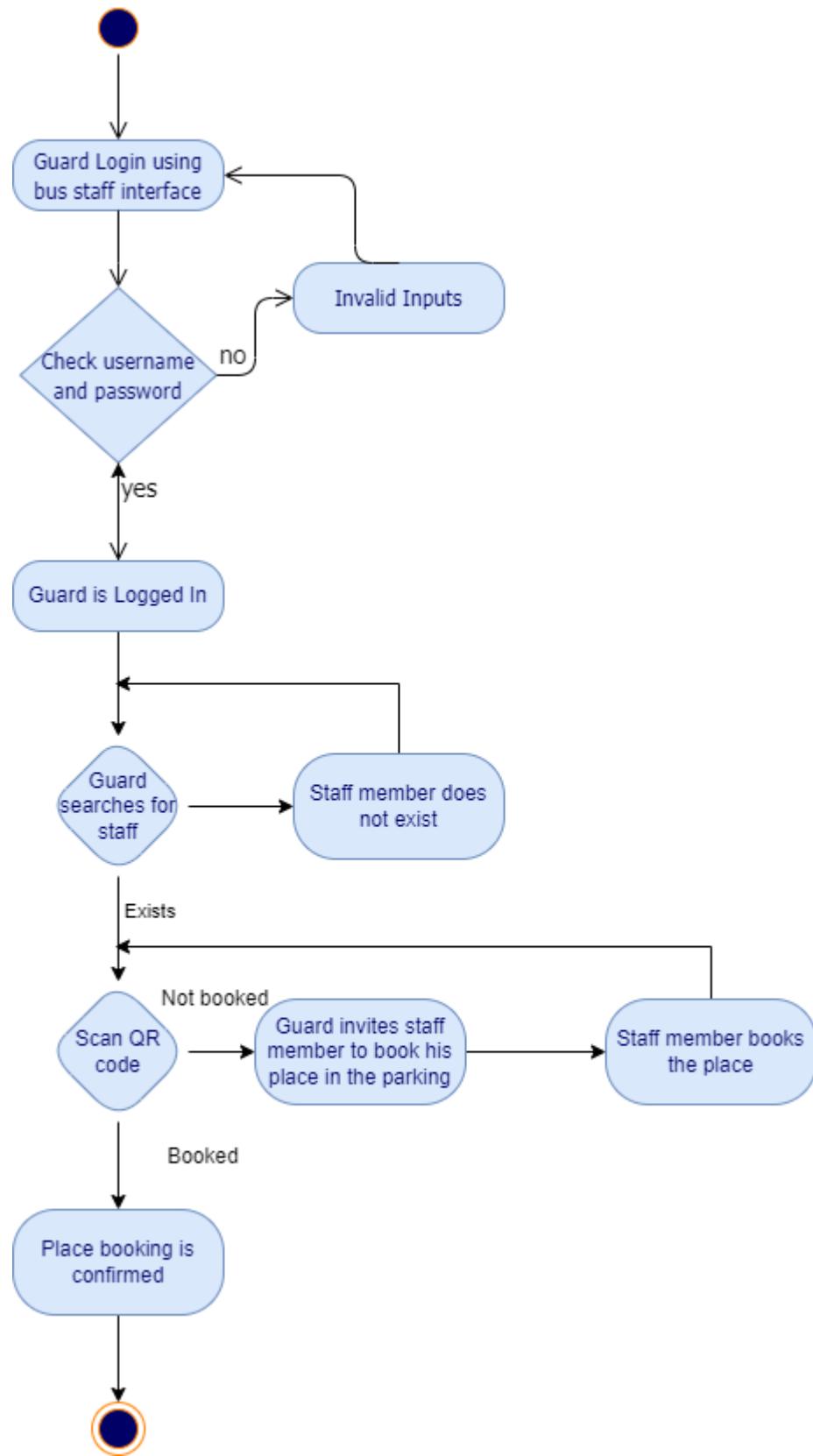
AC\_Signup

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



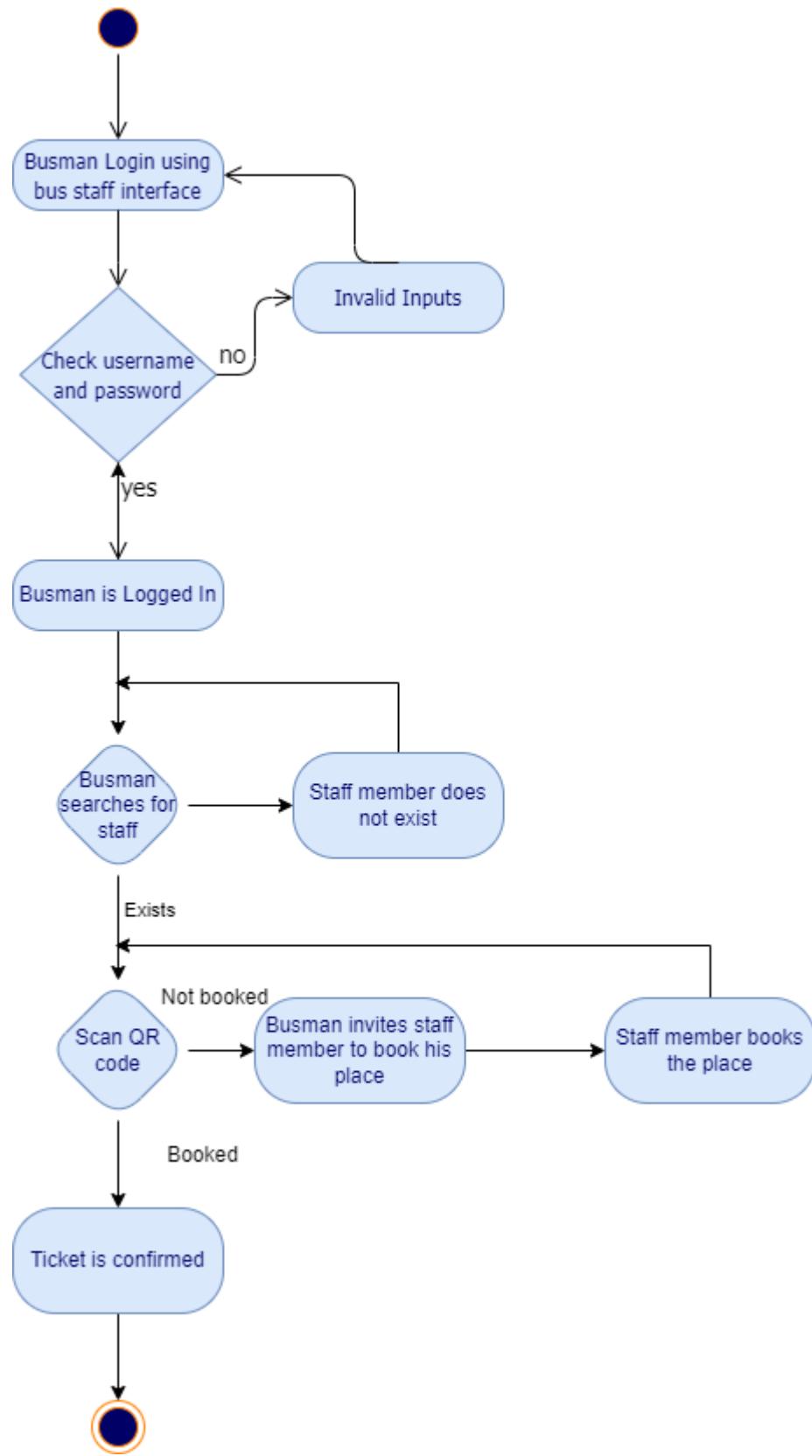
AC\_Space booking

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



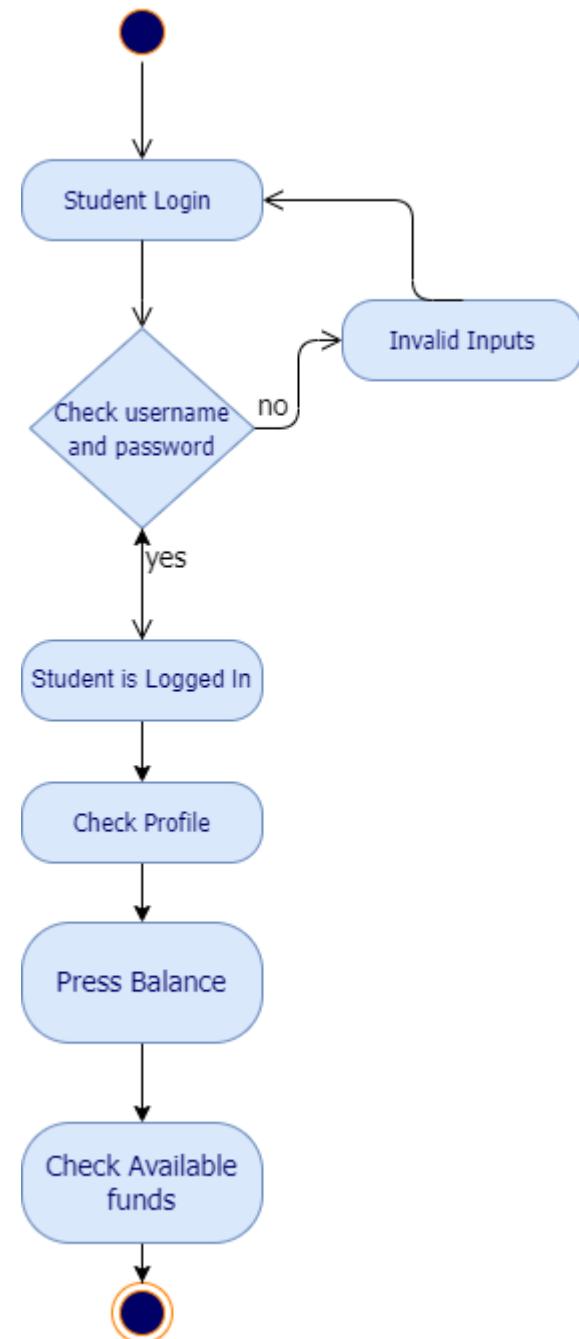
AC\_staff parking book availability

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



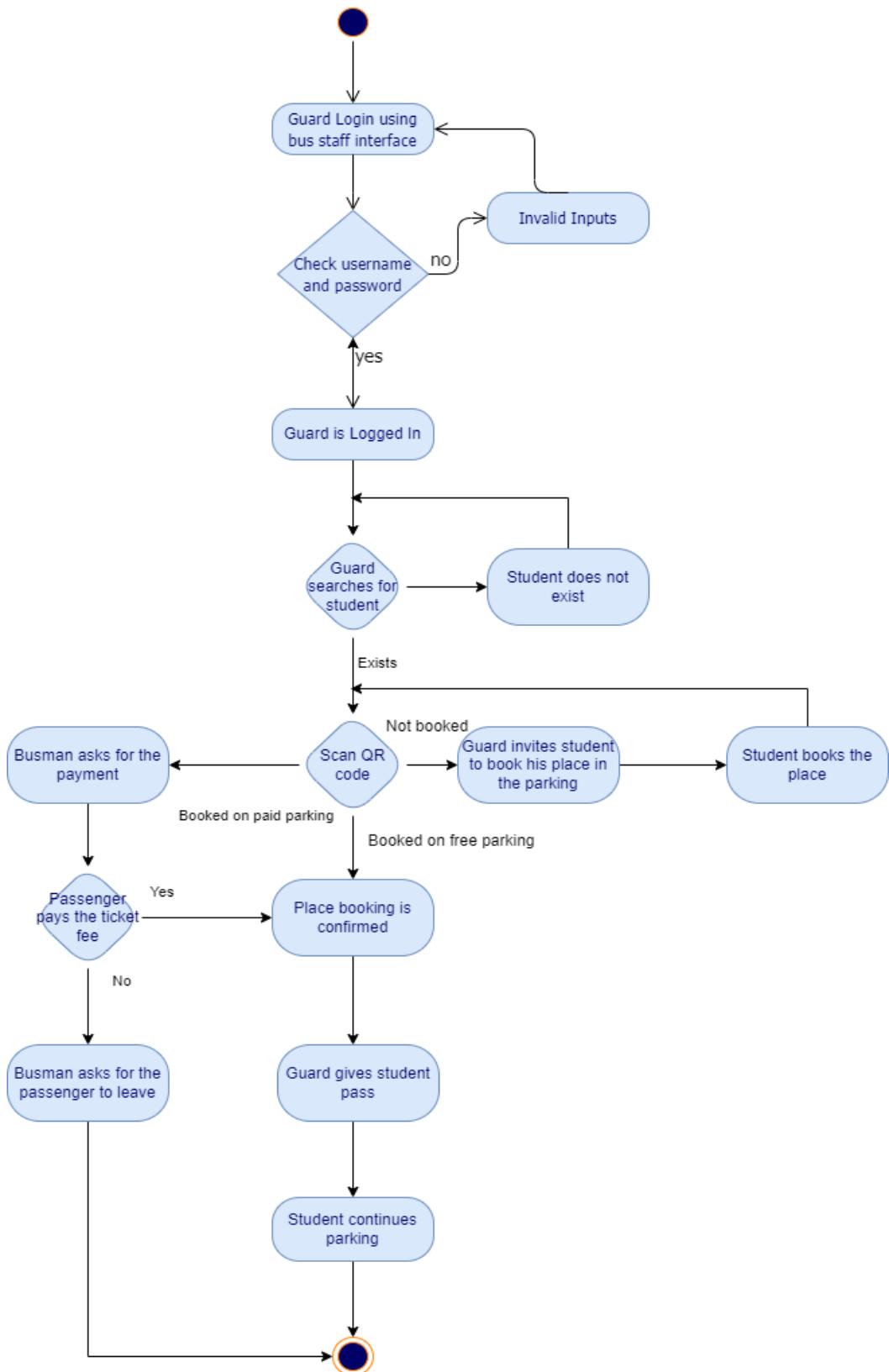
AC\_staff ticket availability

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



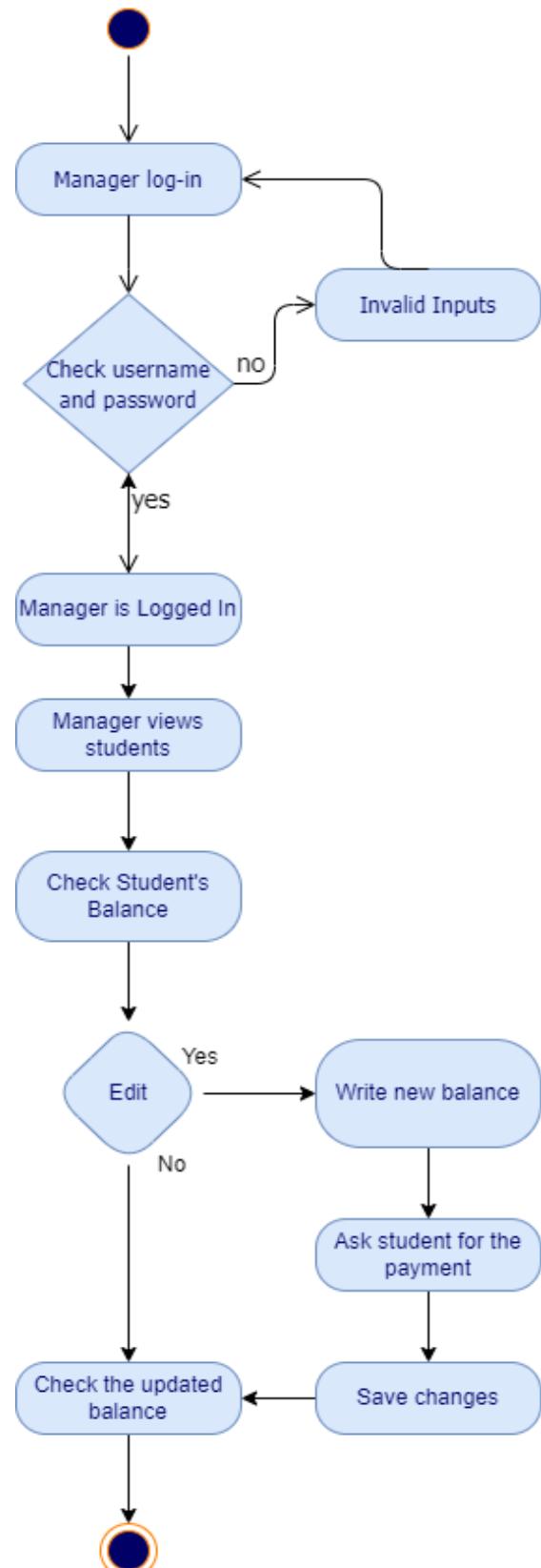
AC\_student check balance

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



AC\_student parking book availability

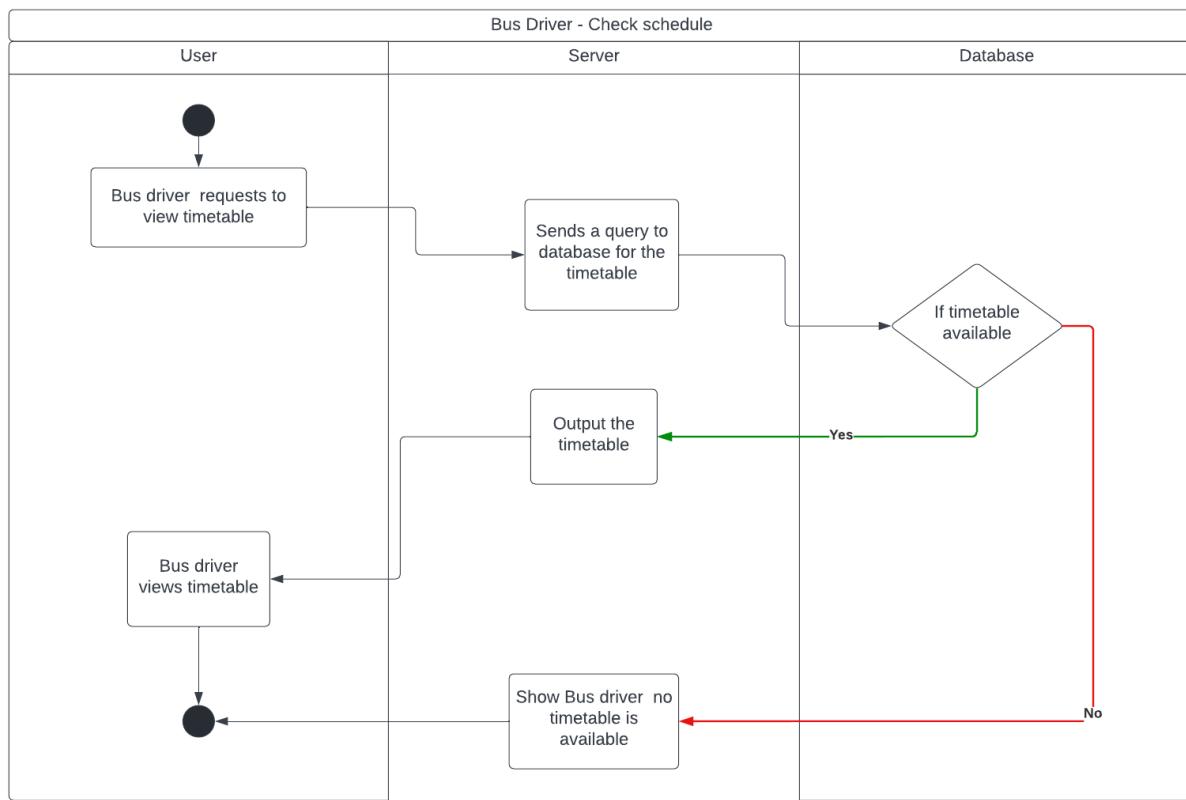
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



AC\_update student balance

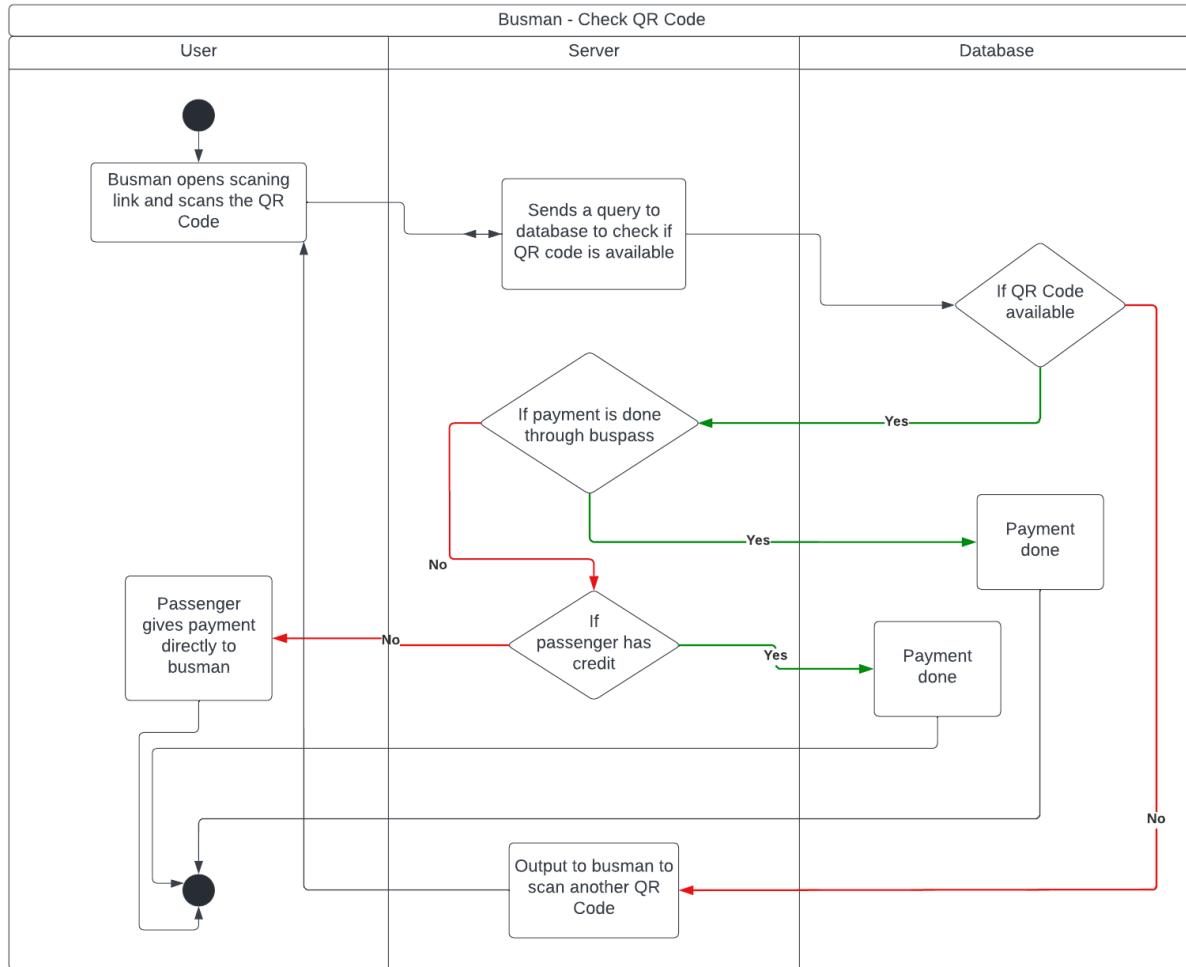
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

#### 4.2.2 Swimlane Diagrams



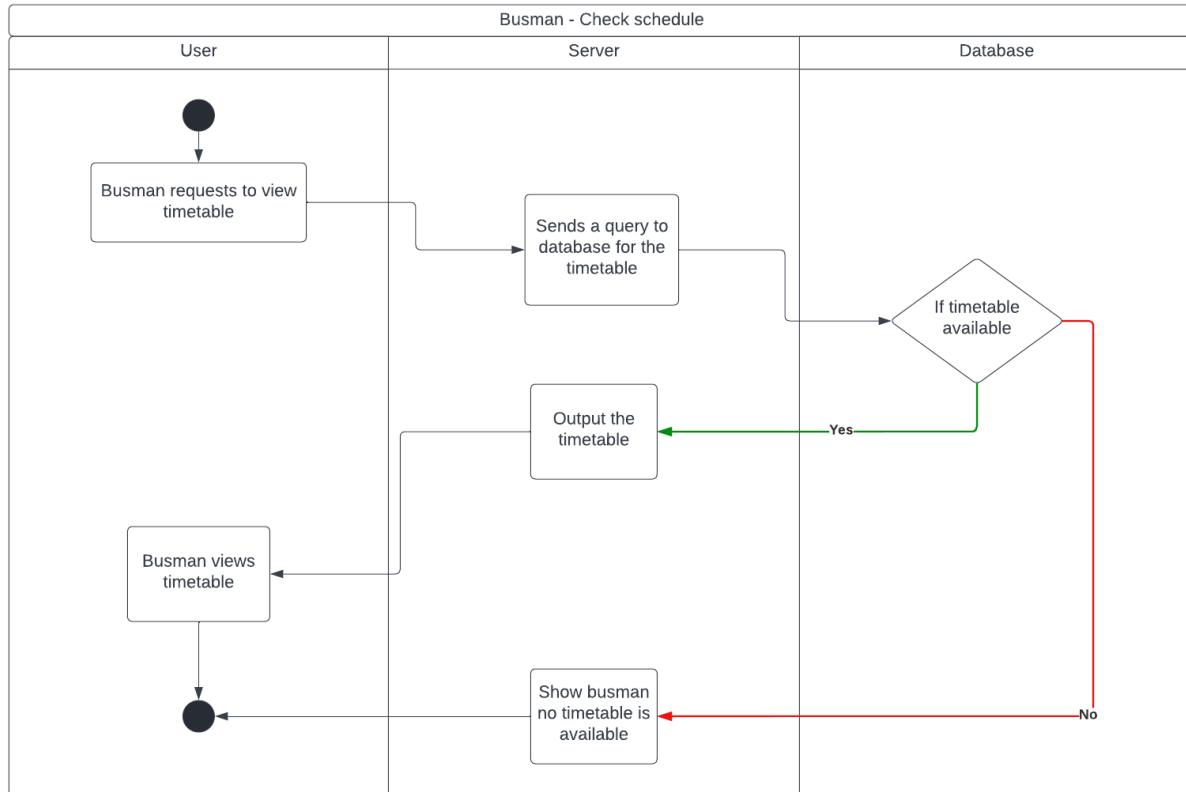
AC\_Bus Driver - Check schedule

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

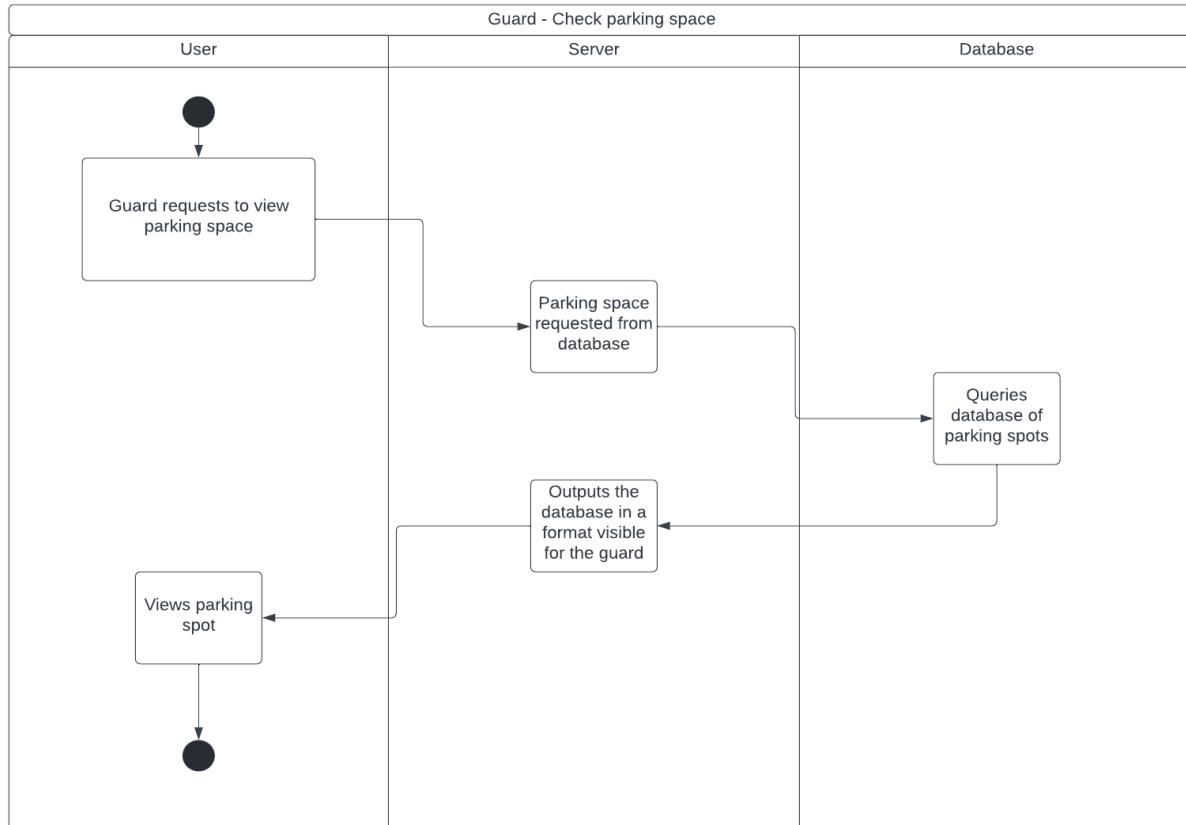


AC\_Busman - Check QR Code

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

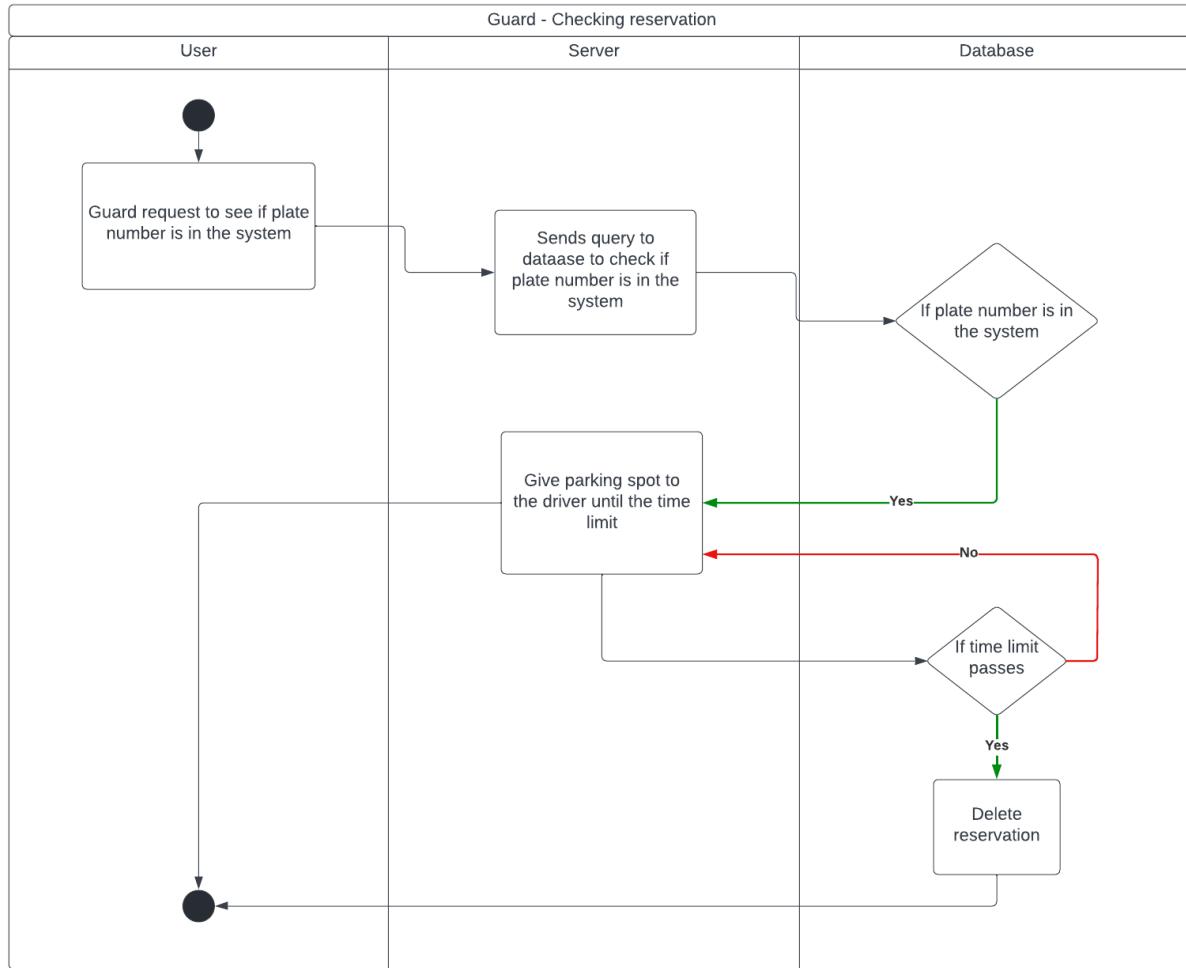


AC\_Busman - Check schedule



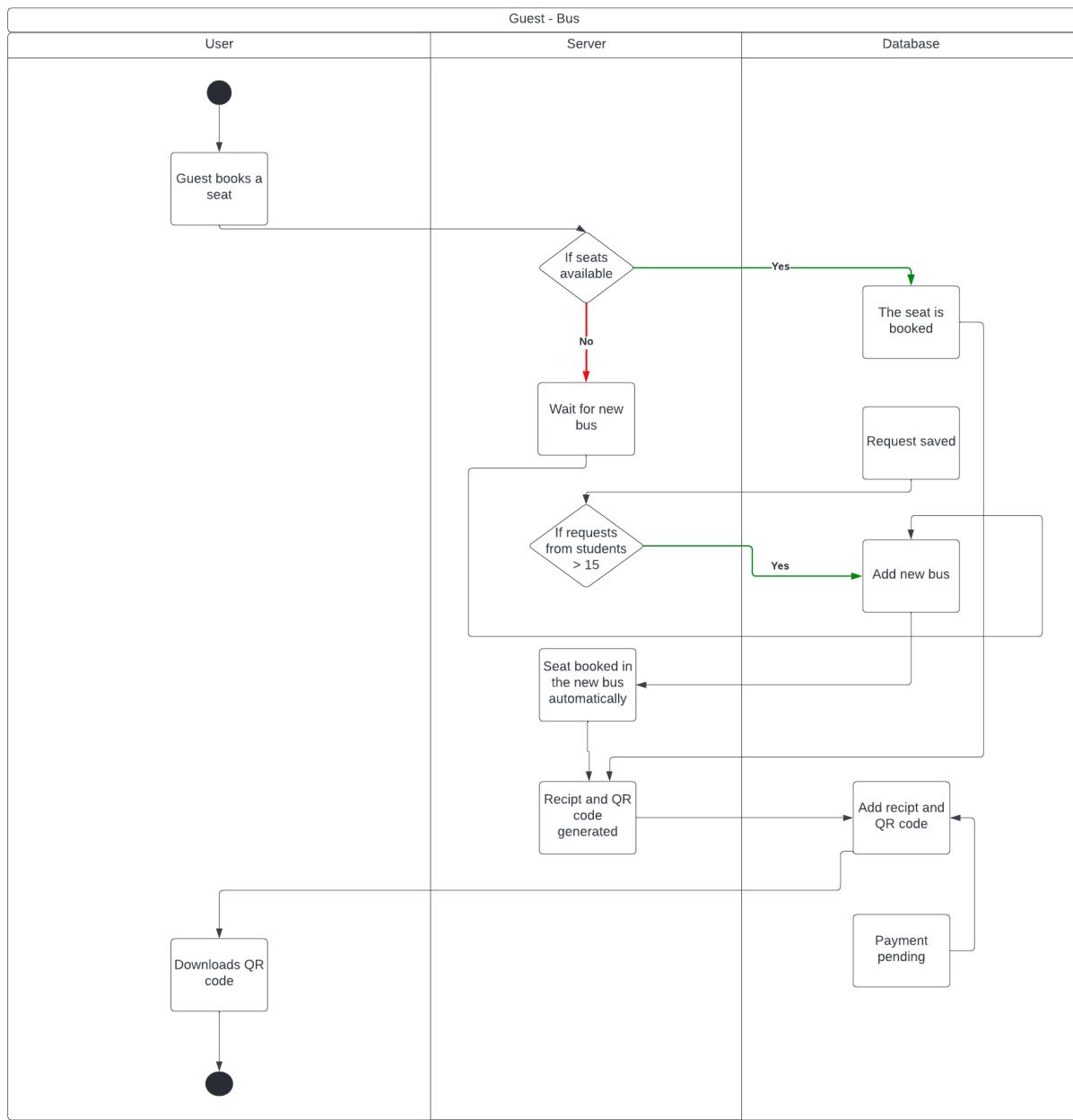
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

AC\_Guard - Check parking space



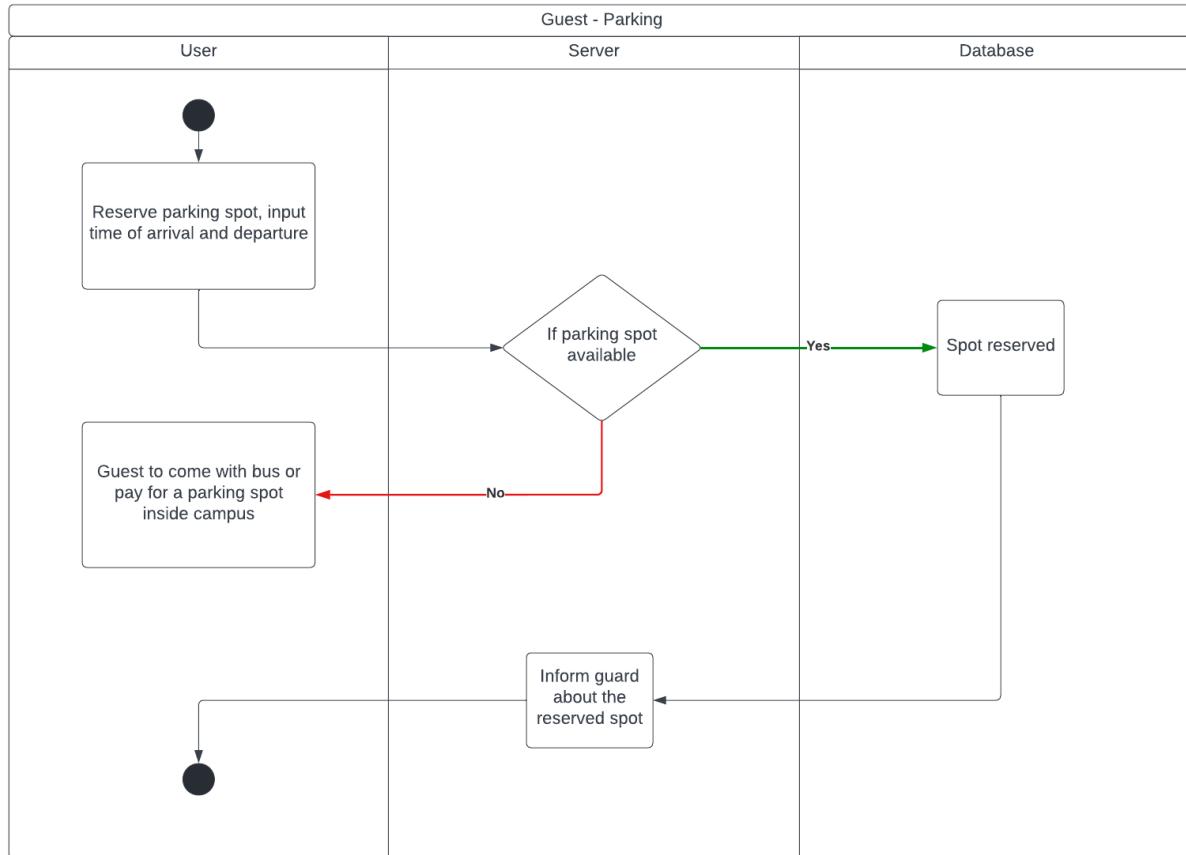
AC\_Guard - Checking reservation

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



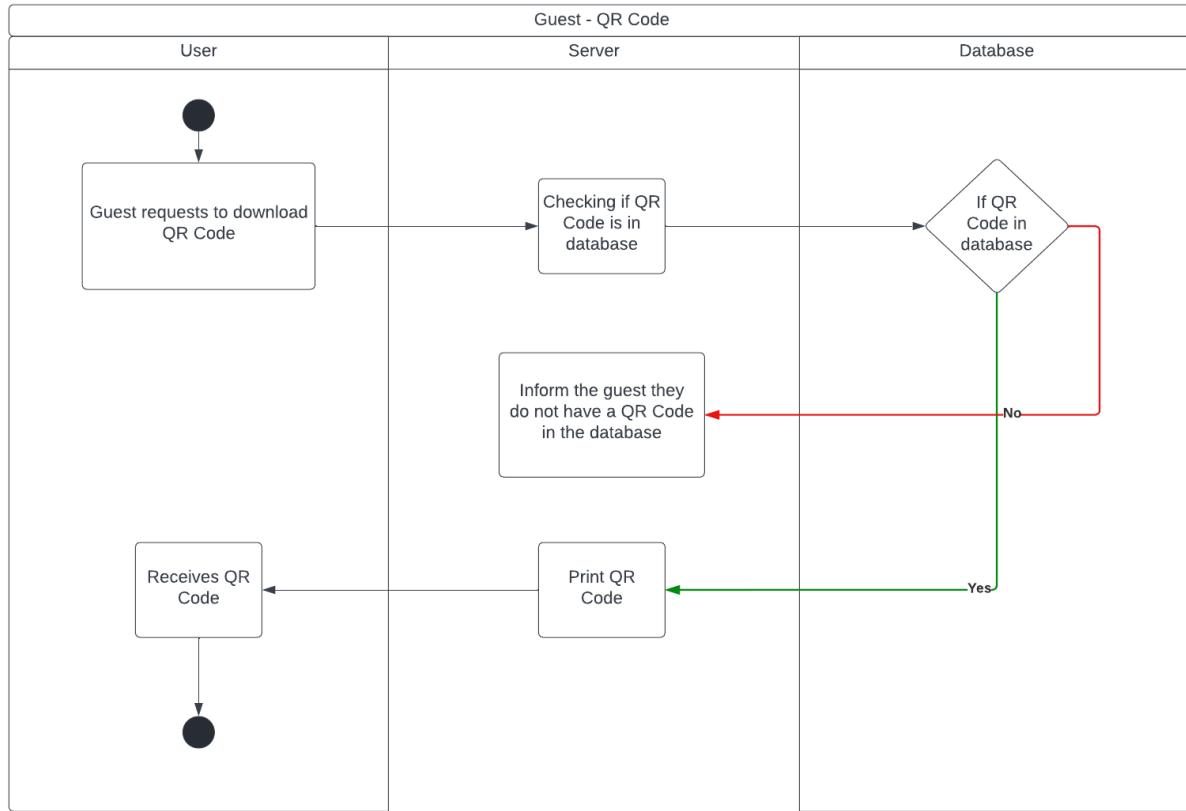
AC\_Guest - Booking bus seat

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



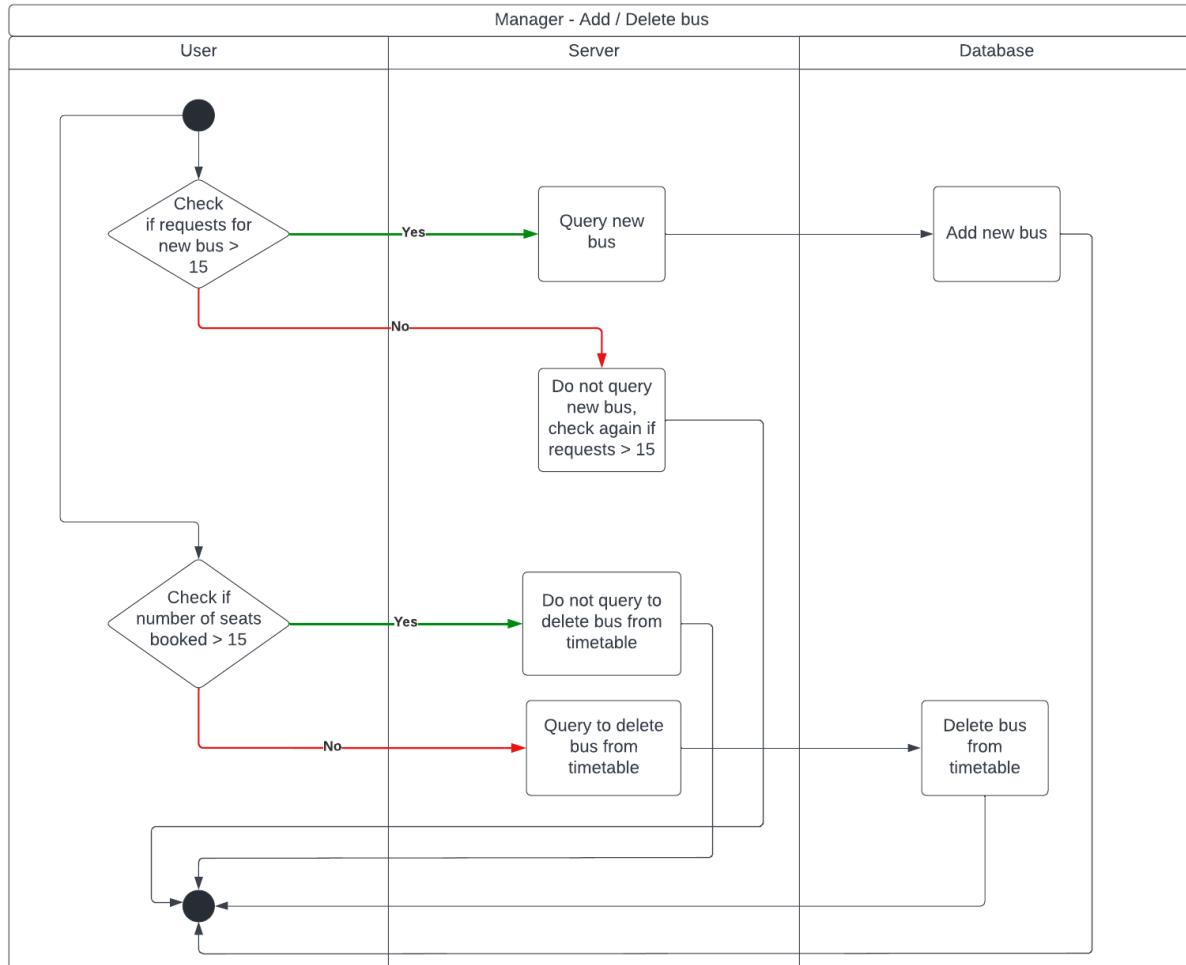
AC\_Guest - Booking parking spot

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



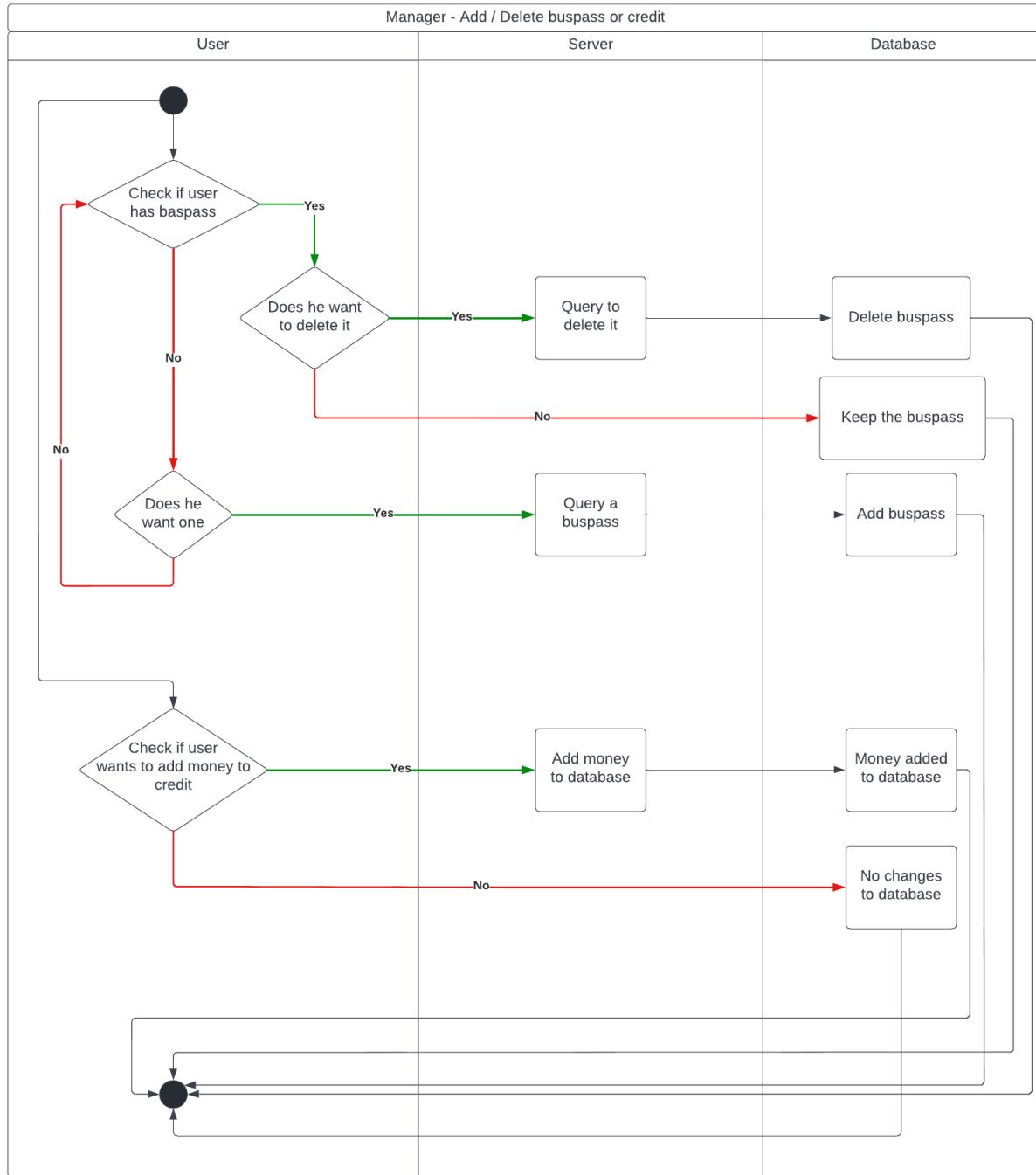
Ac\_Guest - QR Code

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



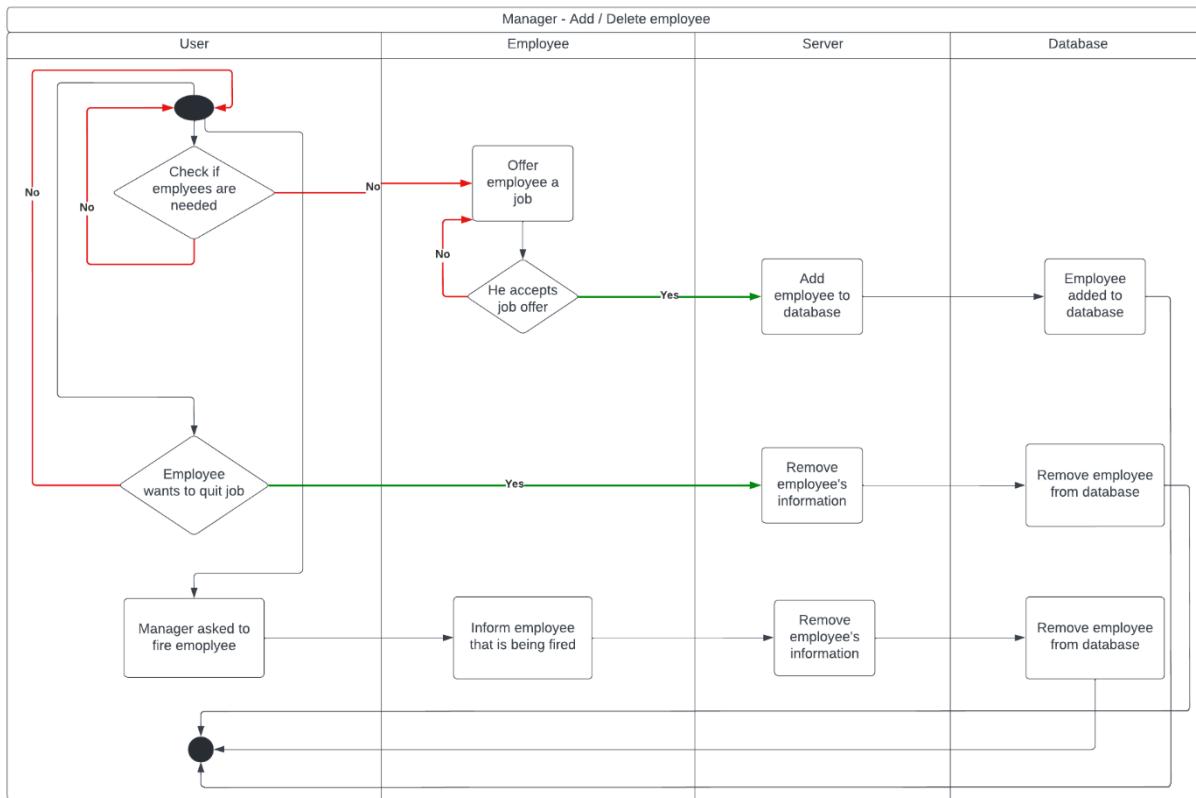
AC\_Manager - Add-Delete bus

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



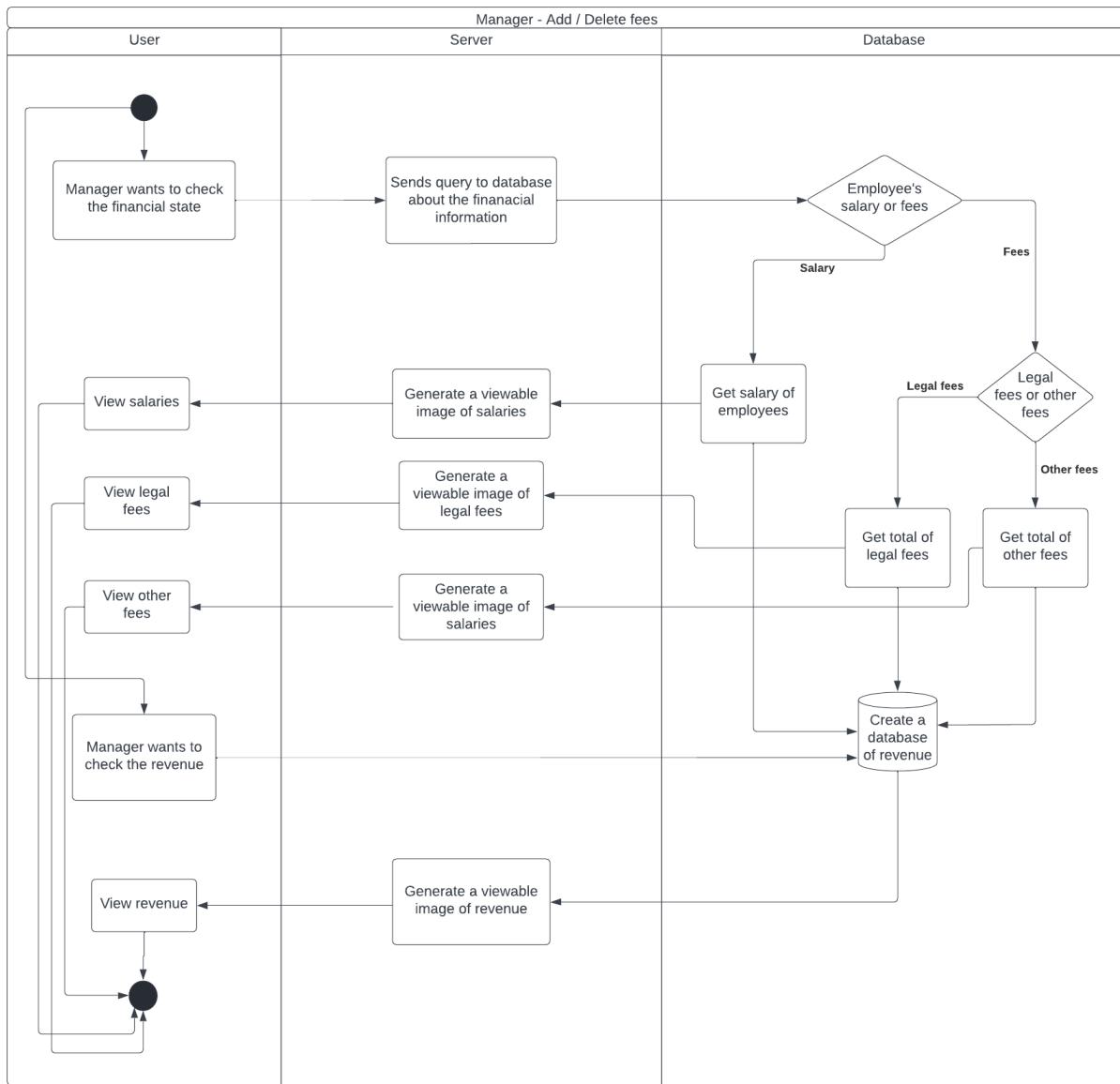
AC\_Manager - Add-Delete buspass or credit

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



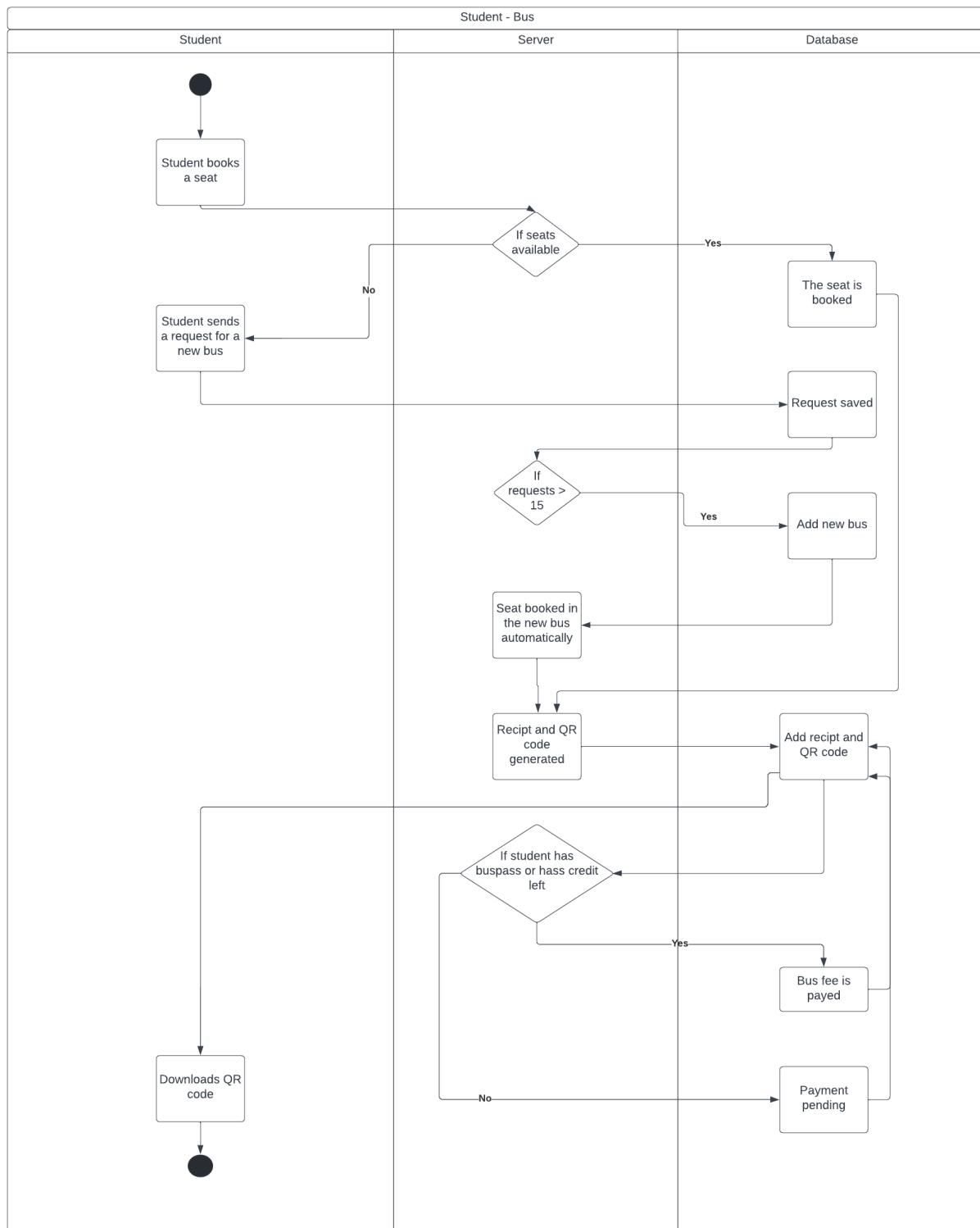
AC\_Manager - Add-Delete employee

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



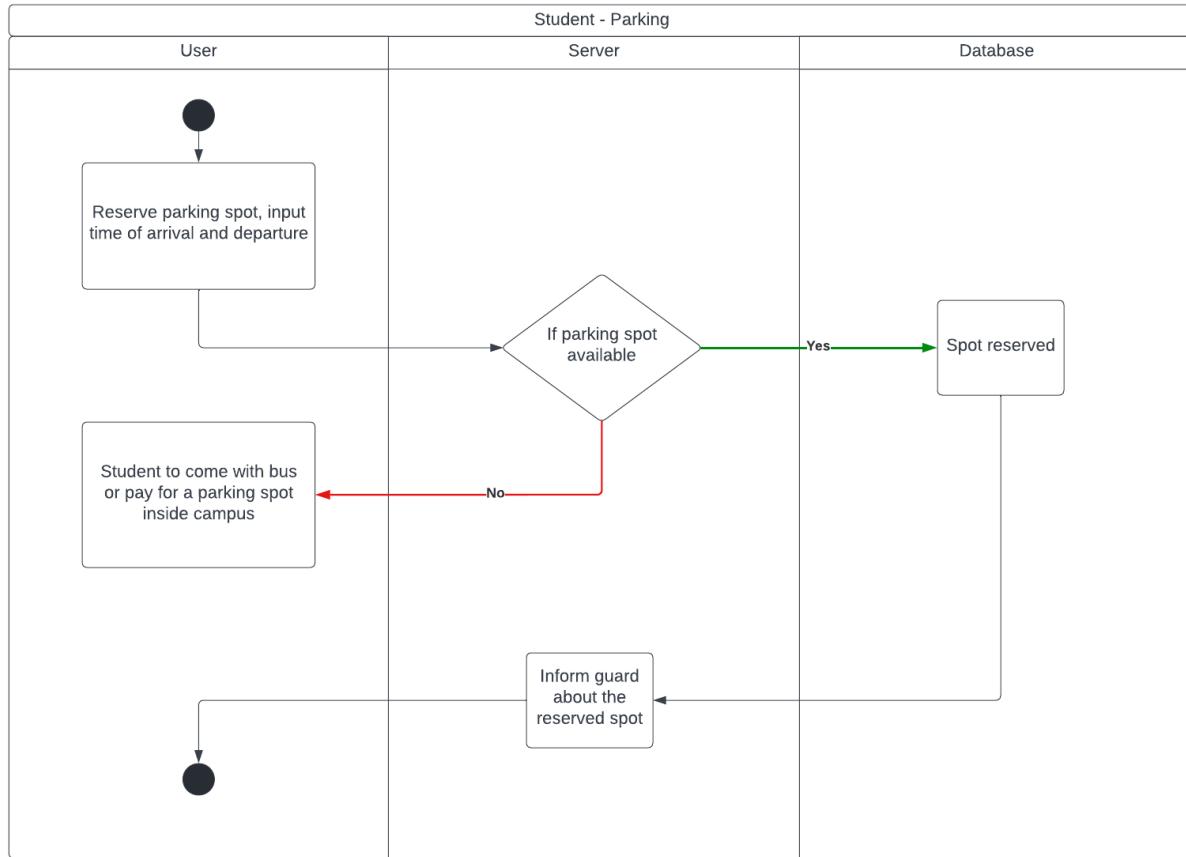
AC\_Manager - Add-Delete fees

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

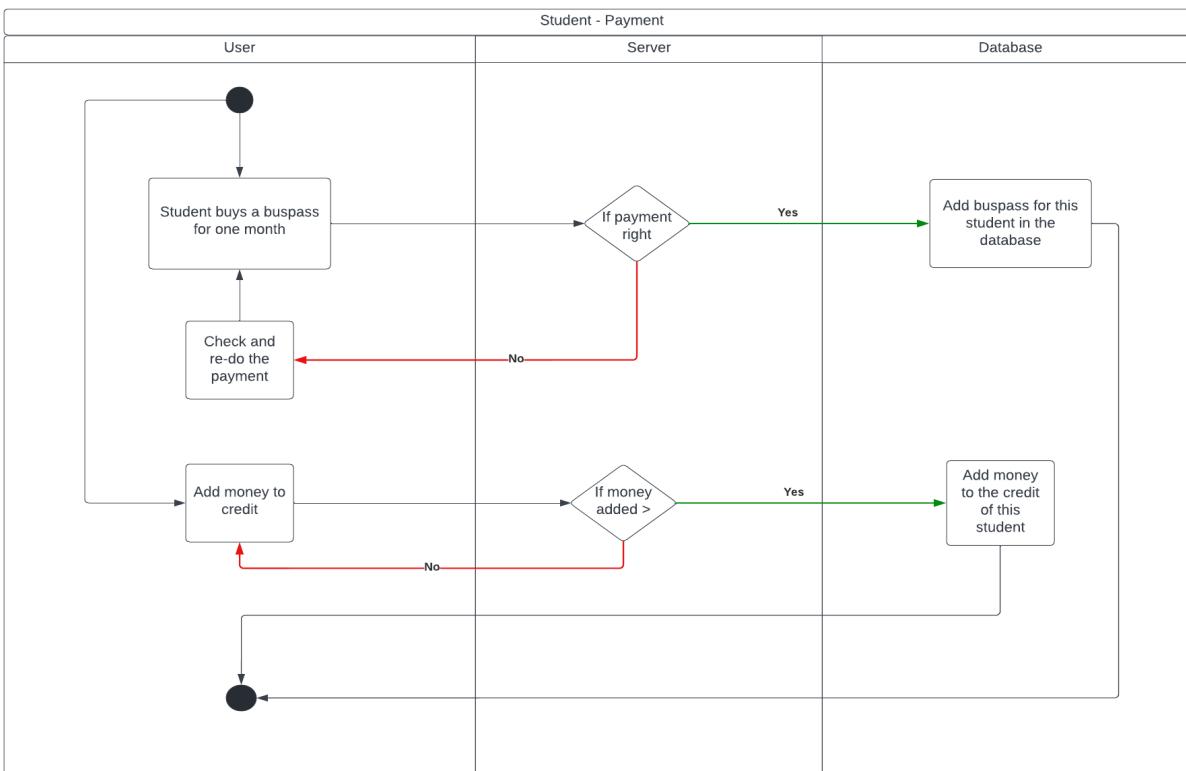


AC\_Student - Booking bus seat

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

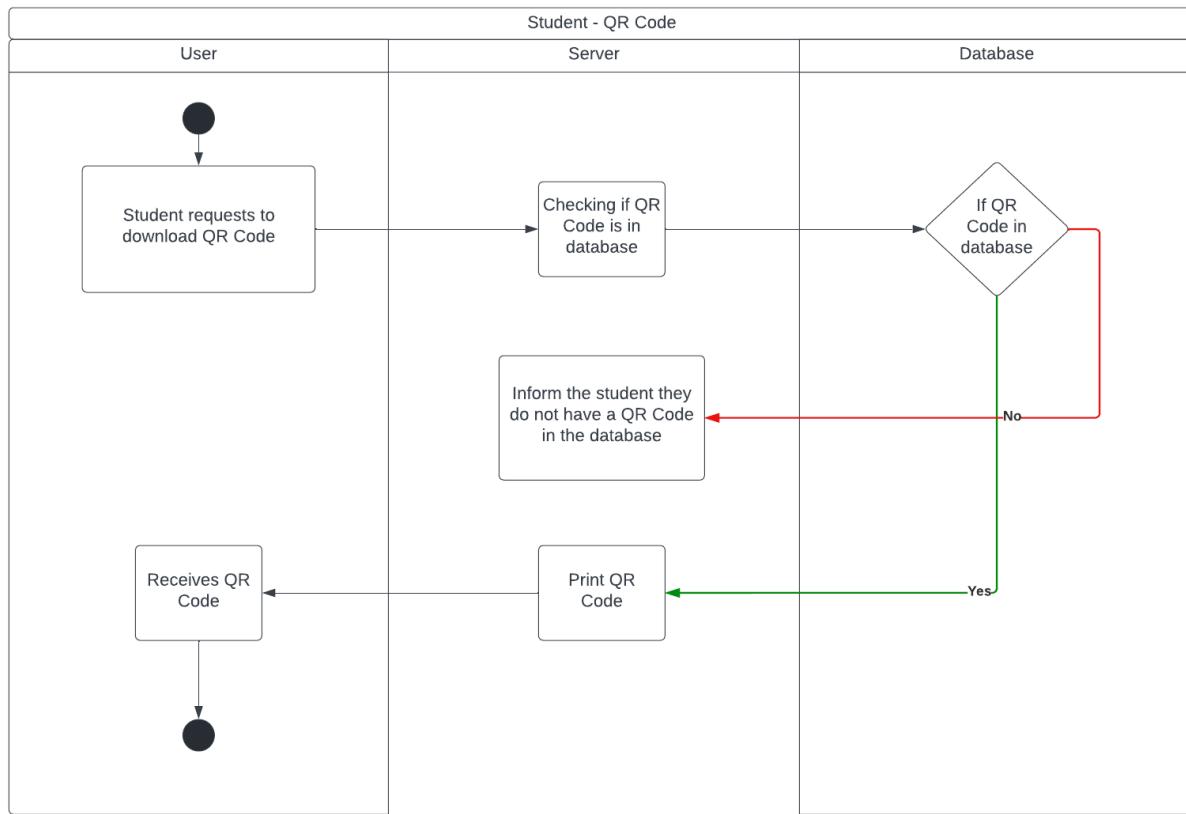


AC\_Student - Booking parking spot



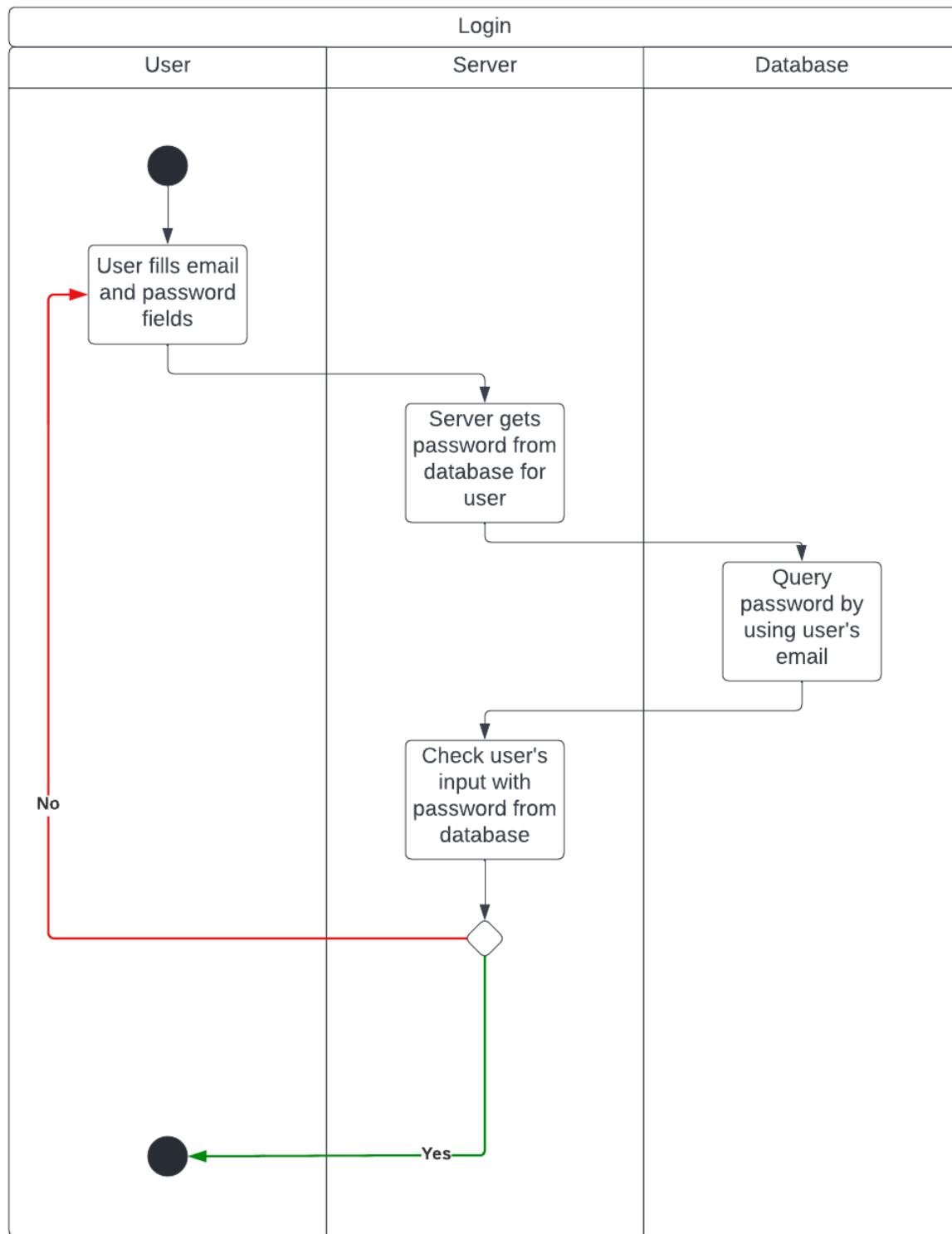
AC\_Student - Payment (Buspass and Credit)

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



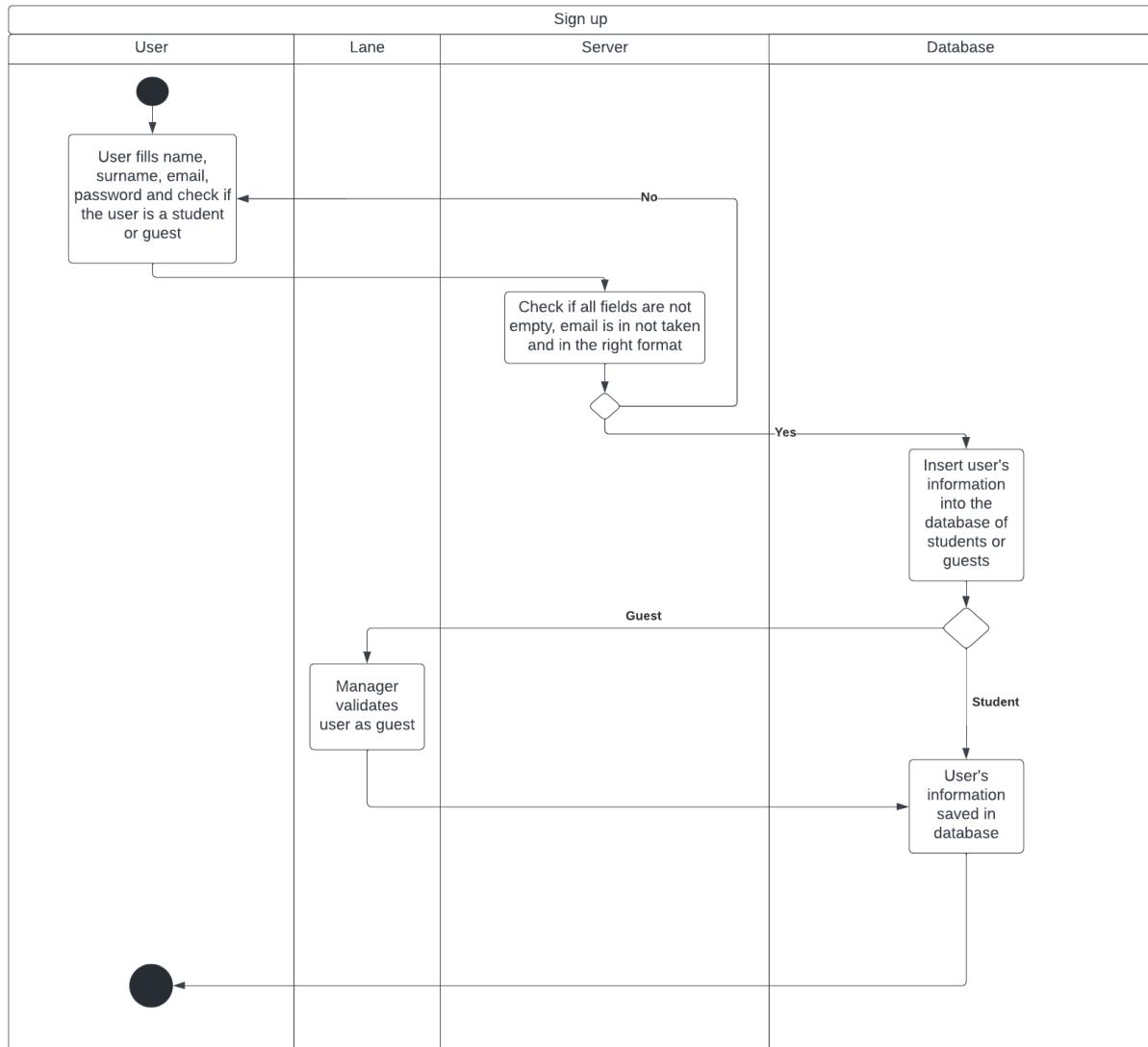
AC\_Student - QR Code

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



AC\_User - Login

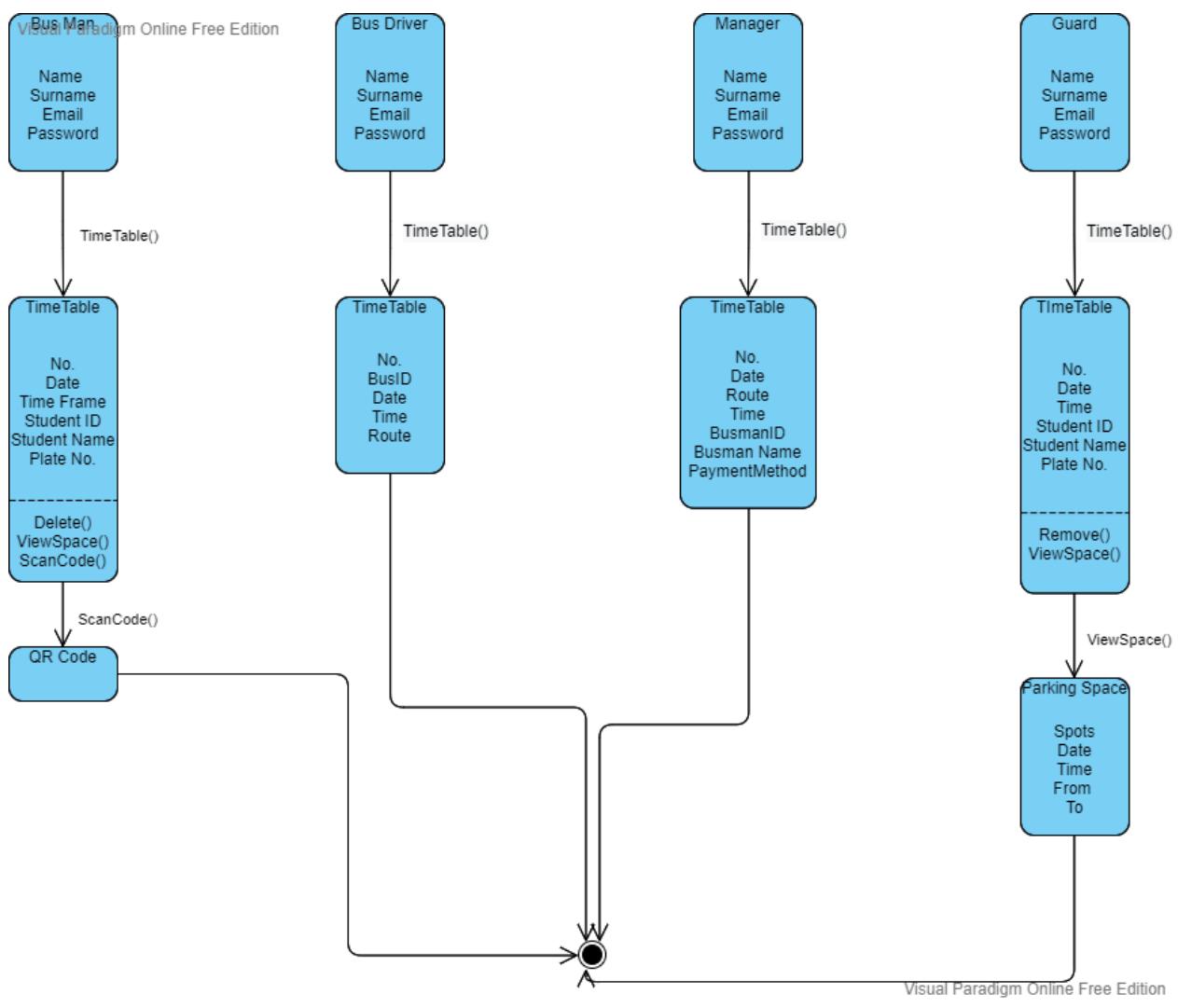
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



AC\_User - Signup

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

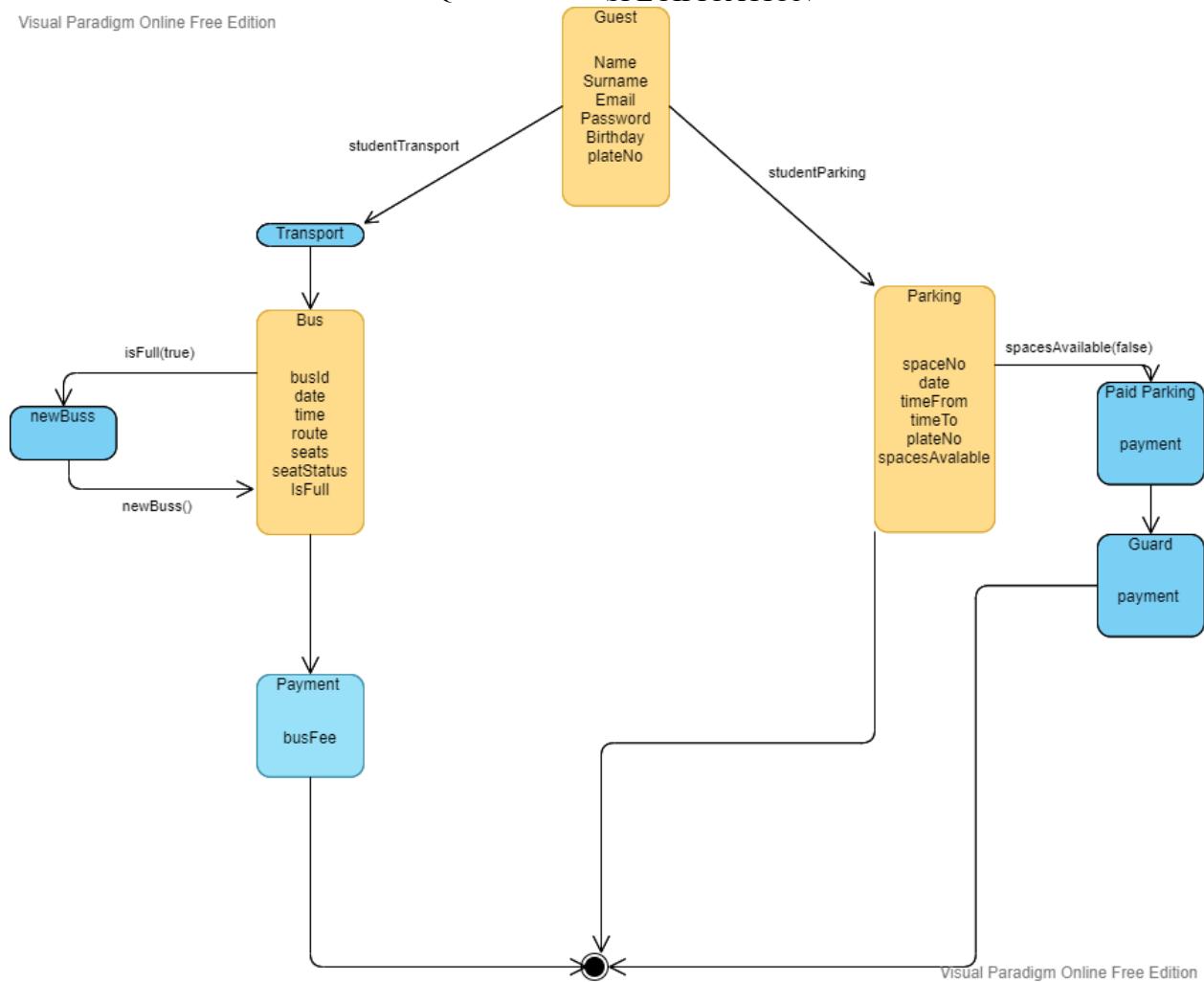
#### 4.2.3 State Charts



ST\_Bus\_Parking

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

Visual Paradigm Online Free Edition

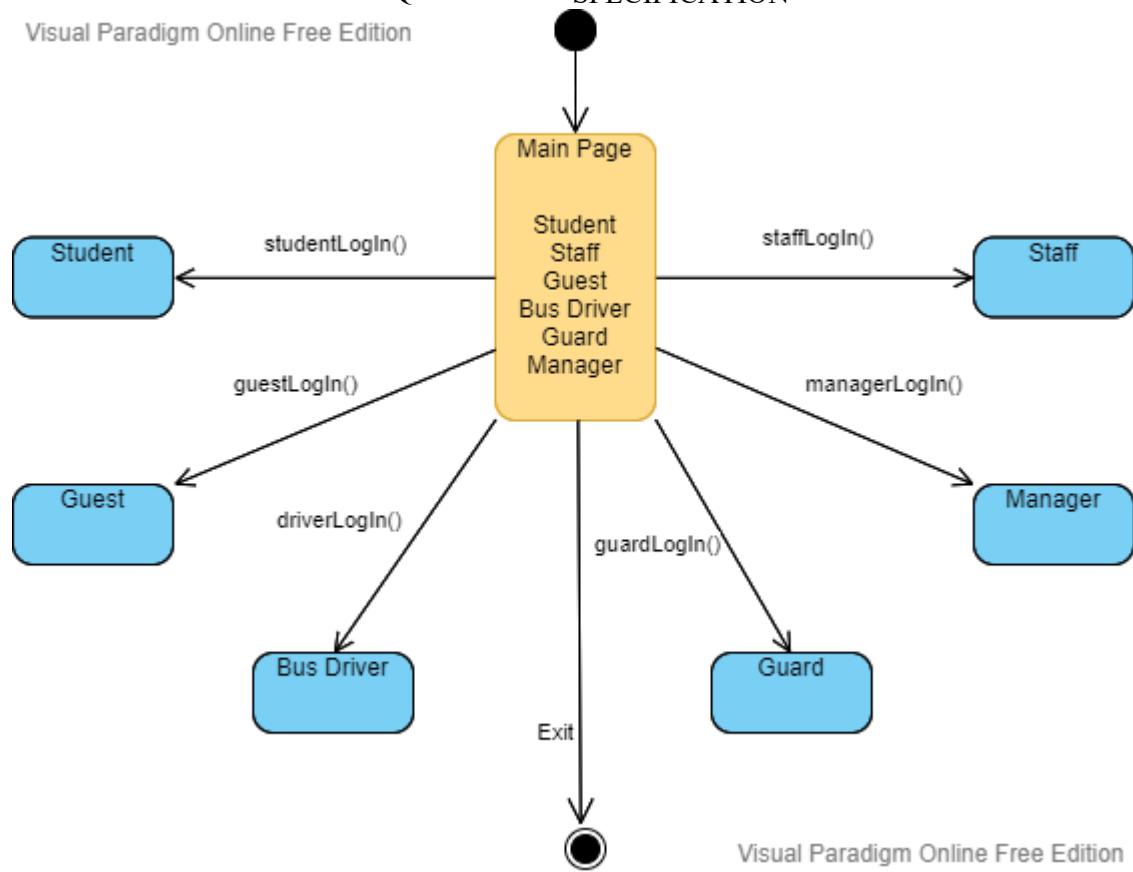


Visual Paradigm Online Free Edition

ST\_Guest

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

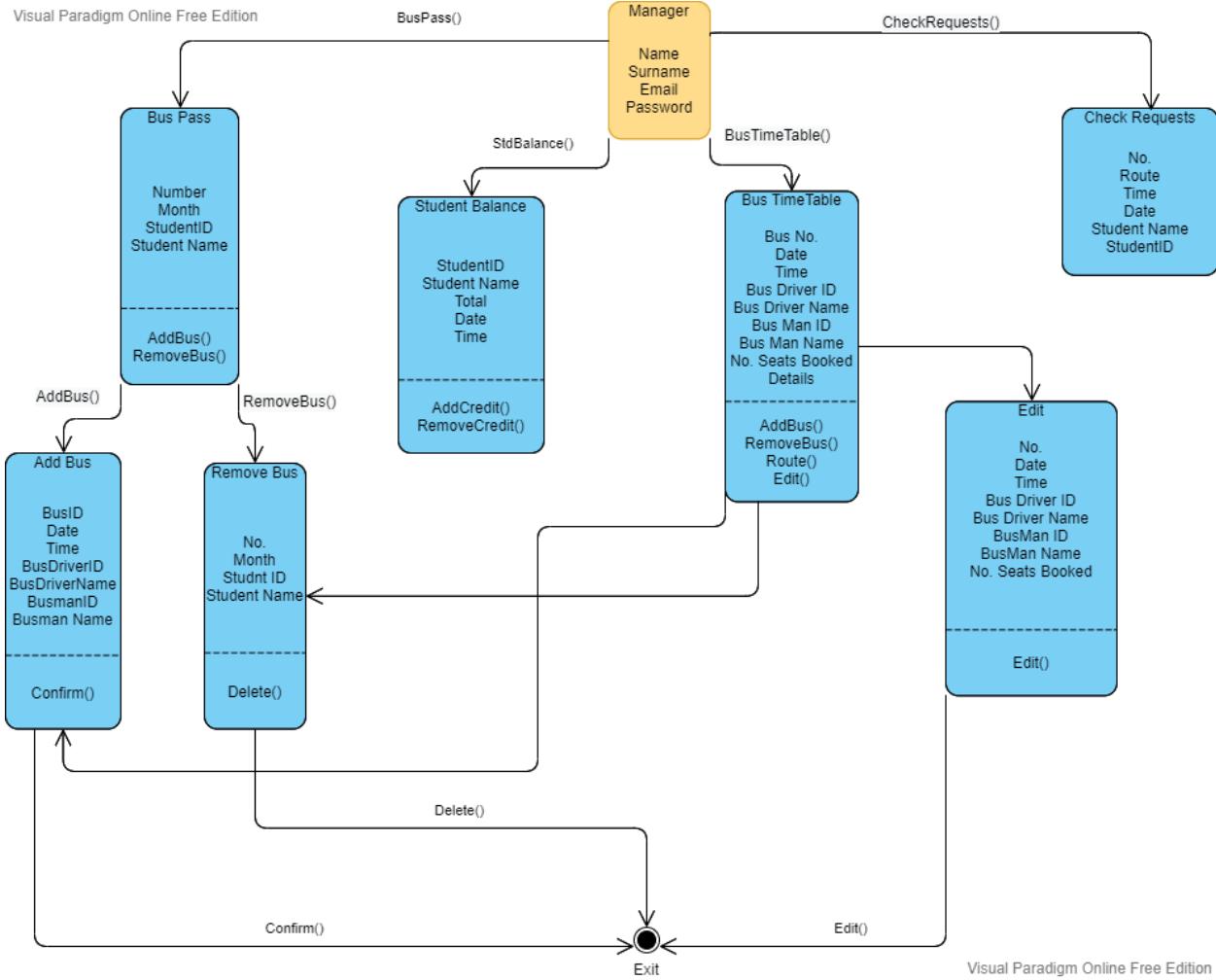
Visual Paradigm Online Free Edition



ST\_Login

# EPOKA TRANSPORT MANAGEMENT SYSTEM

## REQUIREMENTS SPECIFICATION

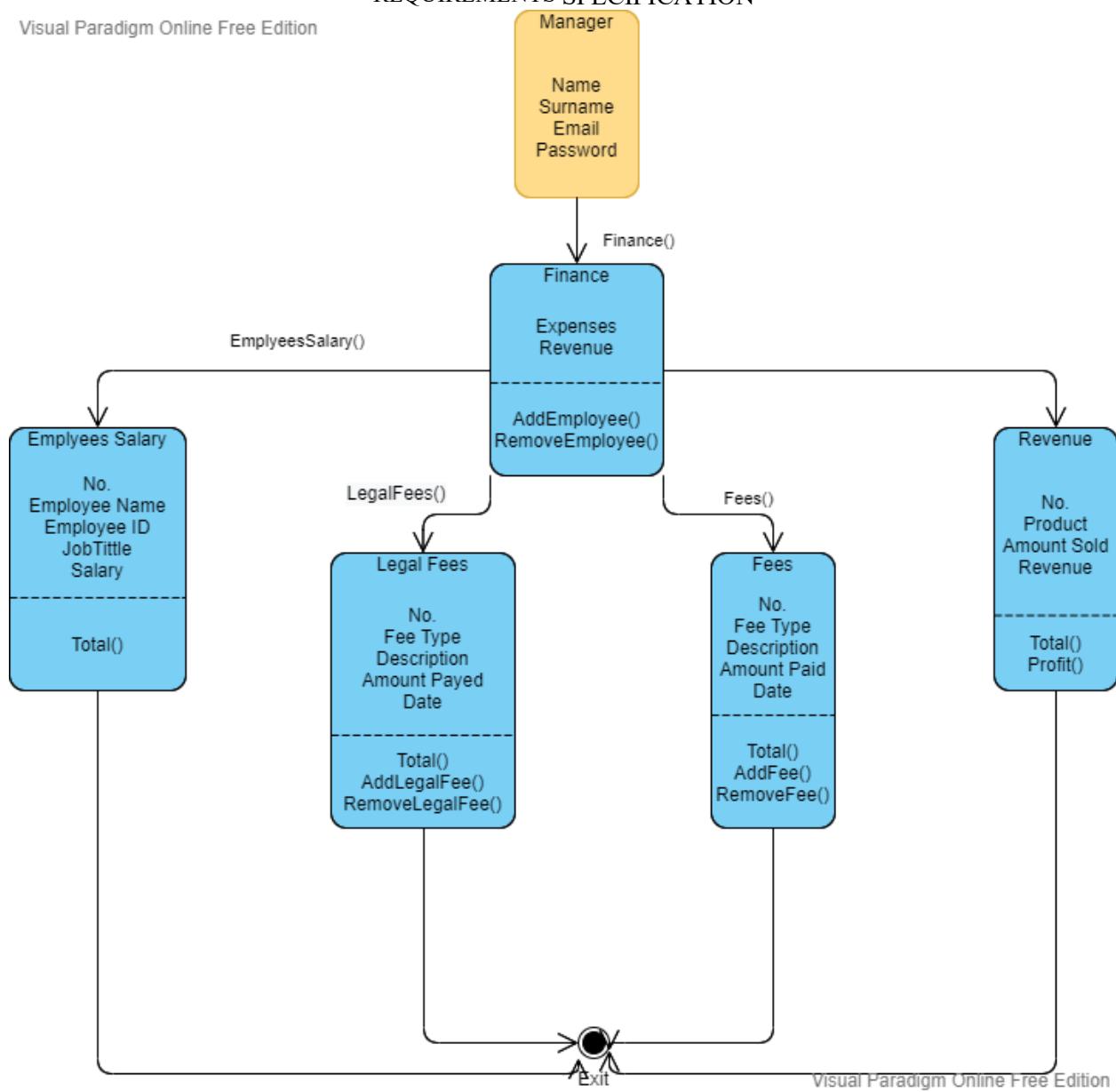


Visual Paradigm Online Free Edition

ST\_Manager

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

Visual Paradigm Online Free Edition

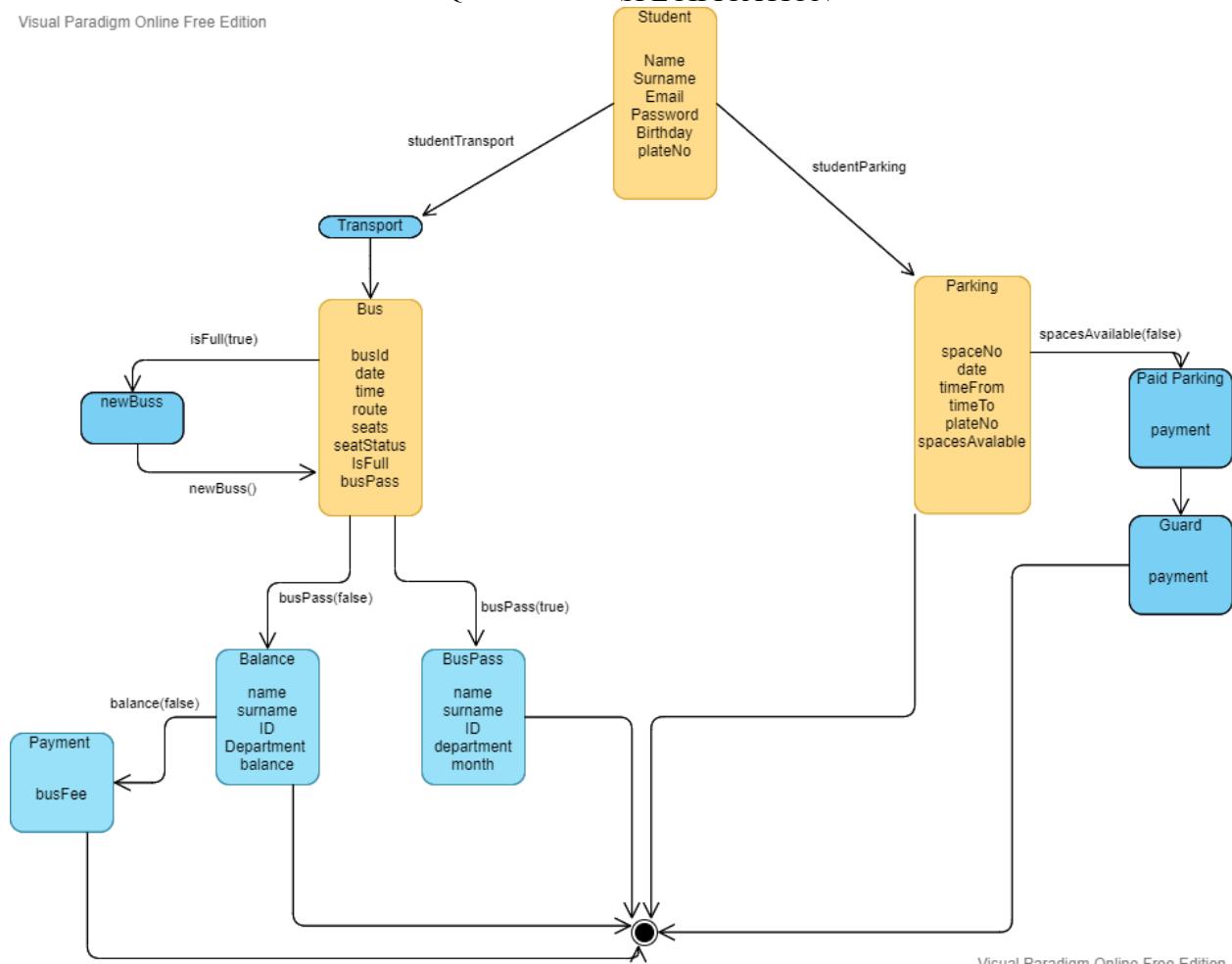


ST\_Manager2

# EPOKA TRANSPORT MANAGEMENT SYSTEM

## REQUIREMENTS SPECIFICATION

Visual Paradigm Online Free Edition

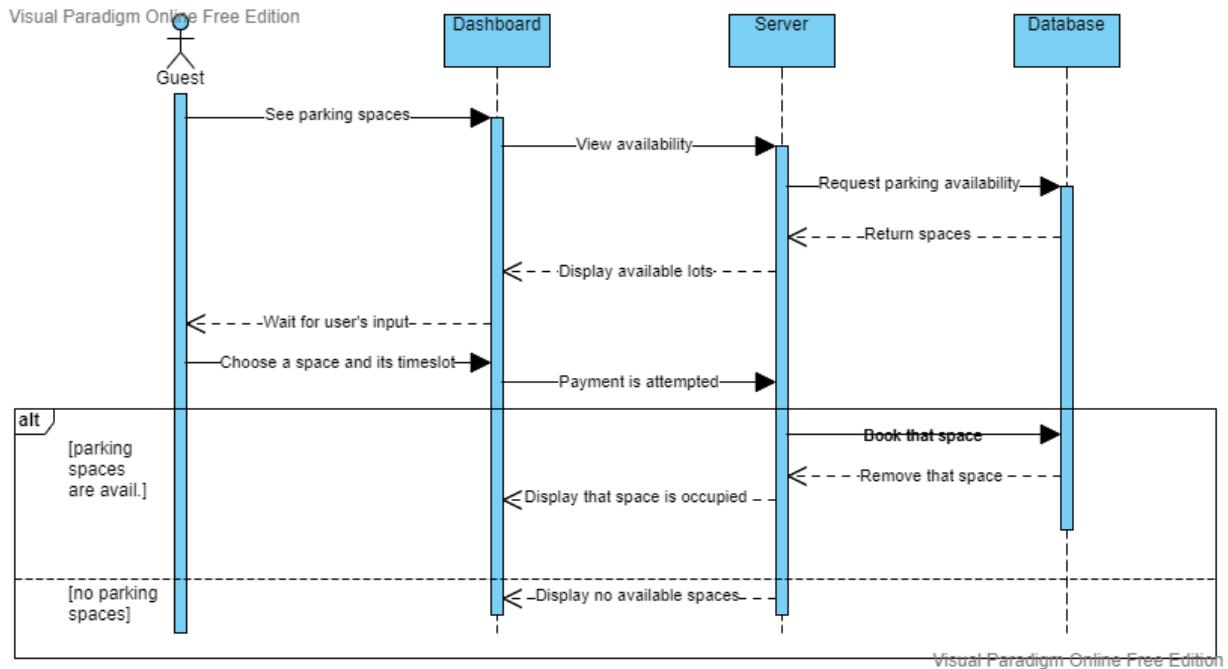


Visual Paradigm Online Free Edition

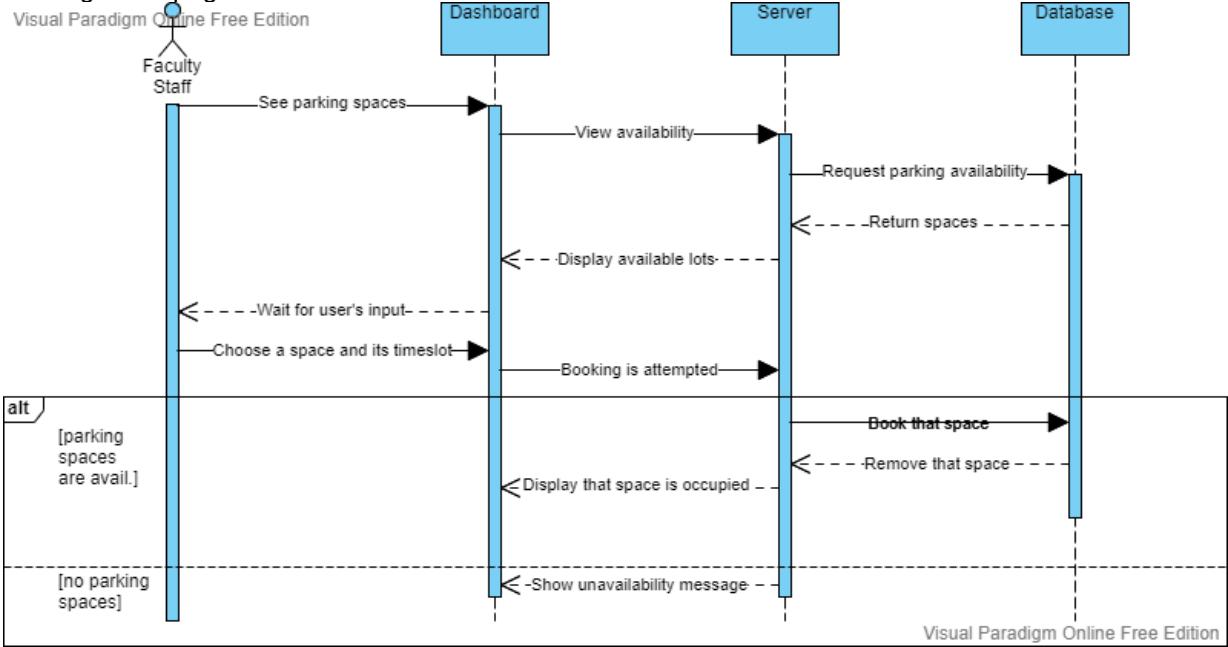
ST\_Student

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

#### 4.2.4 Sequence Diagrams

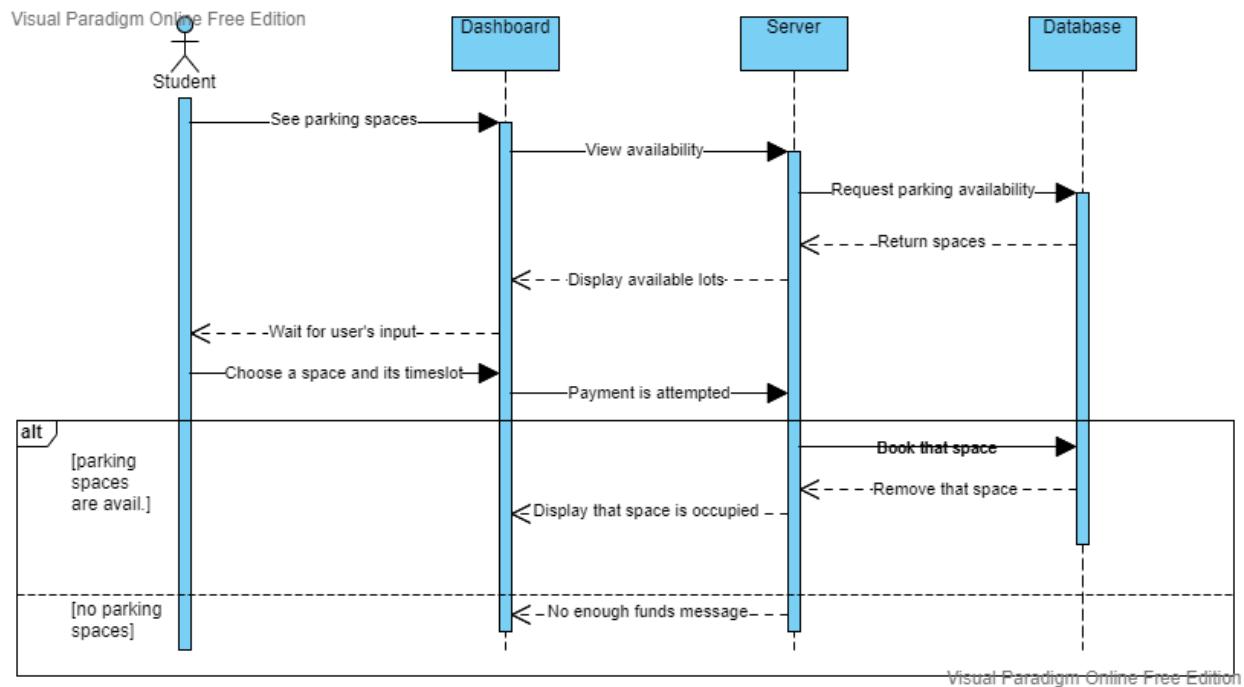


BookParkingGuest.png

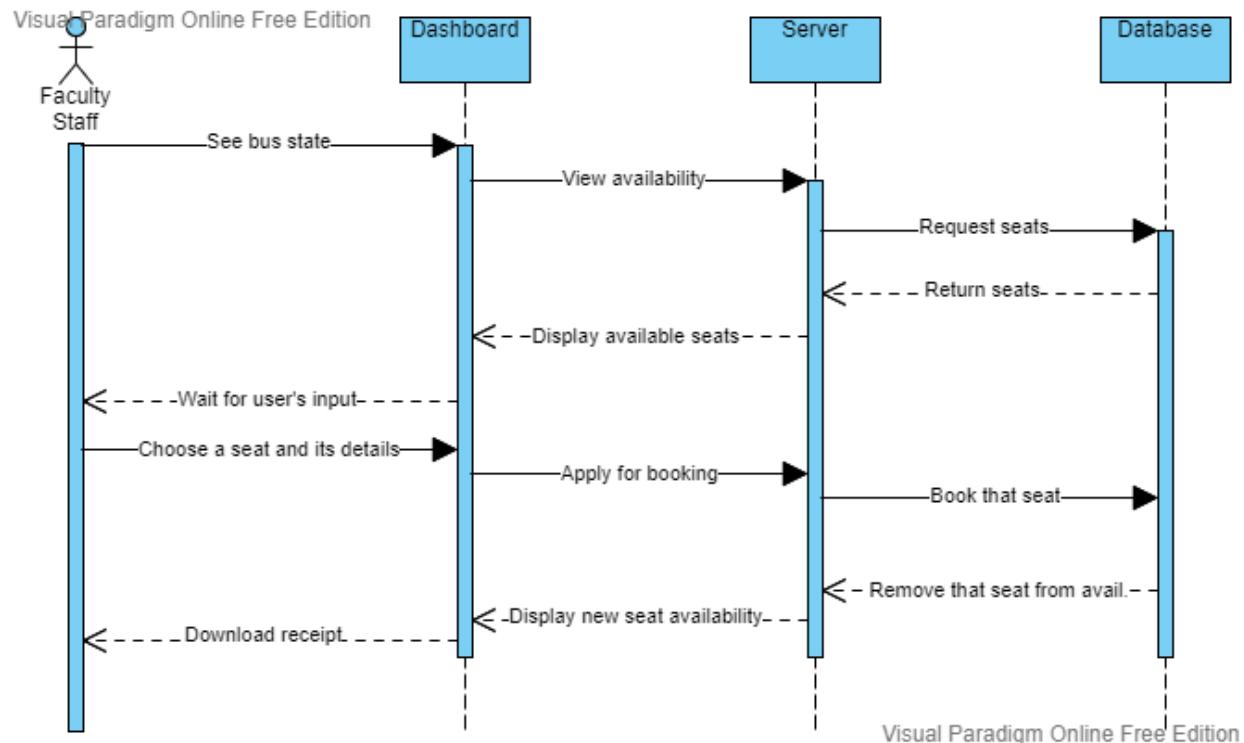


SD\_BookParkingStaff

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

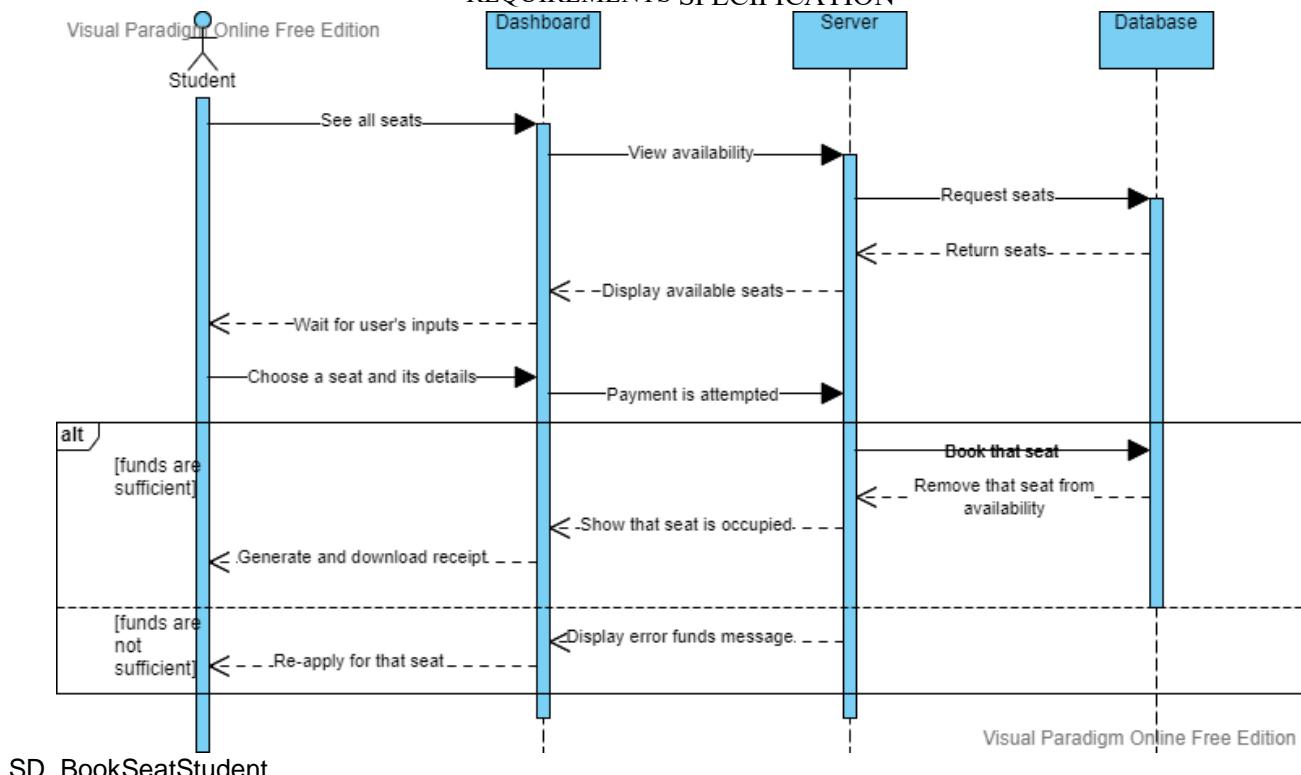


SD\_BookParkingStudent

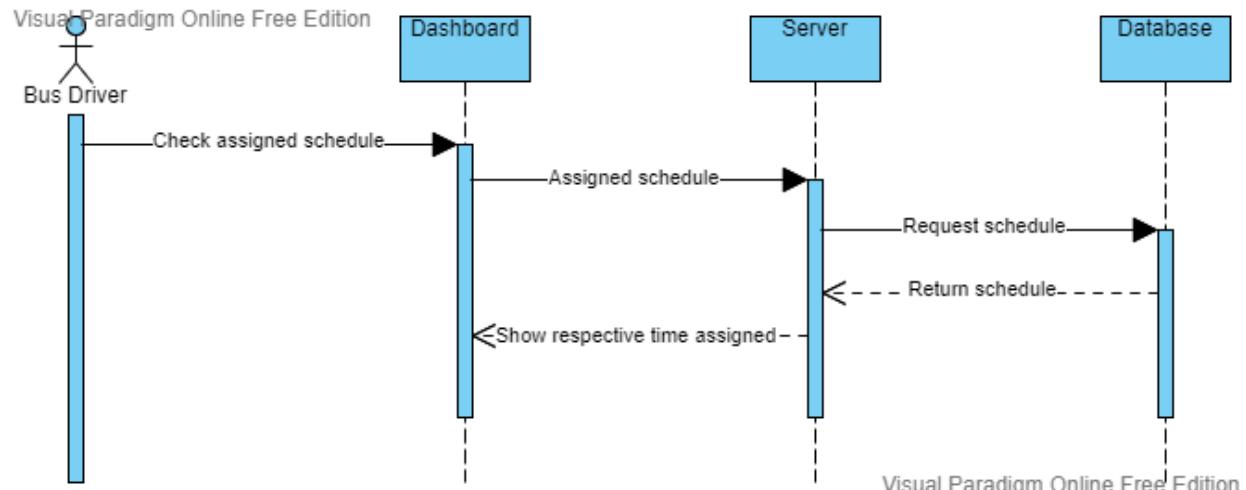


SD\_BookSeatStaff

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

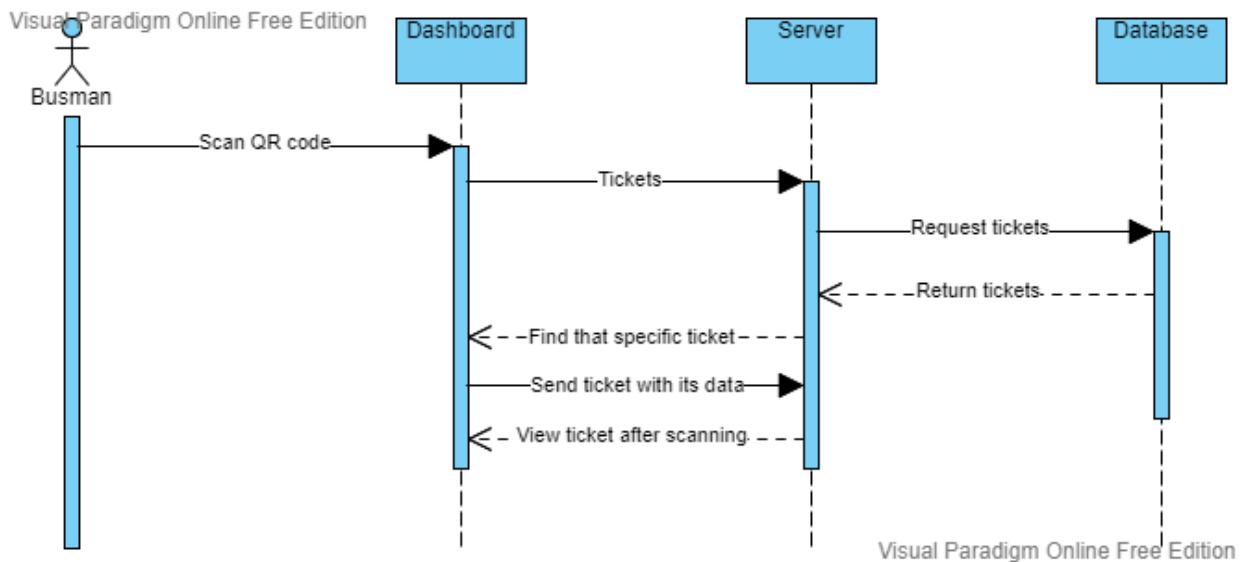


SD\_BookSeatStudent

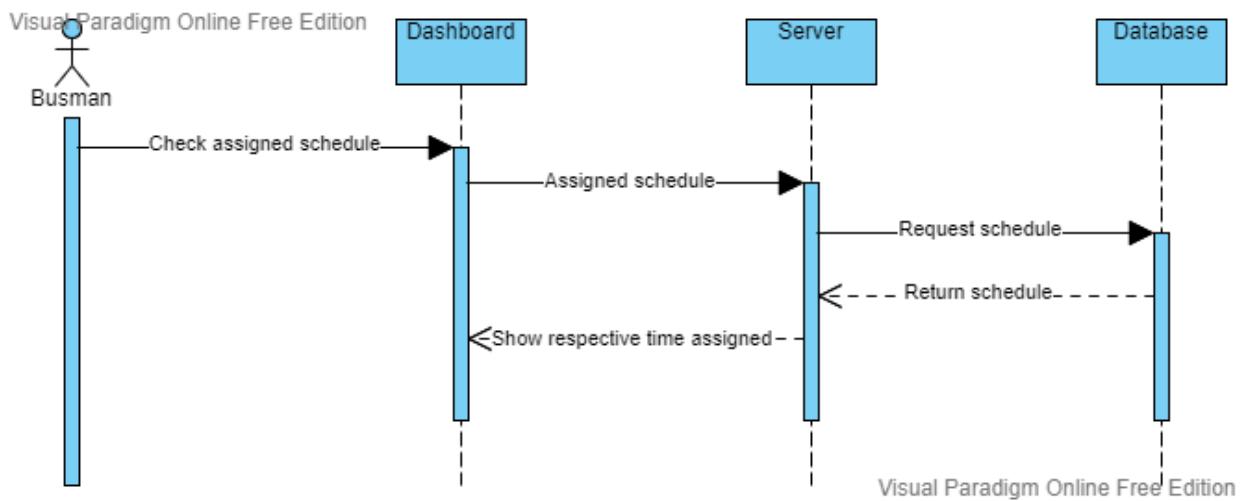


SD\_BusDriverSchedule

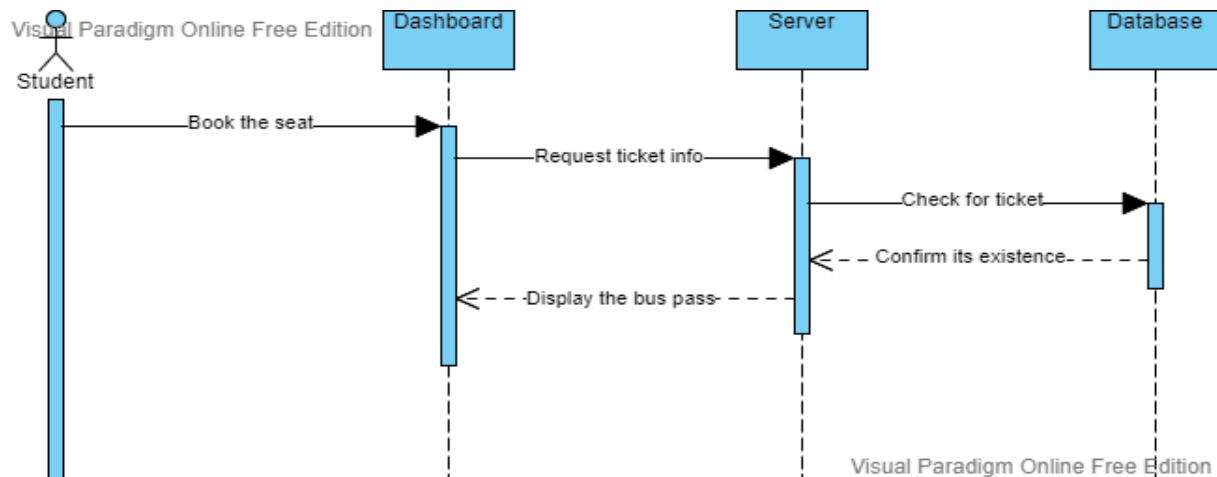
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



SD\_BusmanQRCode

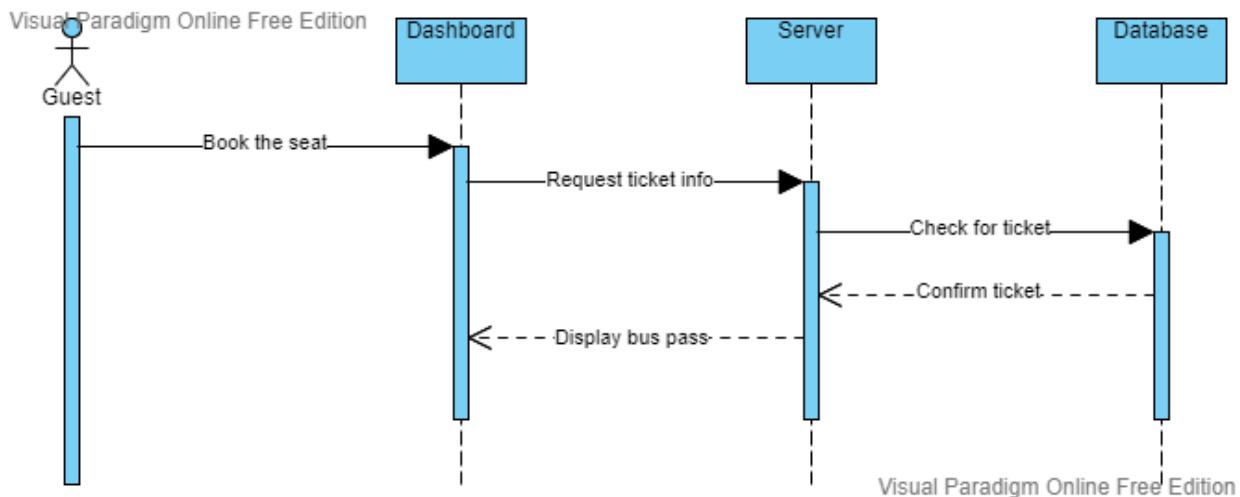


SD\_BusmanSchedule

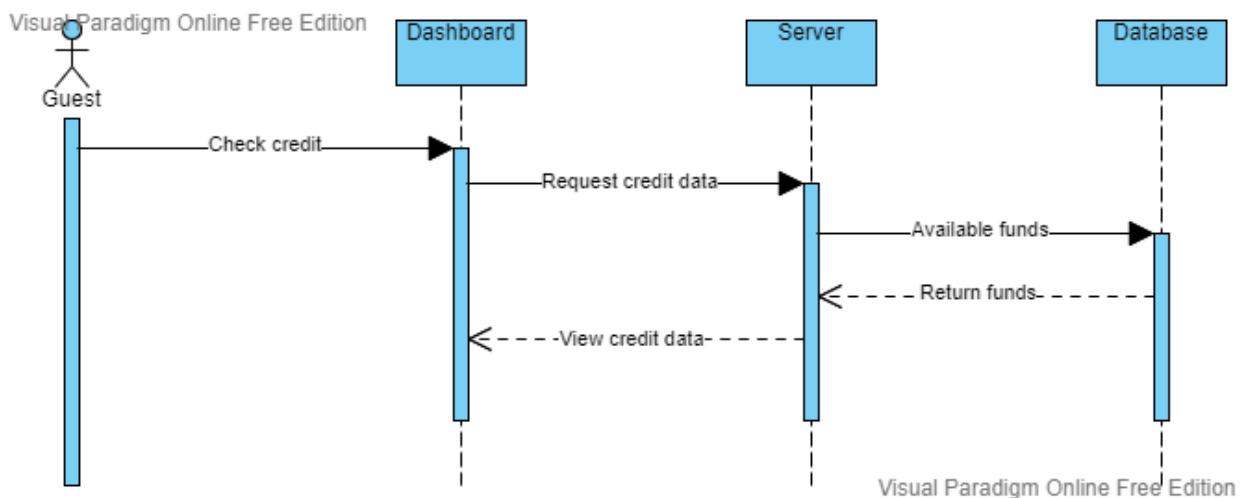


SD\_CheckBusPass

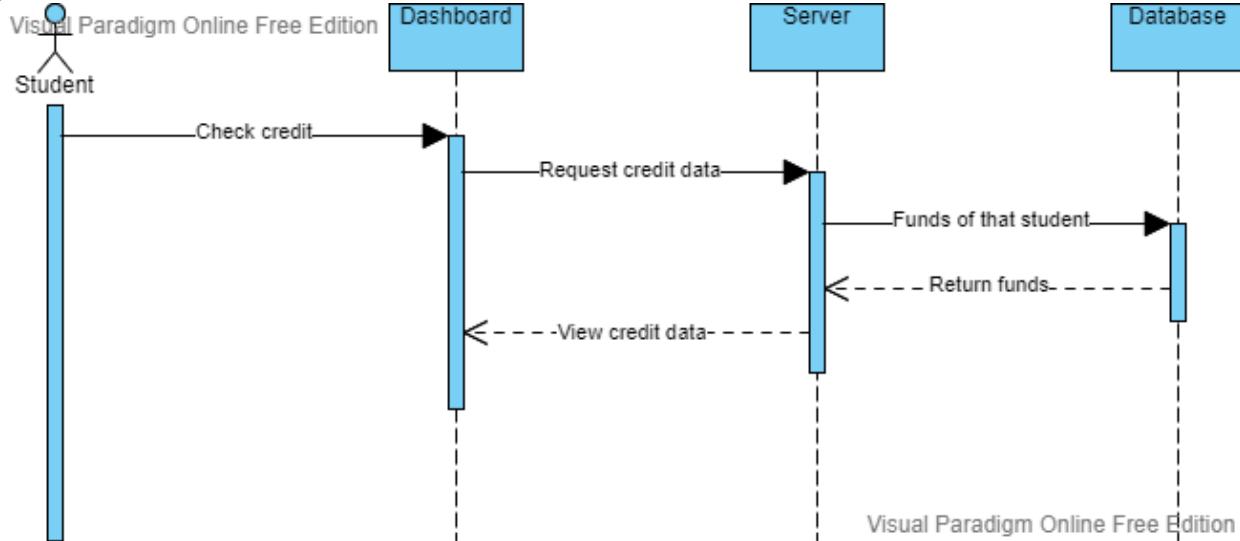
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



SD\_CheckBusPassGuest

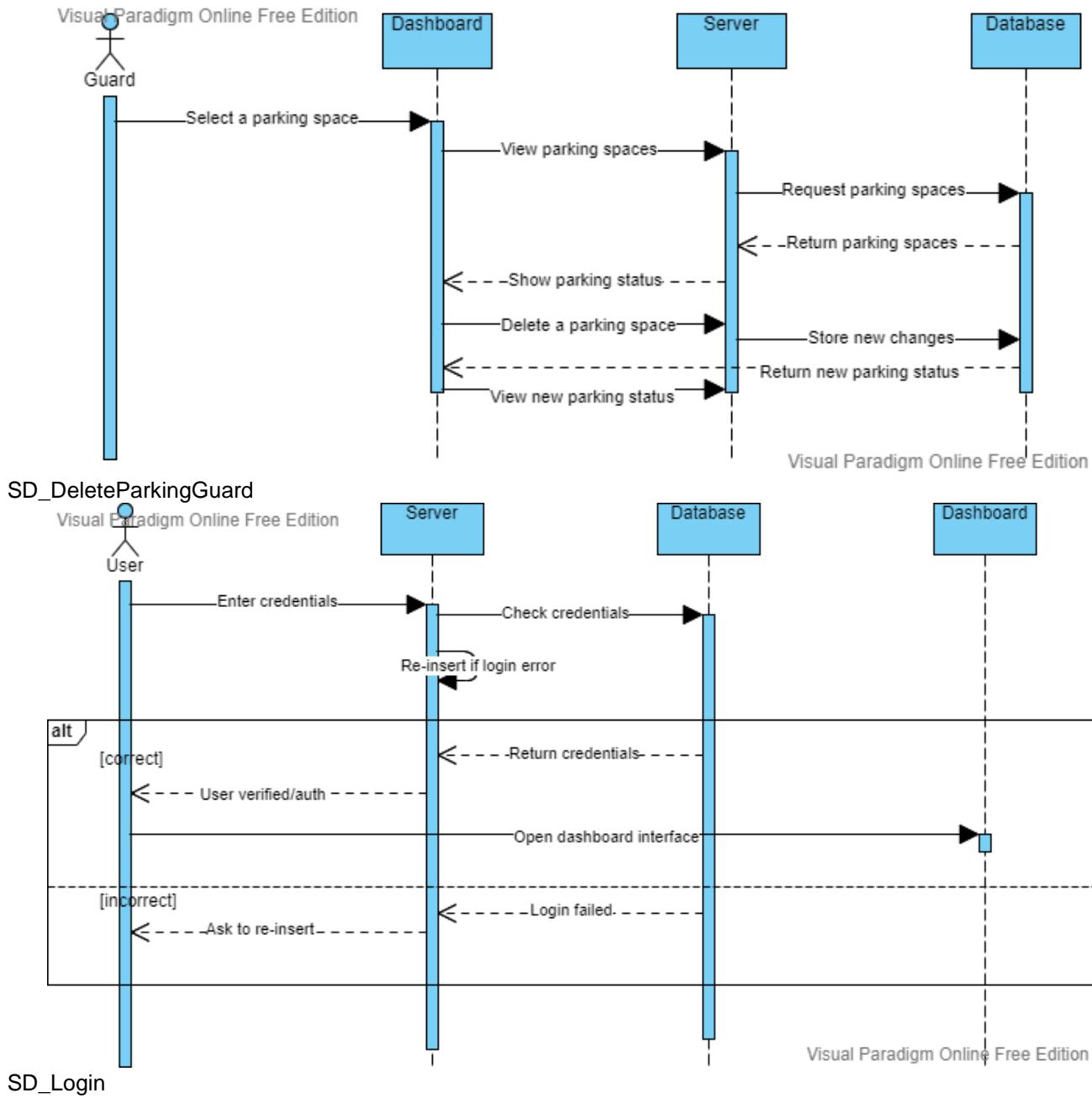


SD\_CheckCreditGuest

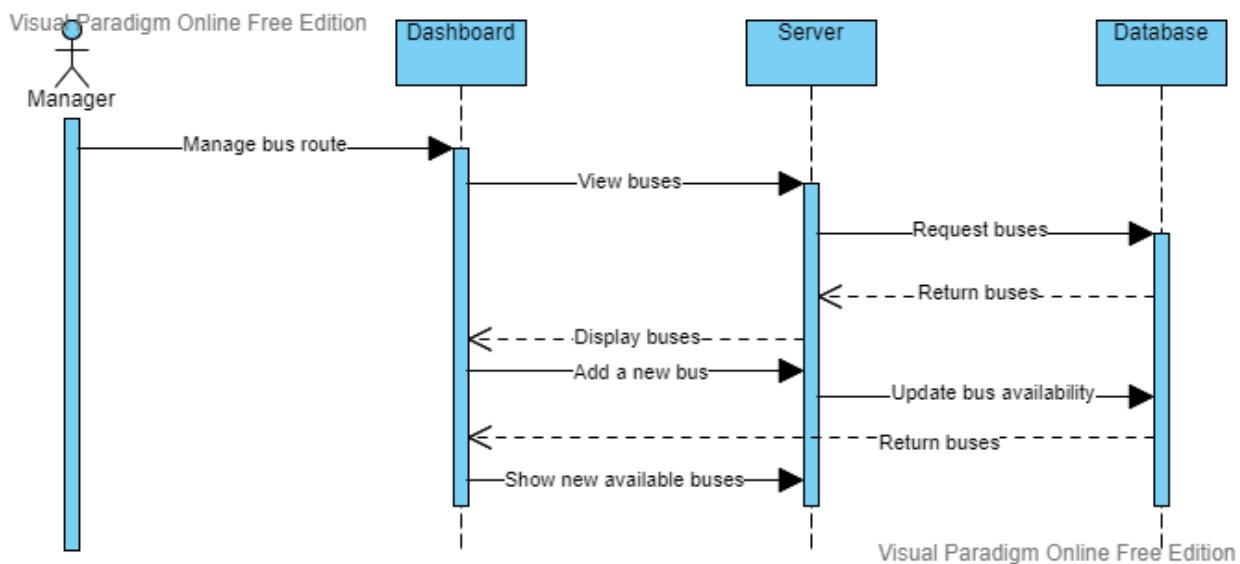


SD\_CheckCreditStudent

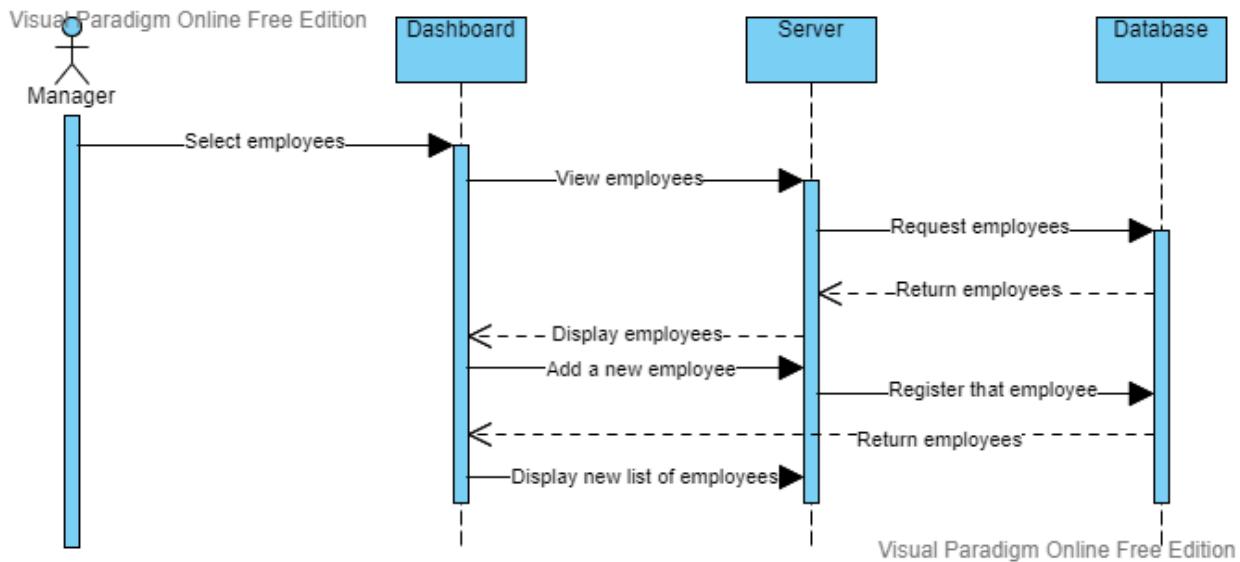
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



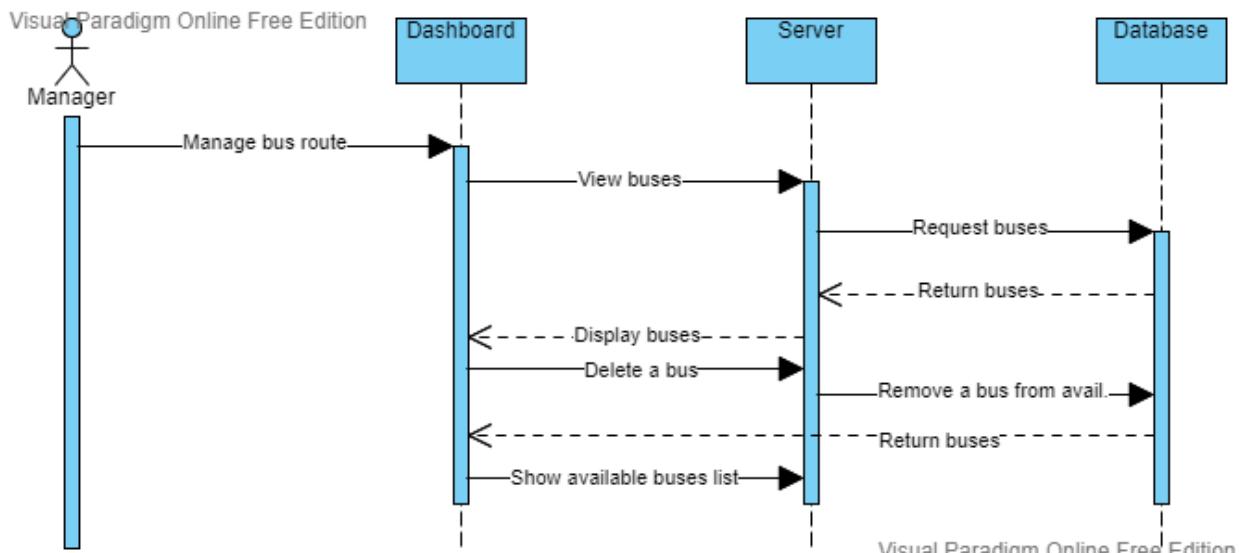
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



SD\_ManagerAddNewBus

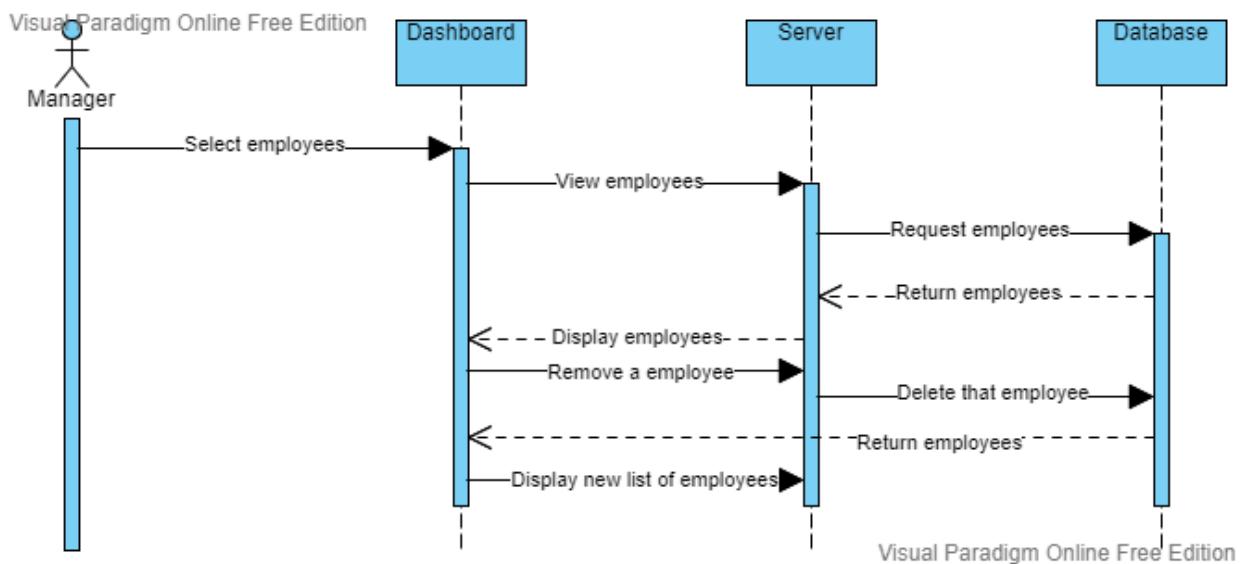


SD\_ManagerAddNewEmployee

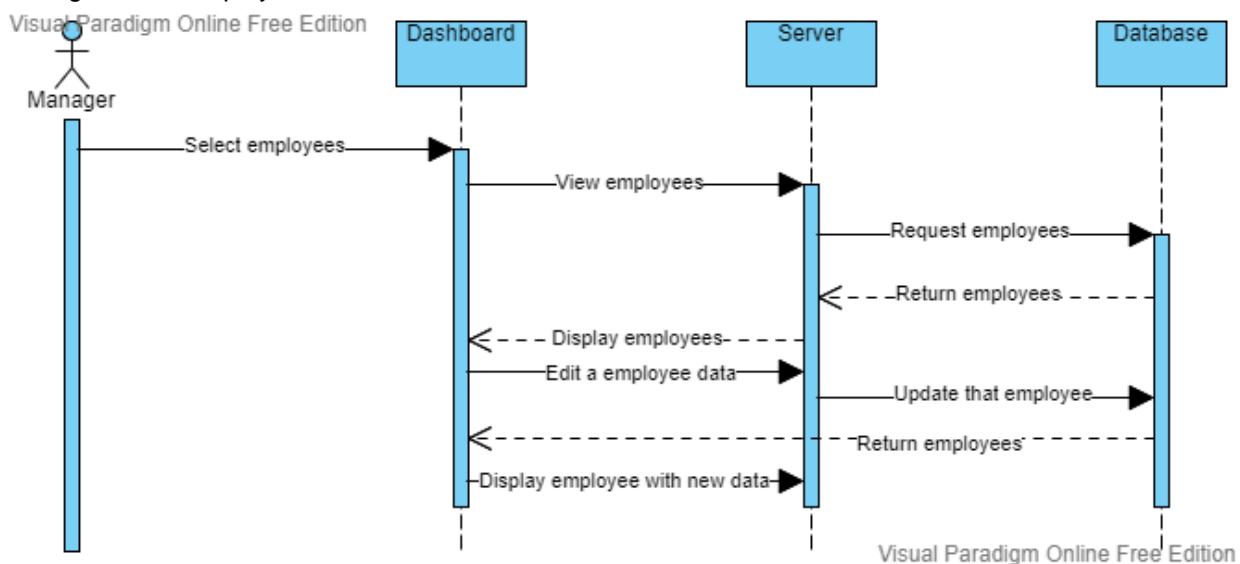


SD\_ManagerDeleteBus

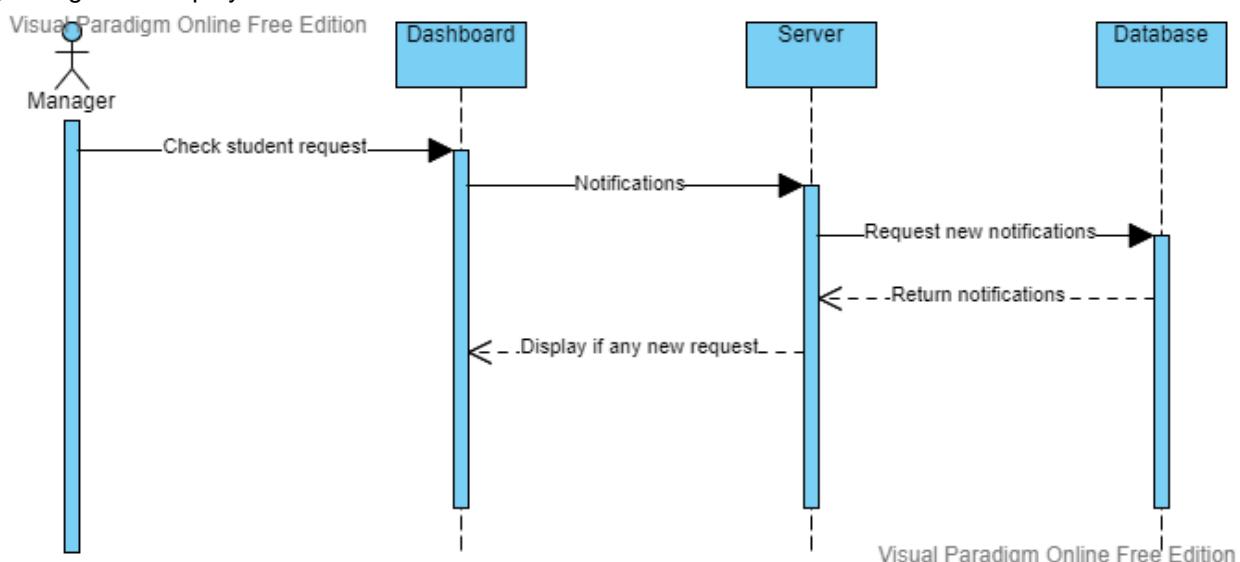
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



SD\_ManagerDeleteEmployee

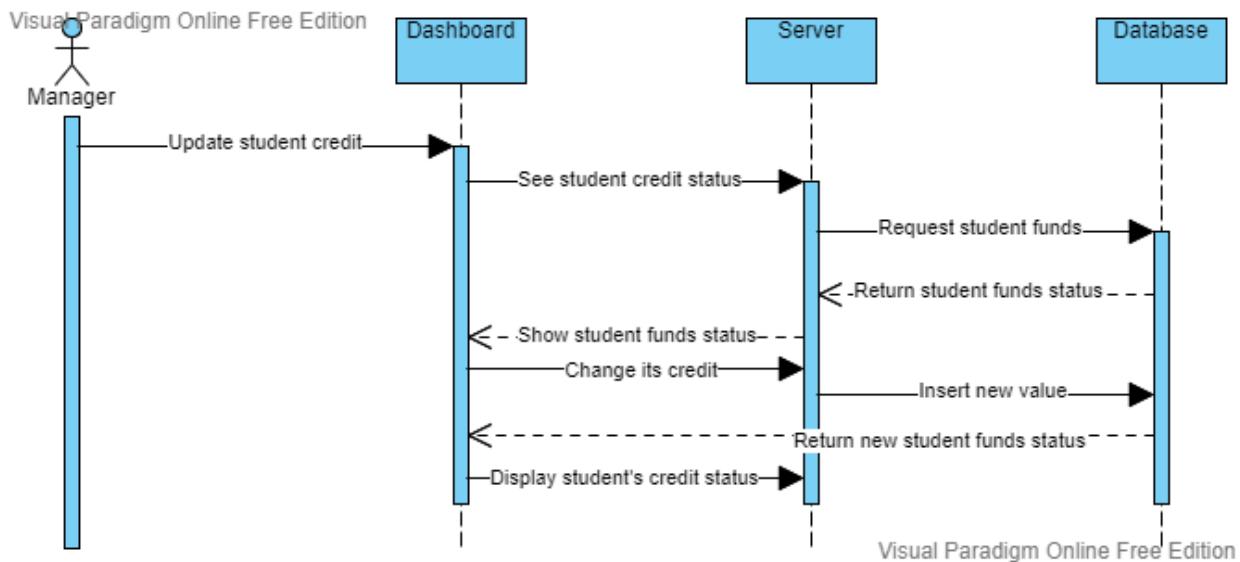


SD\_ManagerEditEmployee

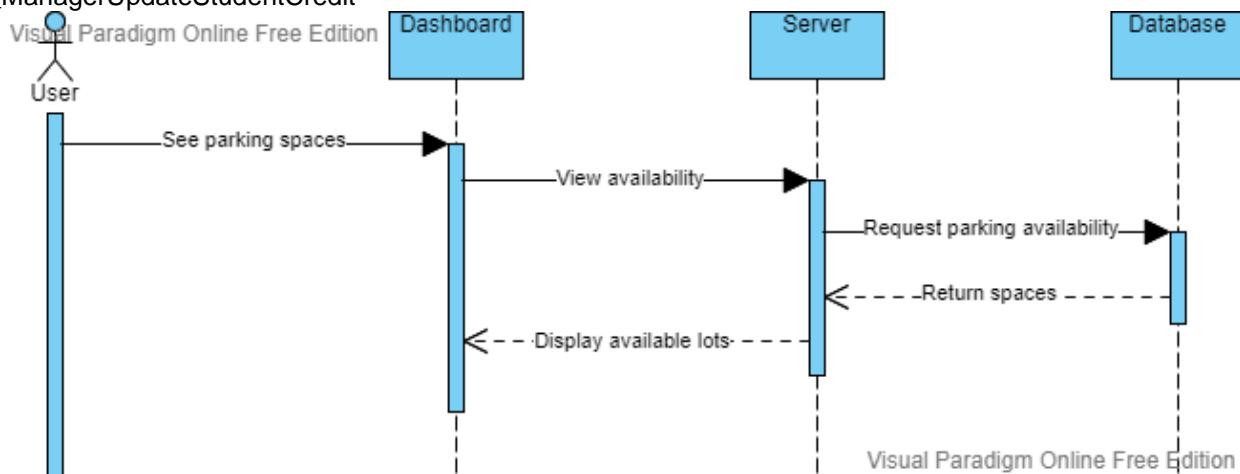


SD\_ManagerStudentRequest

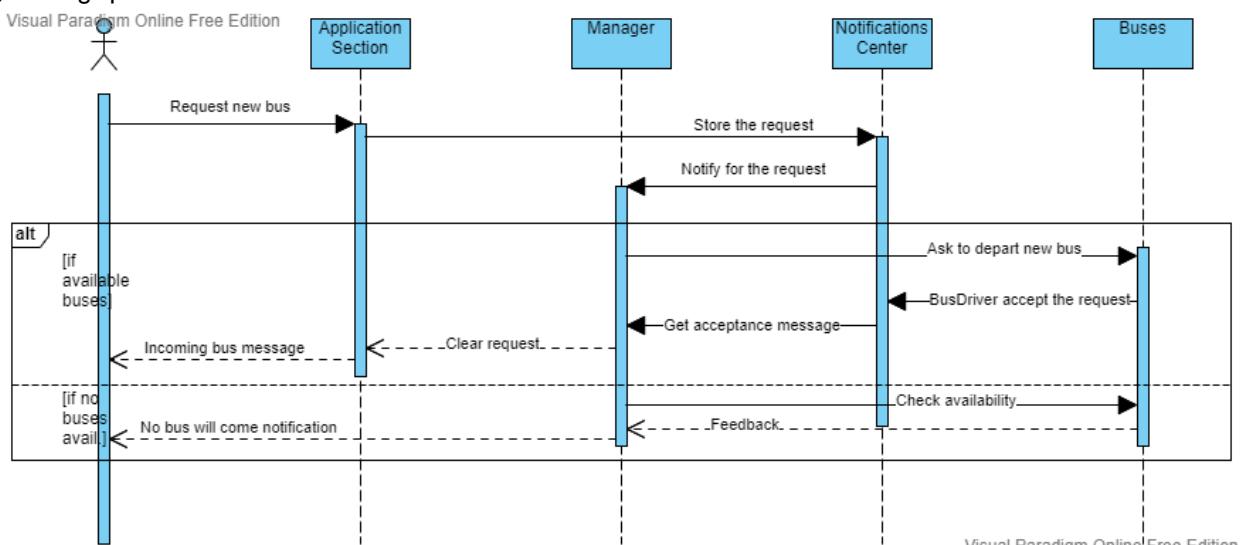
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



SD\_ManagerUpdateStudentCredit

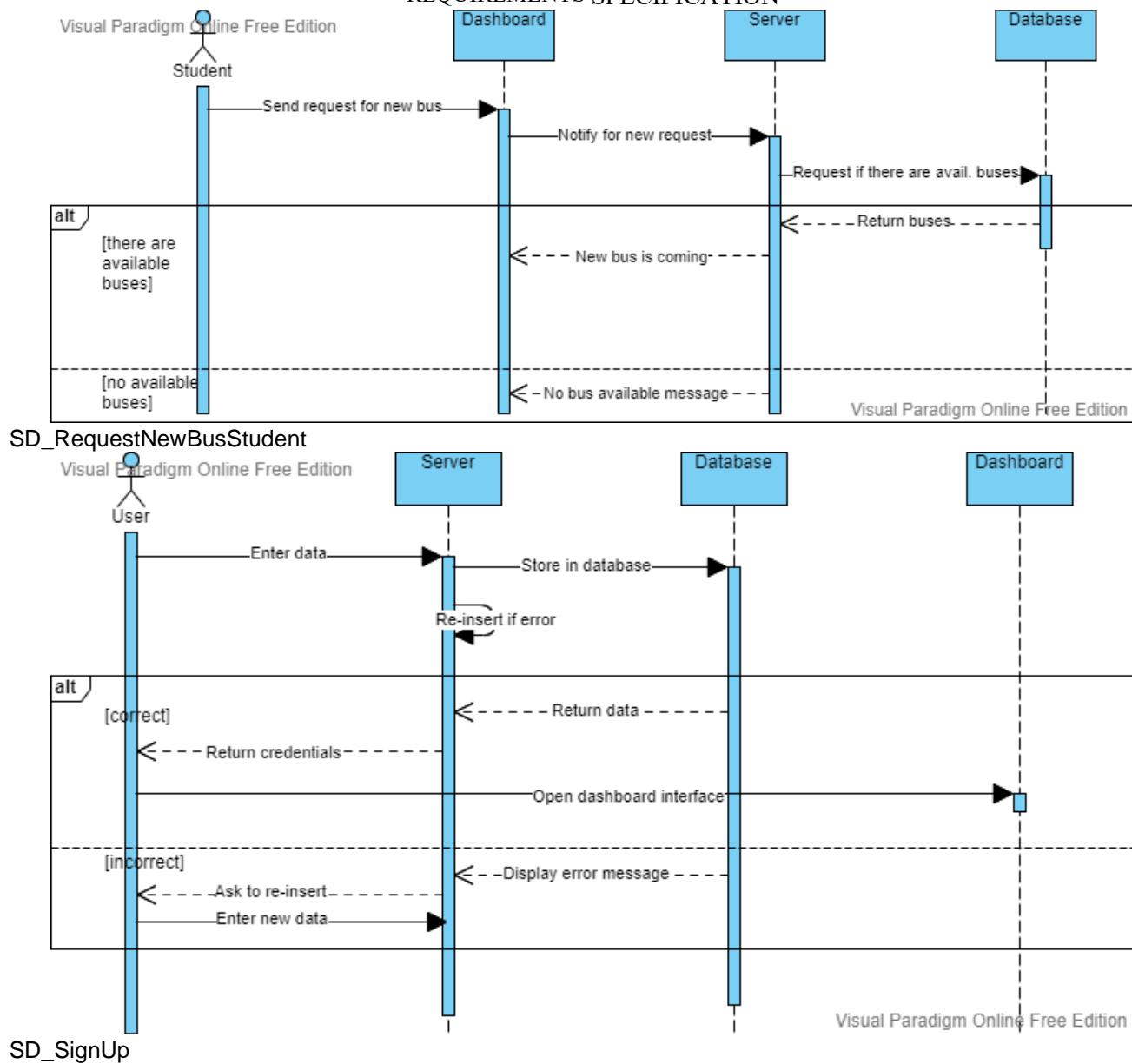


SD\_ParkingSpaces



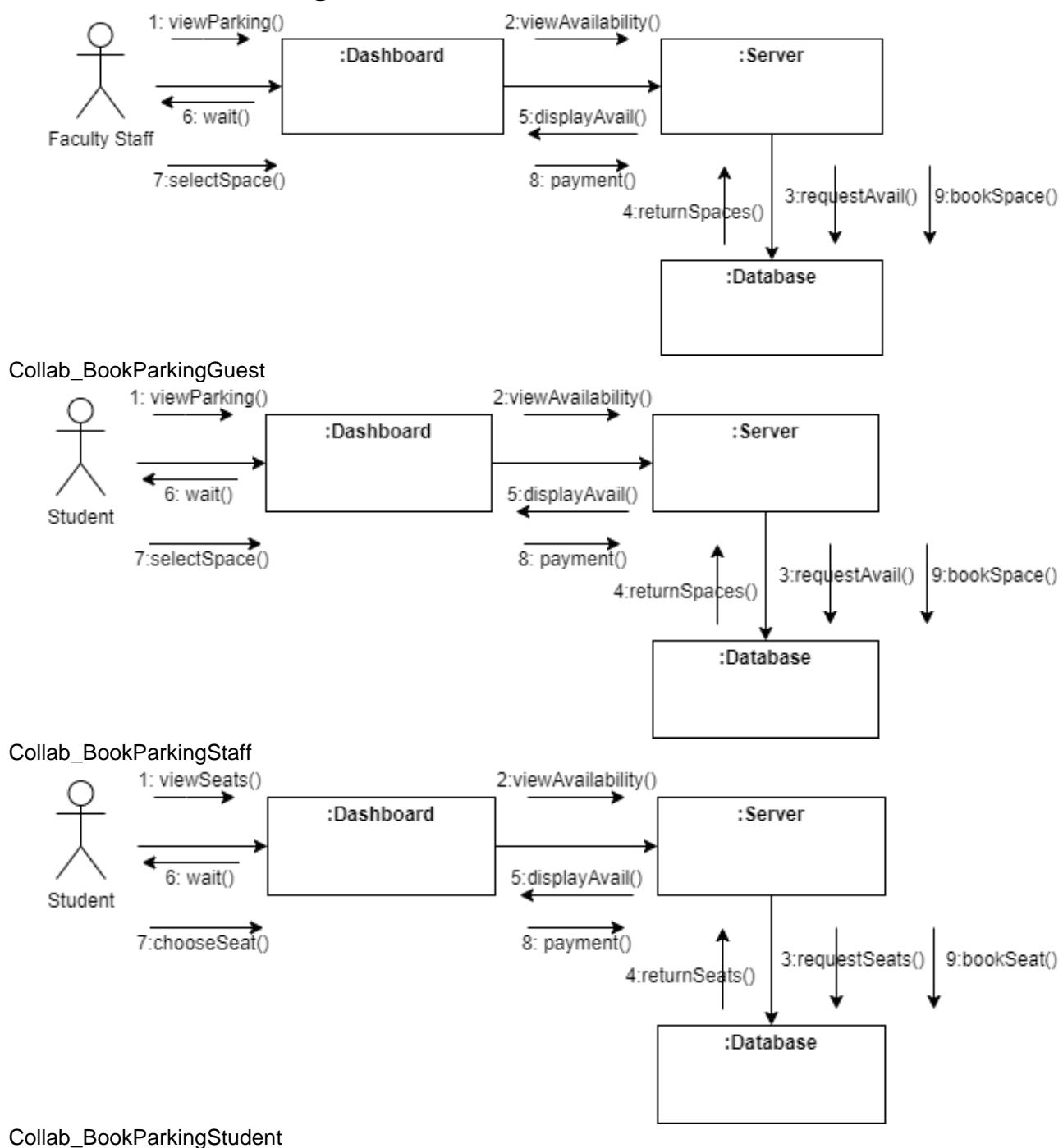
SD\_request

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

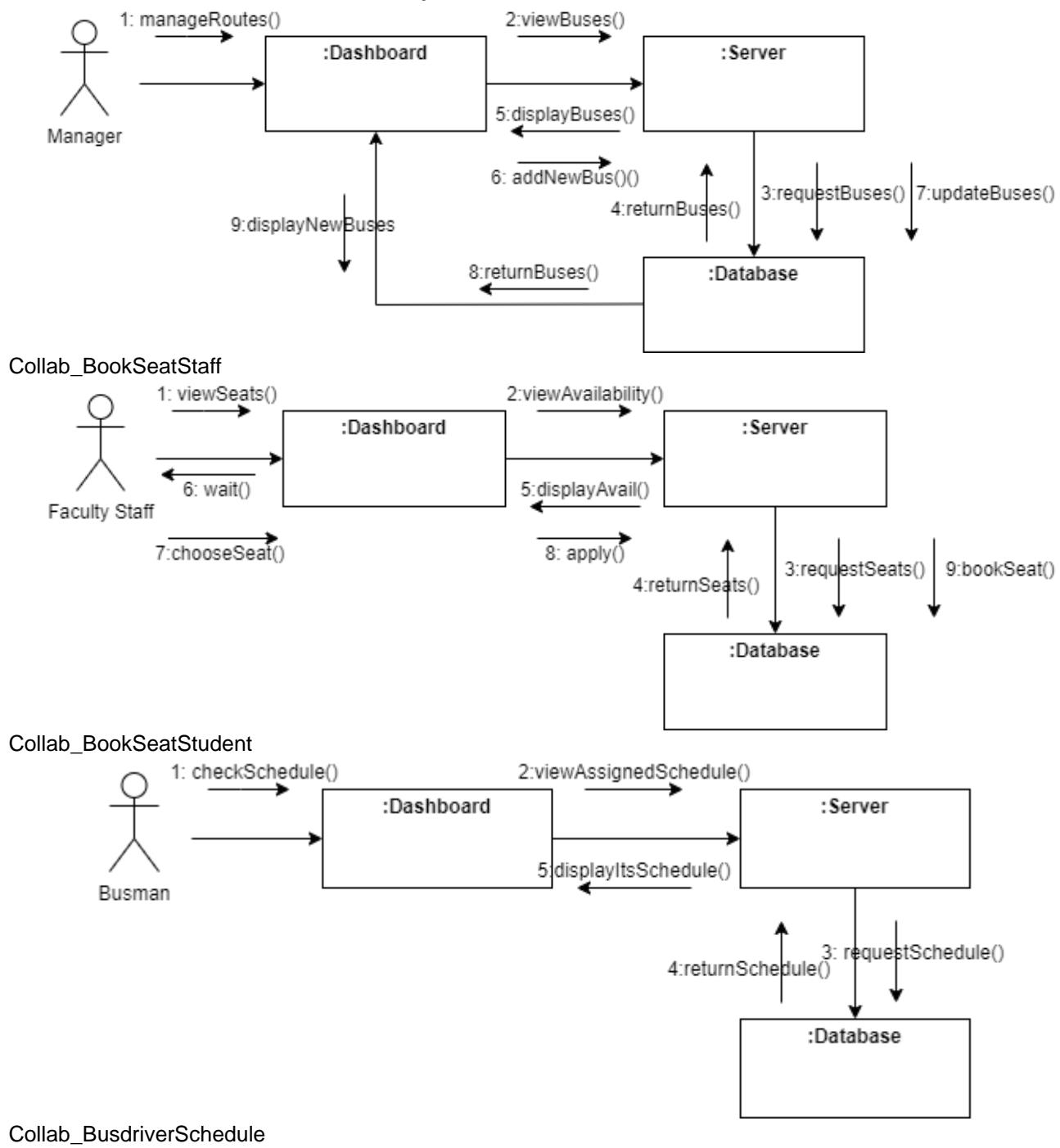


**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

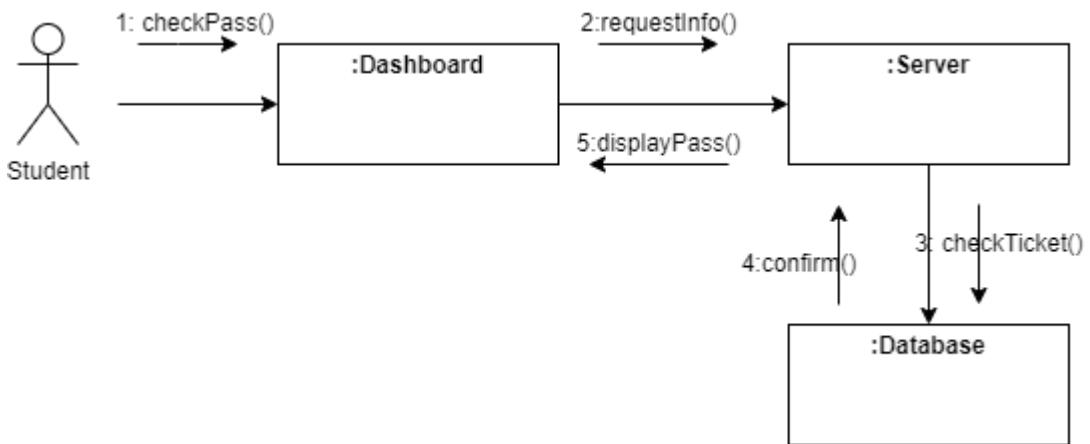
#### 4.2.5 Collaboration Diagrams



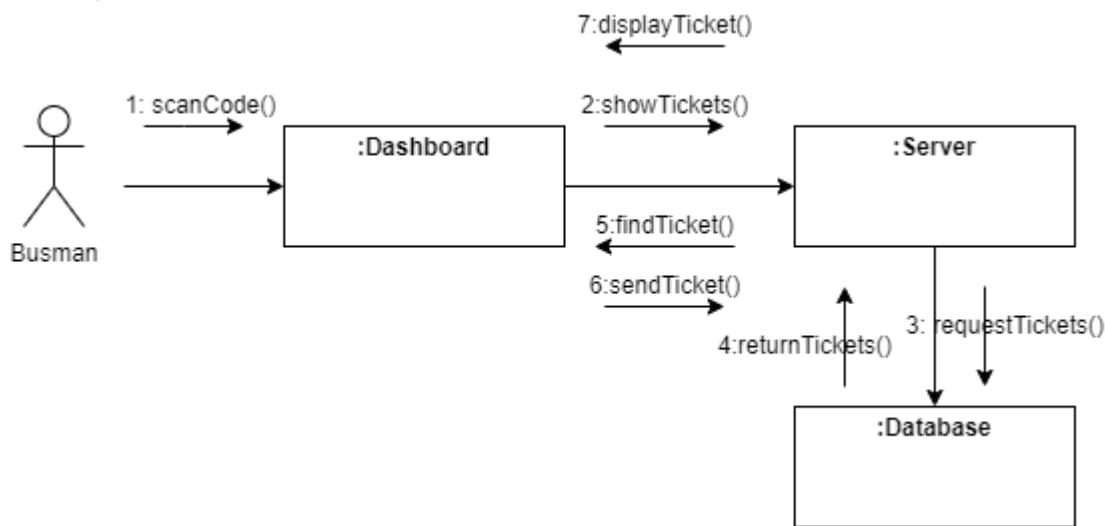
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



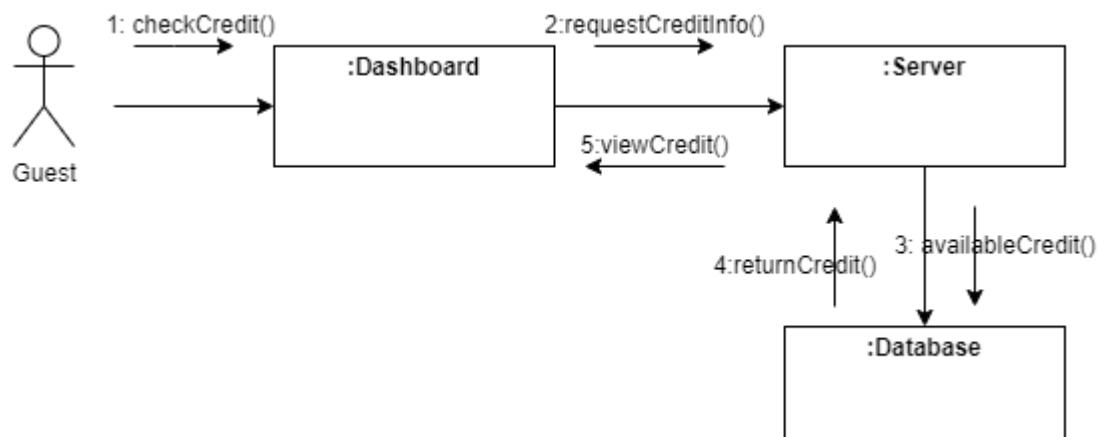
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



Collab\_BusmanQRCode

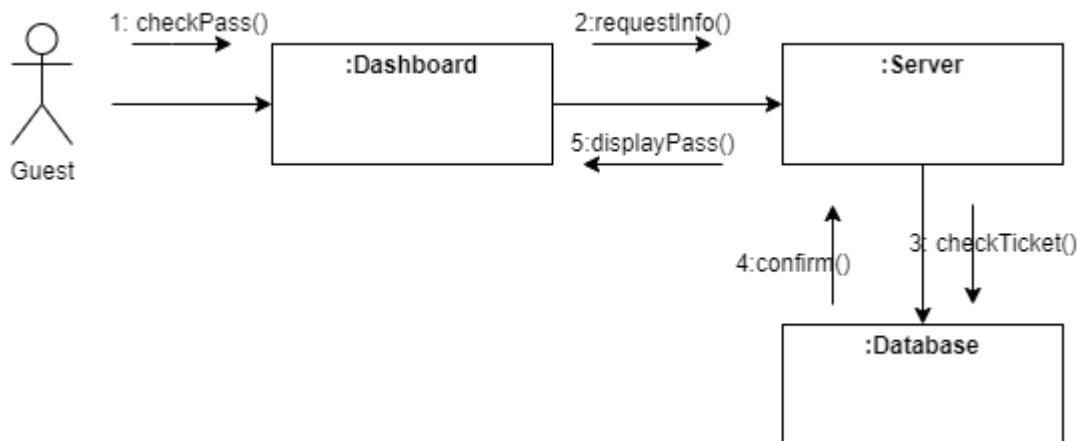


Collab\_BusmanSchedule

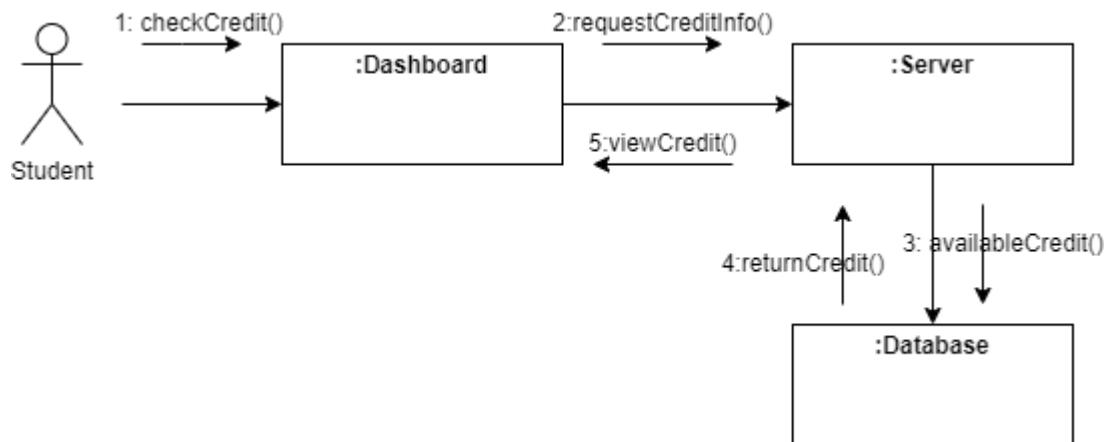


Collab\_CheckBusPassGuest

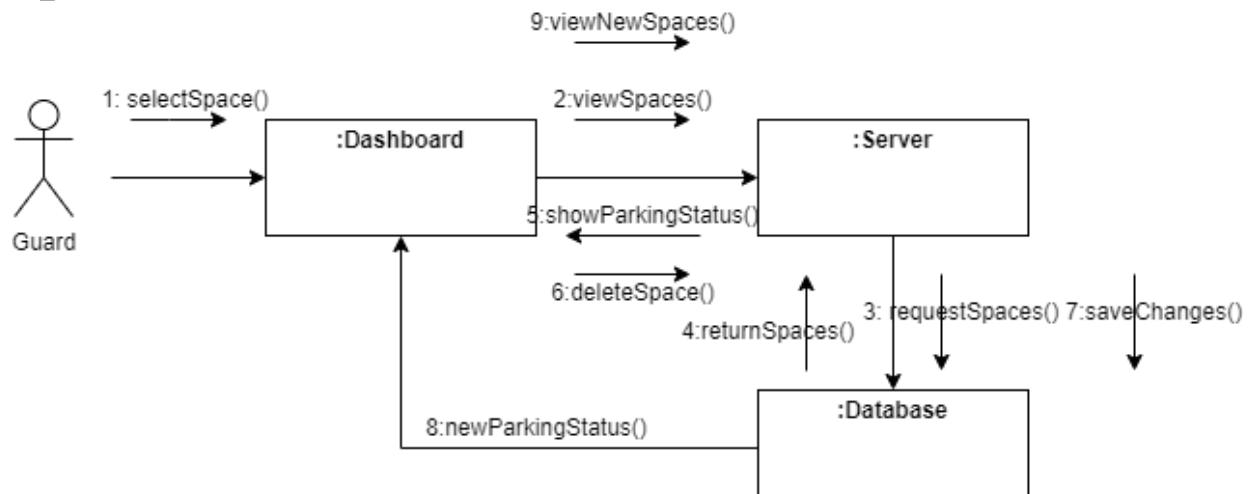
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



Collab\_CheckBusPassStudent

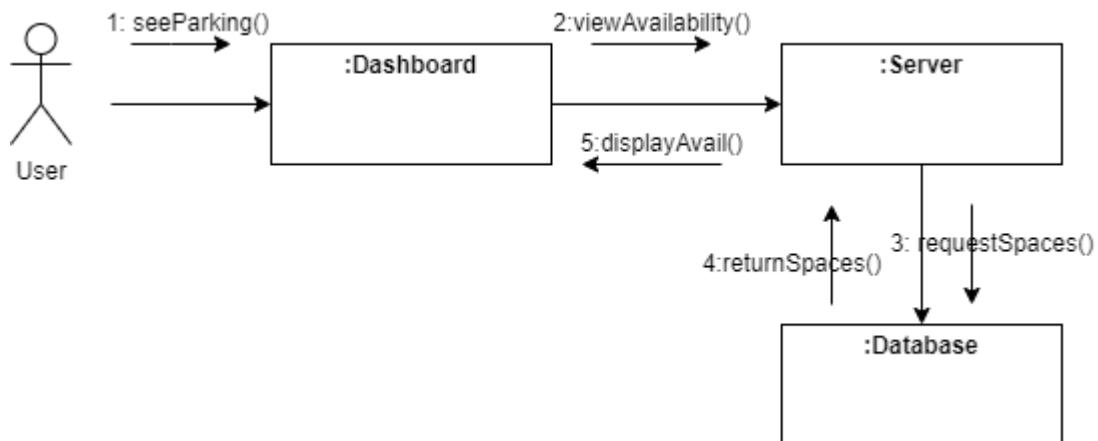


Collab\_CheckCreditGuest

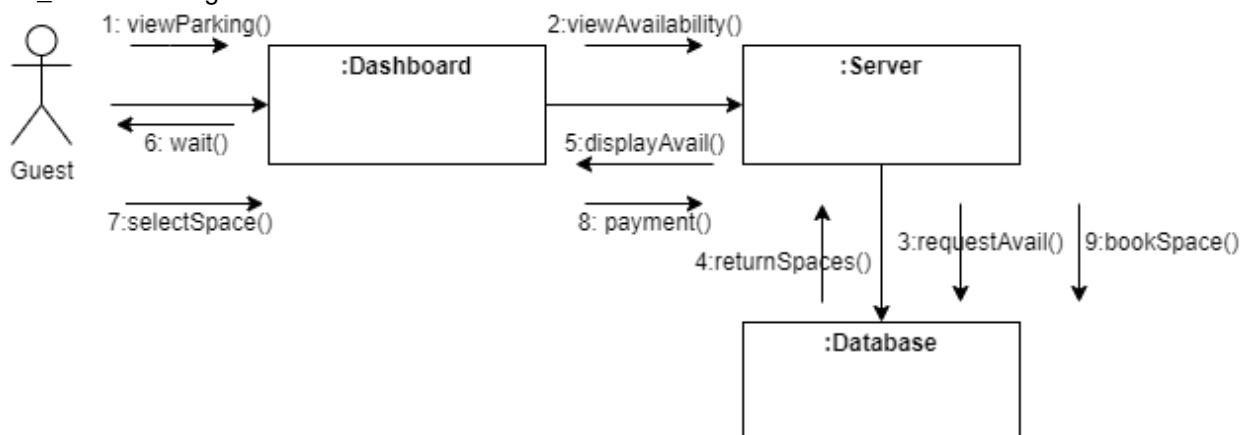


Collab\_CheckCreditStudent

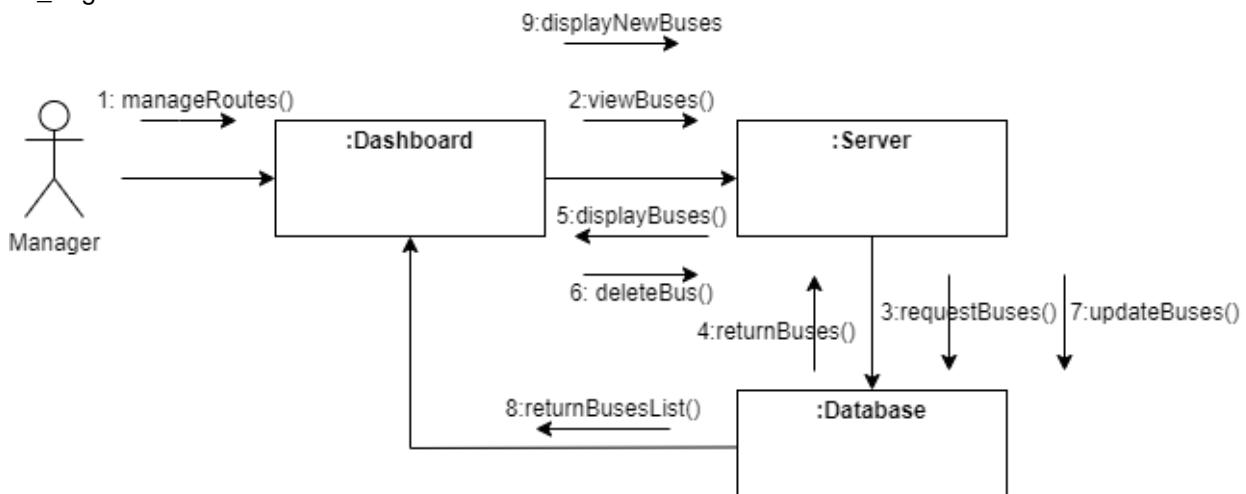
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



**Collab\_DeleteParkingGuard**



**Collab\_Login**

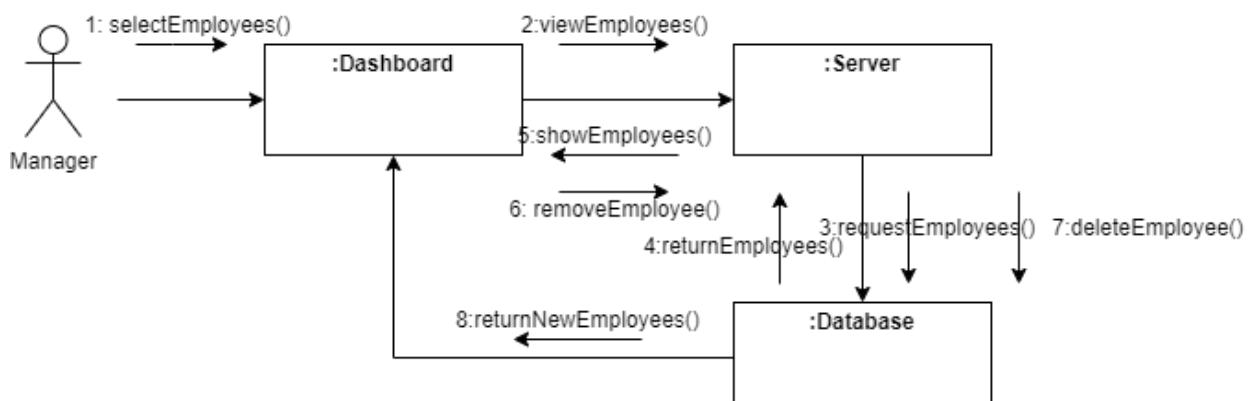


**Collab\_ManagerAddNewBus**

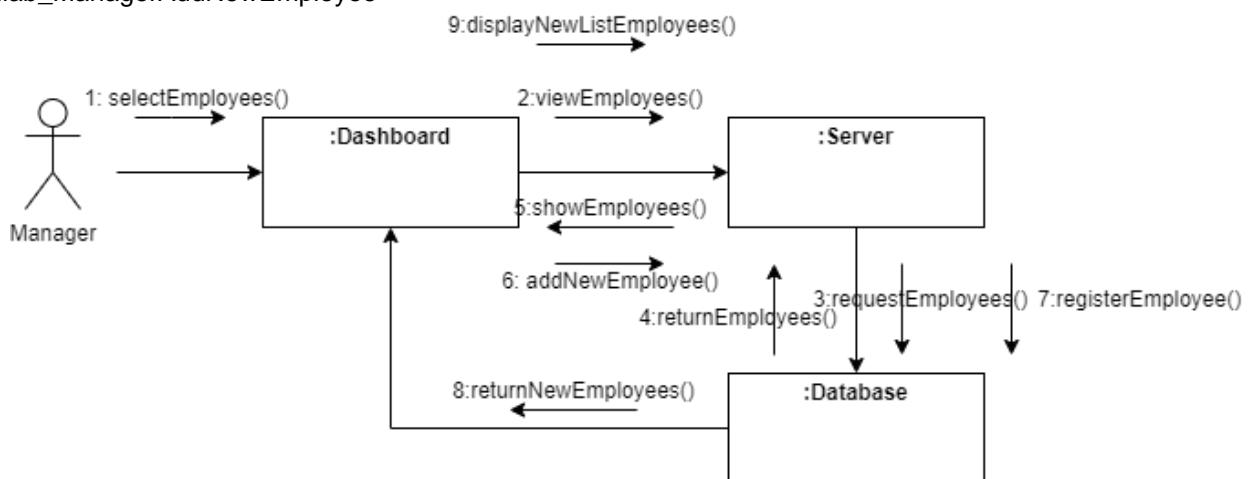
## EPOKA TRANSPORT MANAGEMENT SYSTEM

### REQUIREMENTS SPECIFICATION

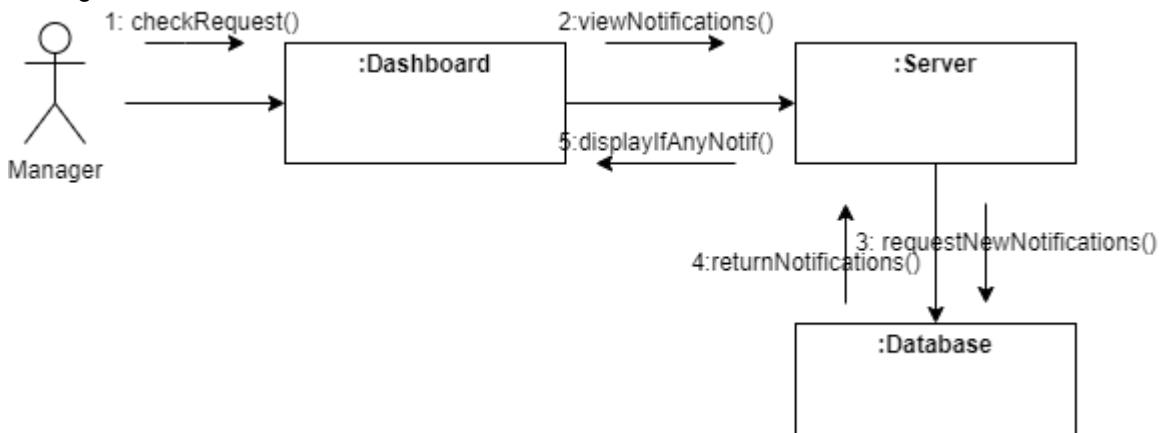
9:displayNewListEmployees()



**Collab\_ManagerAddNewEmployee**



**Collab\_ManagerDeleteBus**

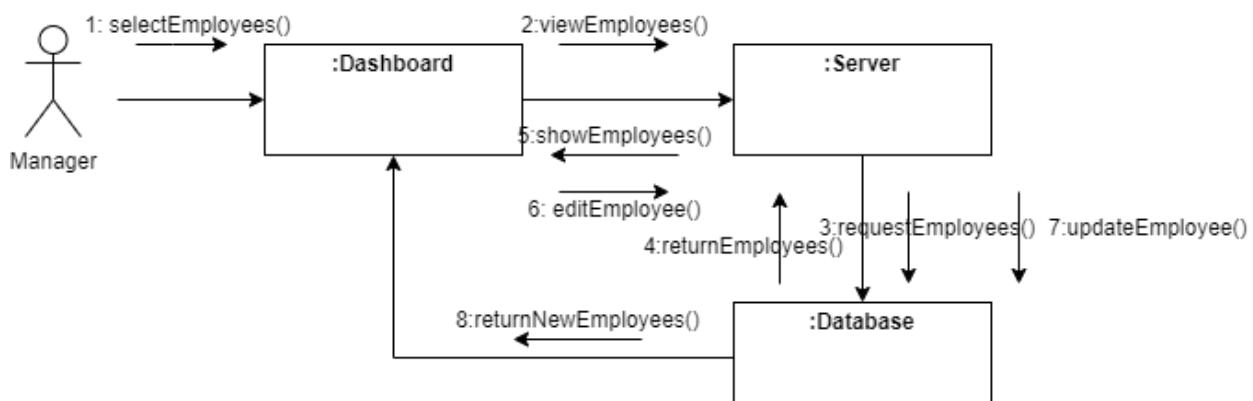


**Collab\_ManagerEditEmployee**

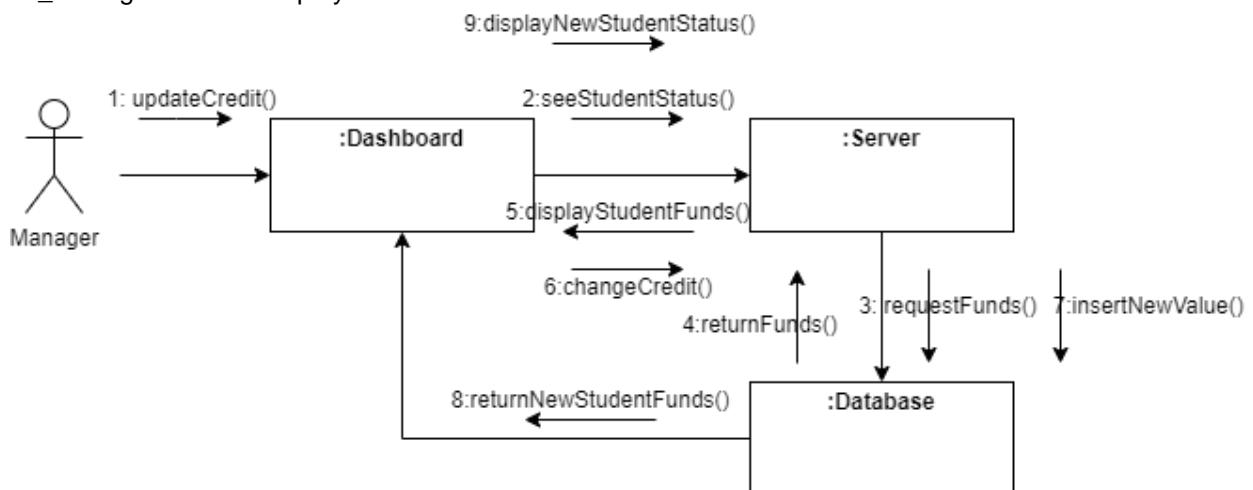
## EPOKA TRANSPORT MANAGEMENT SYSTEM

### REQUIREMENTS SPECIFICATION

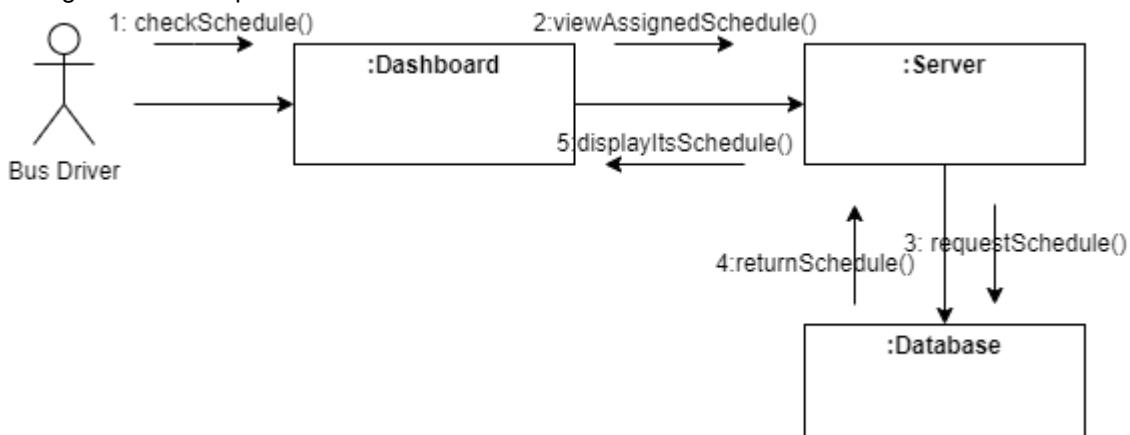
9:displayNewListEmployees()



**Collab\_ManagerRemoveEmployee**

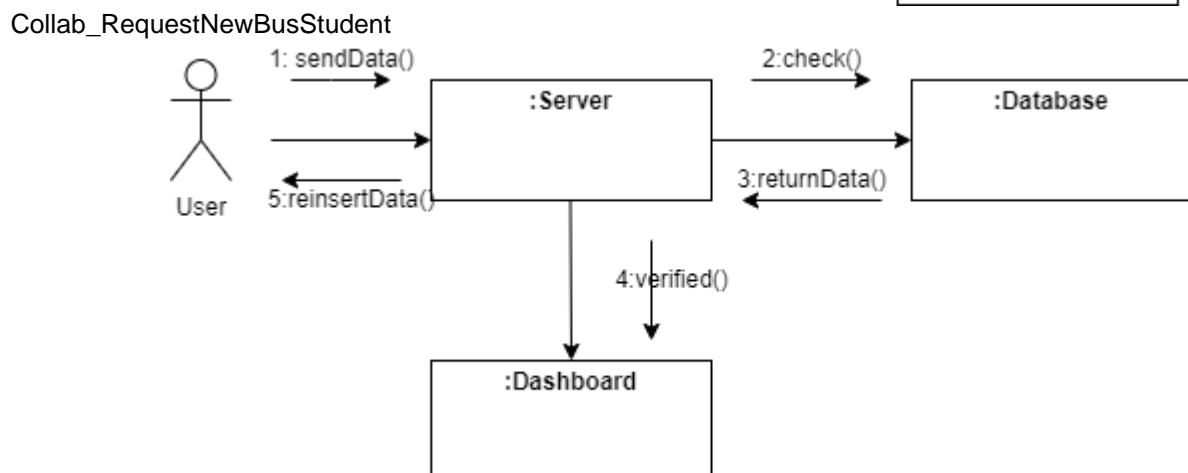
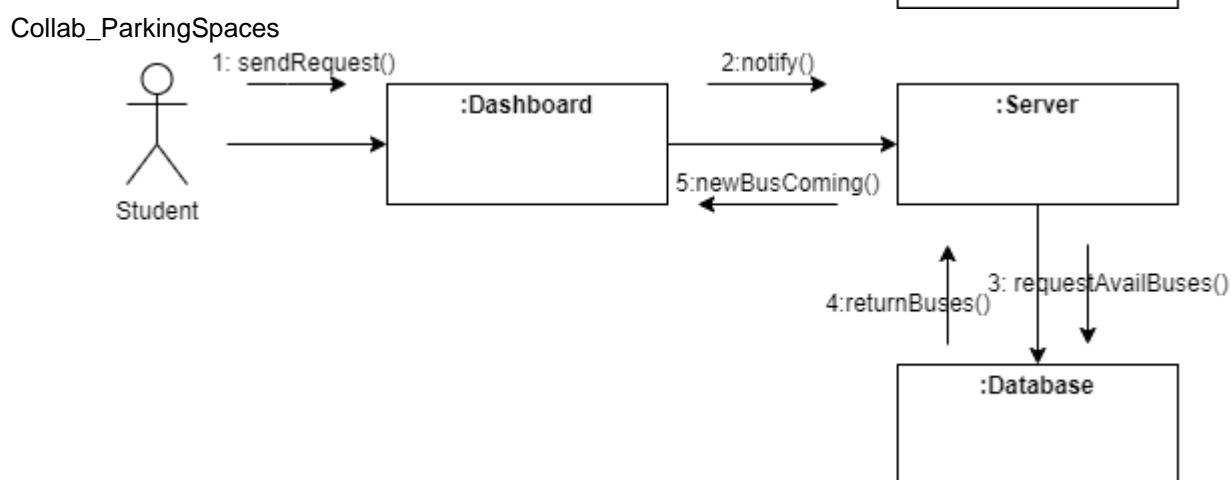
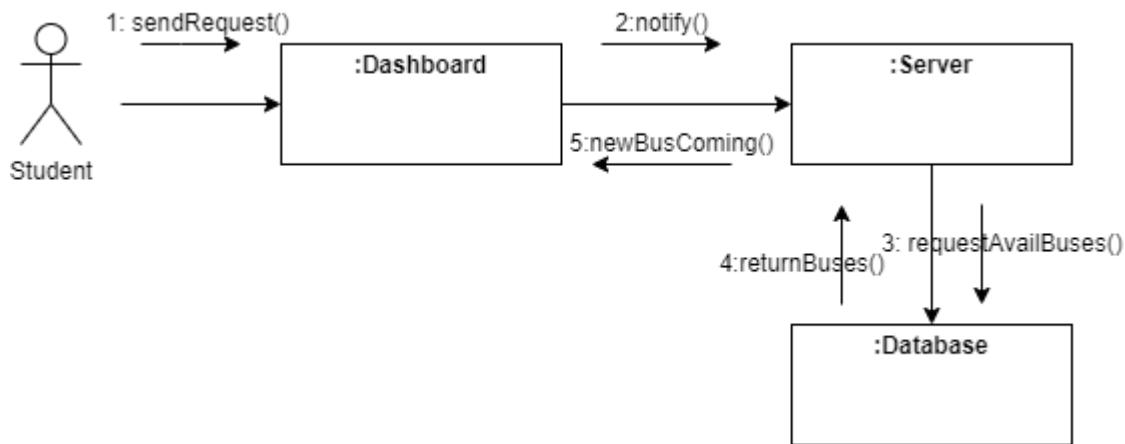


**Collab\_ManagerStudentRequest**



**Collab\_ManagerUpdateStudentCredit**

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



Collab\_Signup

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

## 4.2.6 Class Diagram



\*Full image with better resolution is in our GitHub repo FINAL Class Diagram

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

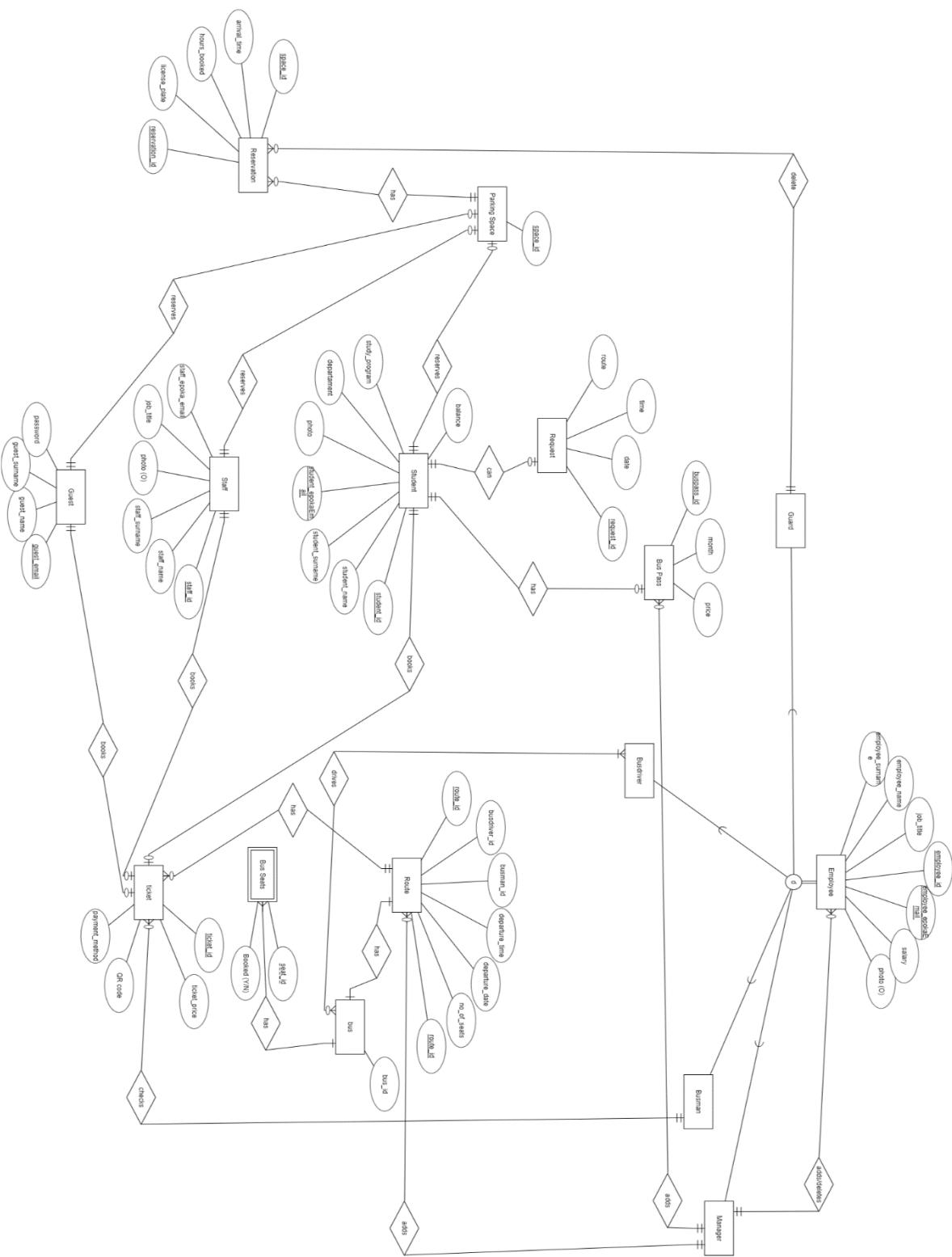
## 4.2.7 Object Diagrams



\*Full image with better resolution is in our GitHub repo Final Object Diagram

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

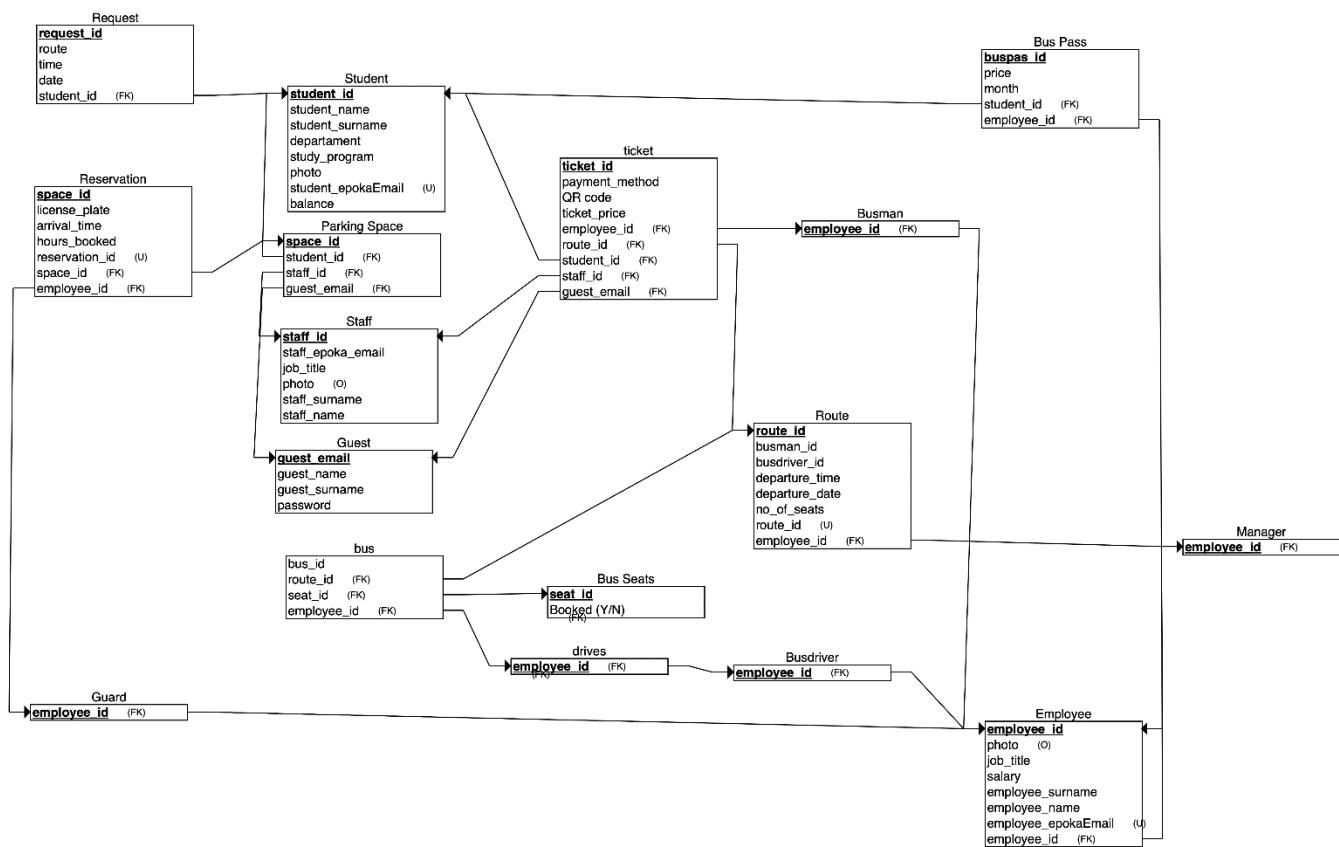
#### 4.2.8 ERD



\*Full image with better resolution is in our GitHub repo Final ERD

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

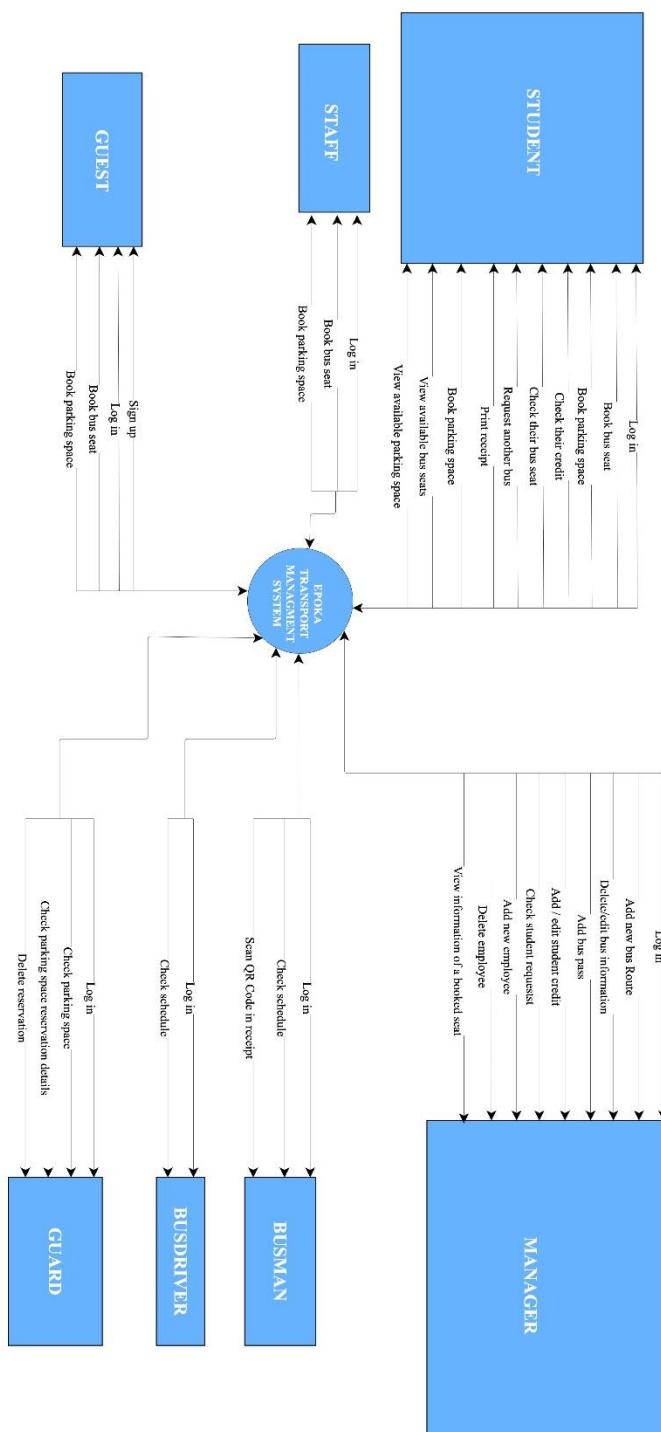
#### 4.2.9 Relational Schema



**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

## 4.2.10 Data Flow Diagrams

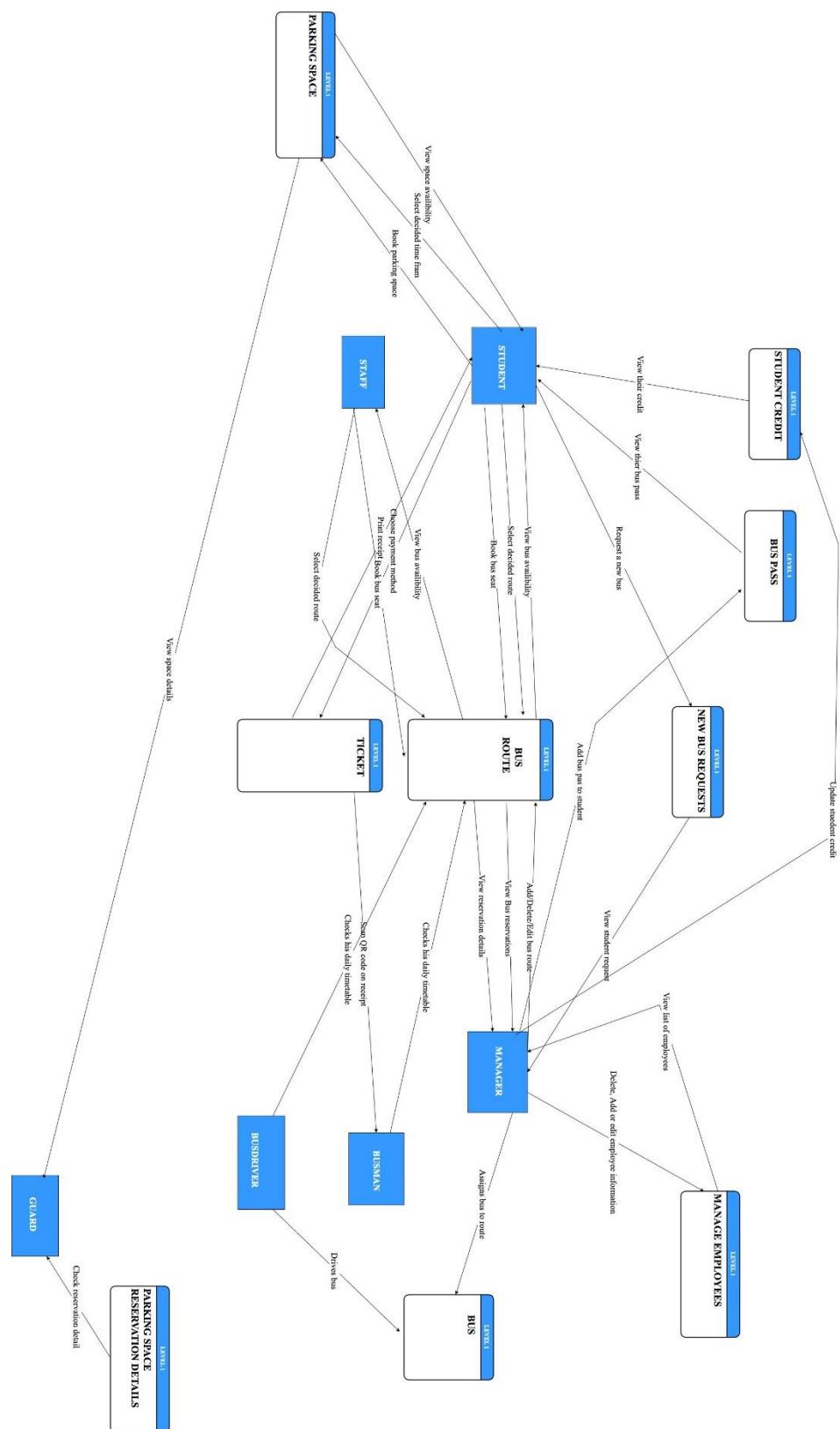
DFD Level 0



\*Full image with better resolution is in our GitHub repo Data Flow Diagrams FINAL

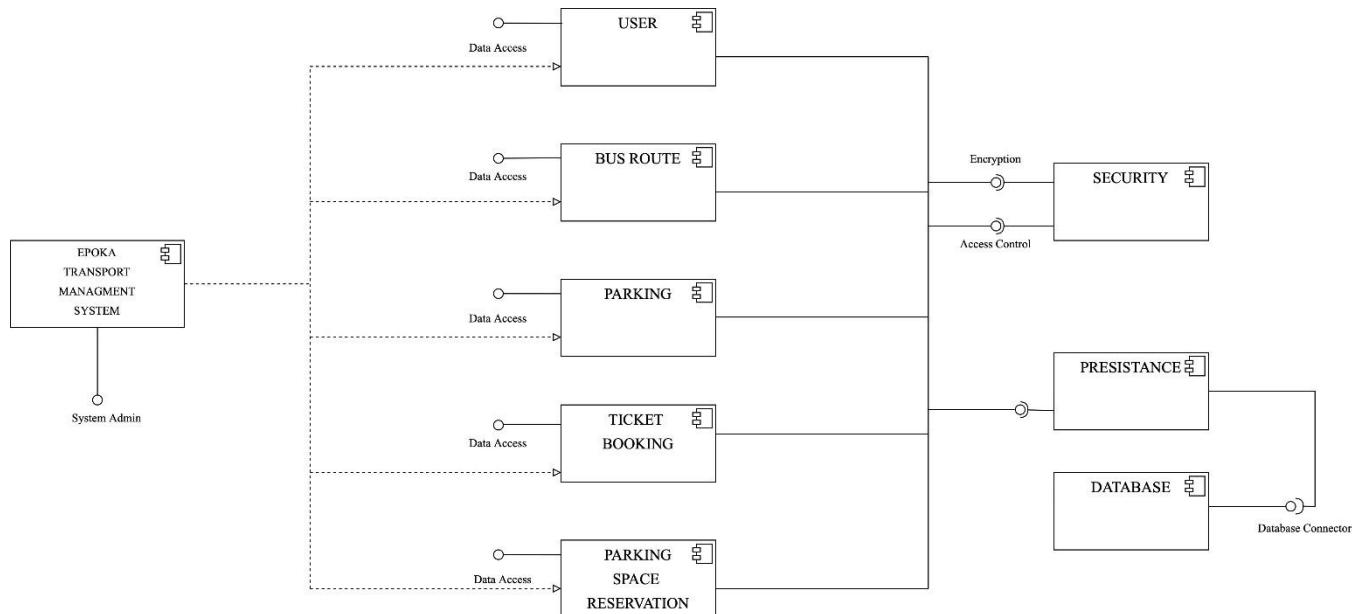
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

DFD Level 1

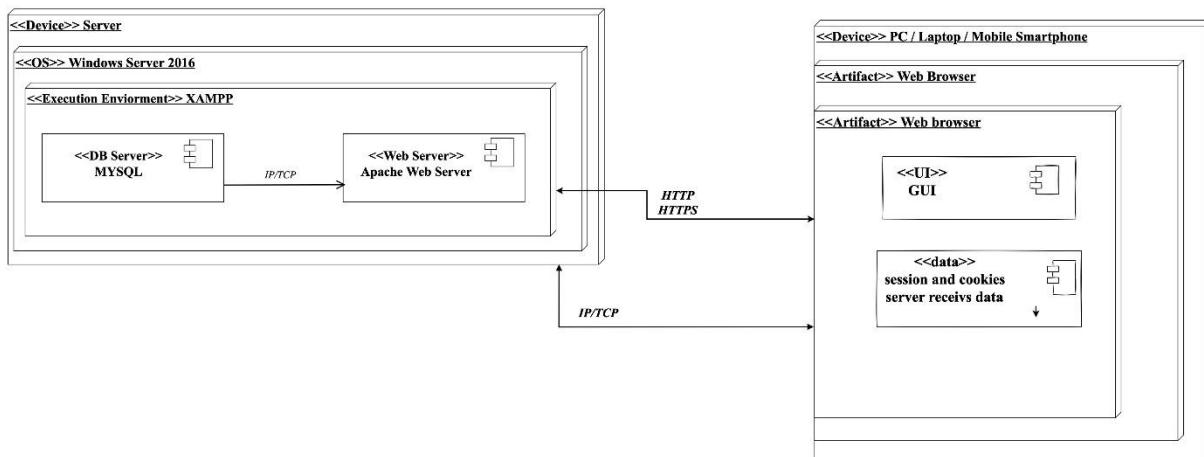


**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

#### 4.2.11 Component Diagram



#### 4.2.12 Deployment Diagram



**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

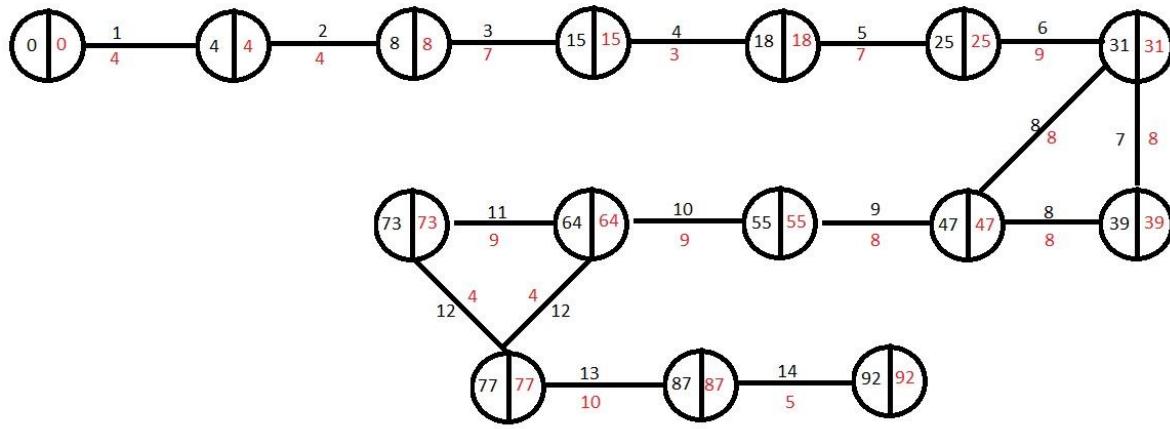
#### 4.2.13 Project Management Diagrams

Activity Table

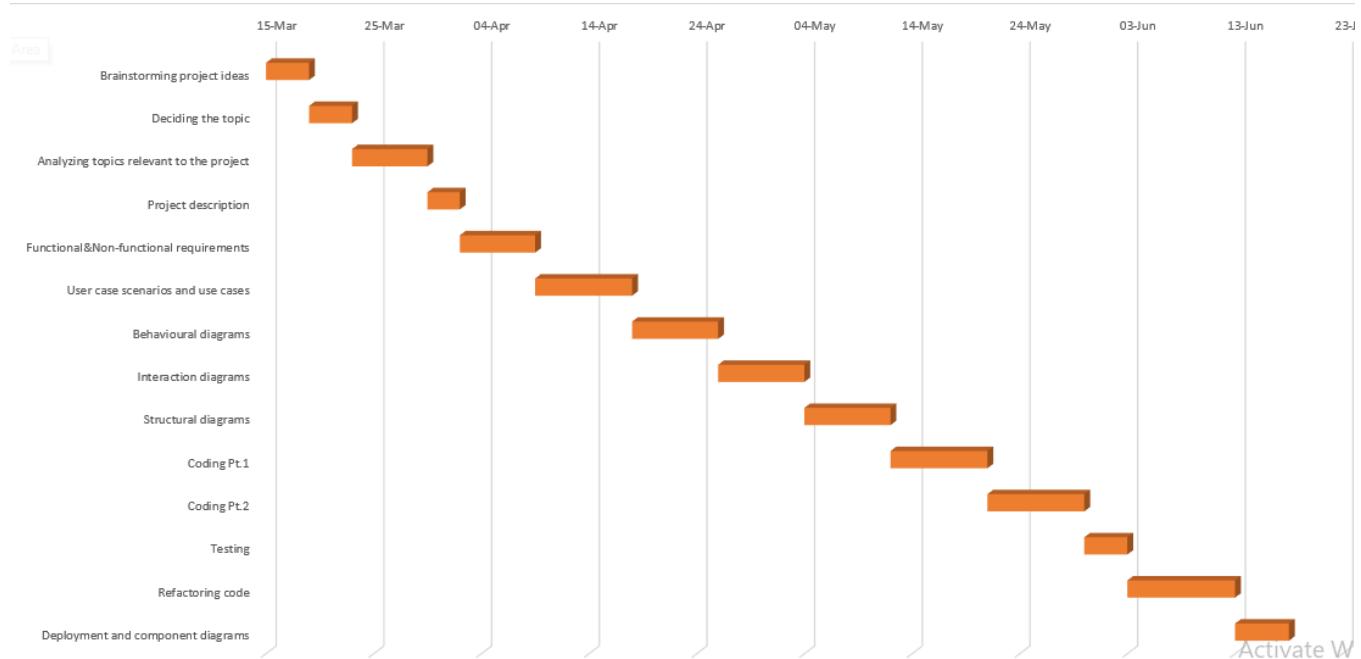
No.	Activity Name	Duration in days	Dependencies
1	Brain-storming project ideas	4	-
2	Deciding as a group about our topic	4	1
3	Analysing all the topics relevant to our project	7	2
4	Project description	3	3
5	Functional and non-functional requirements	7	3, 4
6	User case scenarios and use cases	9	5
7	Behavioural diagrams	8	6
8	Interaction diagrams	8	6, 7
9	Structural diagrams	8	8
10	Coding Pt. I	9	9
11	Coding Pt. II	9	10
12	Testing	4	10, 11
13	Refactoring Code	10	12
14	Deployment and component diagrams	5	13

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

## Network Analysis



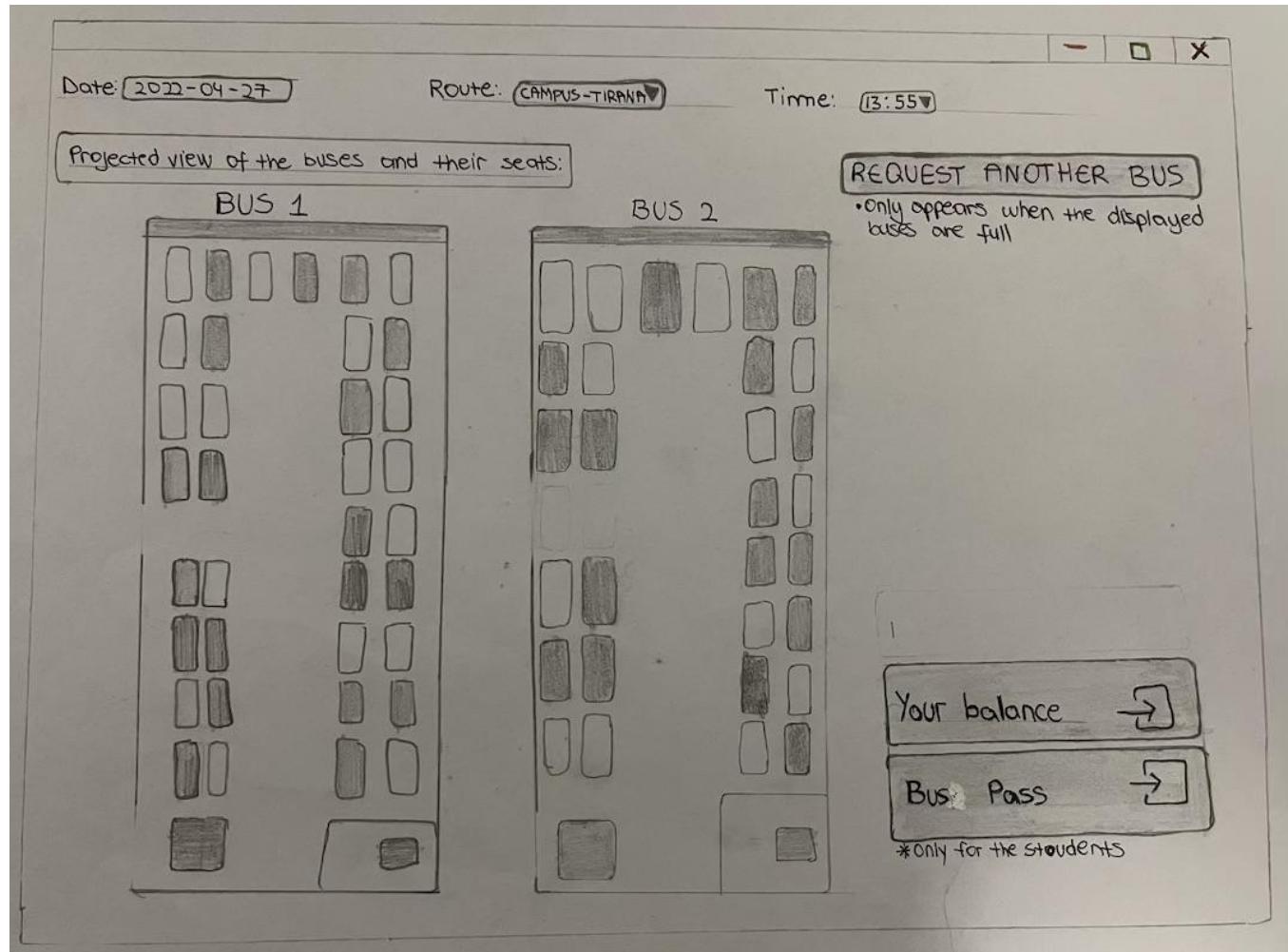
## Gantt Chart



**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

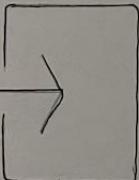
## APPENDIX

### Appendix A. Sketches



Bus View

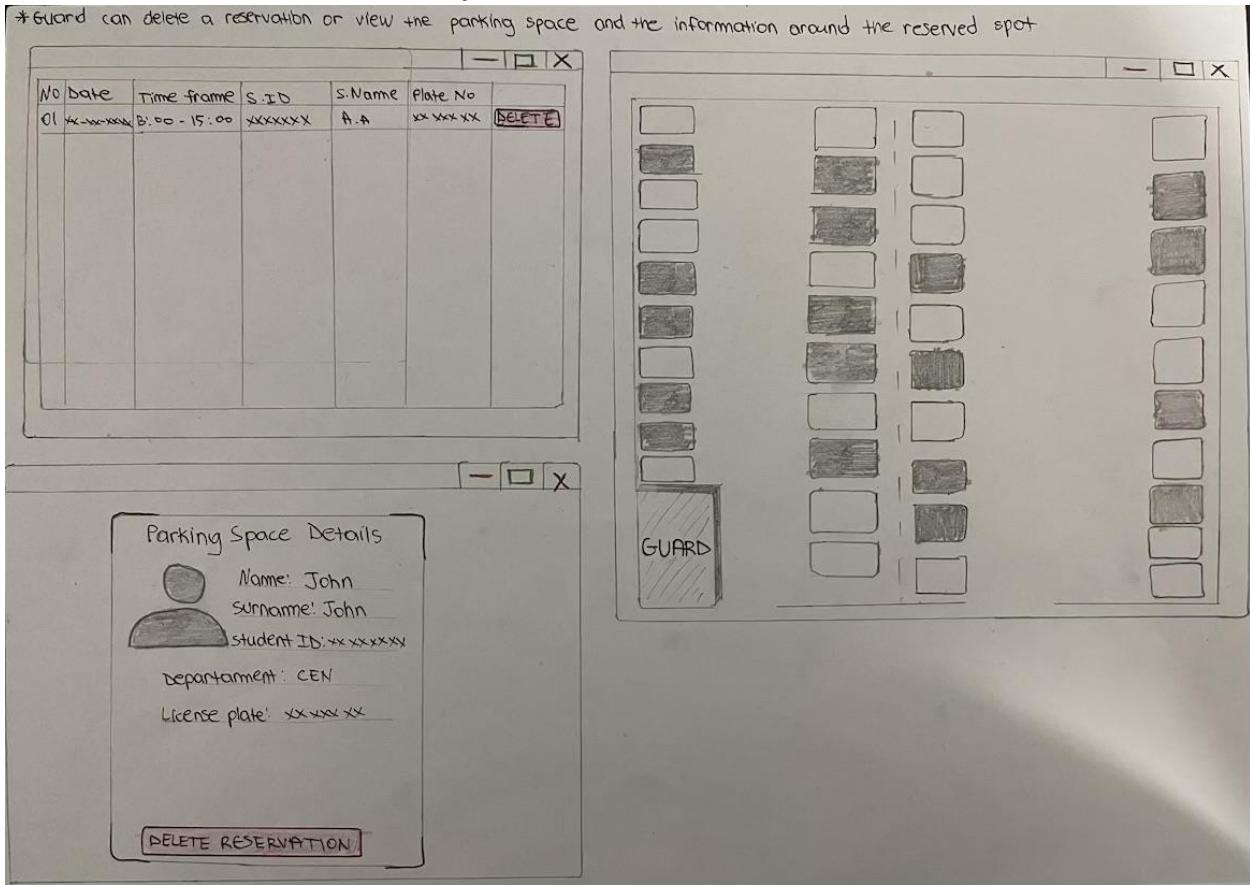
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

*Busman View to check his own timetable Bus driver					
<input style="margin-right: 10px;" type="button" value="—"/> <input type="button" value="X"/>					
No	Date	Route	Time	Busman ID	Busman Name
01	27-03-2021	T-C	13:45	3	A.A
02	27-03-2021	C-T	15:45	3	A.A
03	27-03-2021	T-C	19:45	3	A.A
*In addition the busman can also scan the QR code					
 SCAN QR CODE					
*Guard can check all the parking spot reservations and delete any of them in case of any inconvenience.					
<input style="margin-right: 10px;" type="button" value="—"/> <input type="button" value="X"/>					
<input type="button" value="Remove Reservation"/> <input type="button" value="View parking space"/>					
No	Date	Time frame	S.ID	S.Name	Plate No
01	27-03-21	13:00 - 15:00	xxxxxx	A.A	xx xxx xx
02	27-03-21	10:00 - 11:00	xxxxxx	B.B	xx xxx xx
03	27-03-21	8:00 - 16:00	xxxxxx	D.E	xx xxx xx

Busman & Guard Views

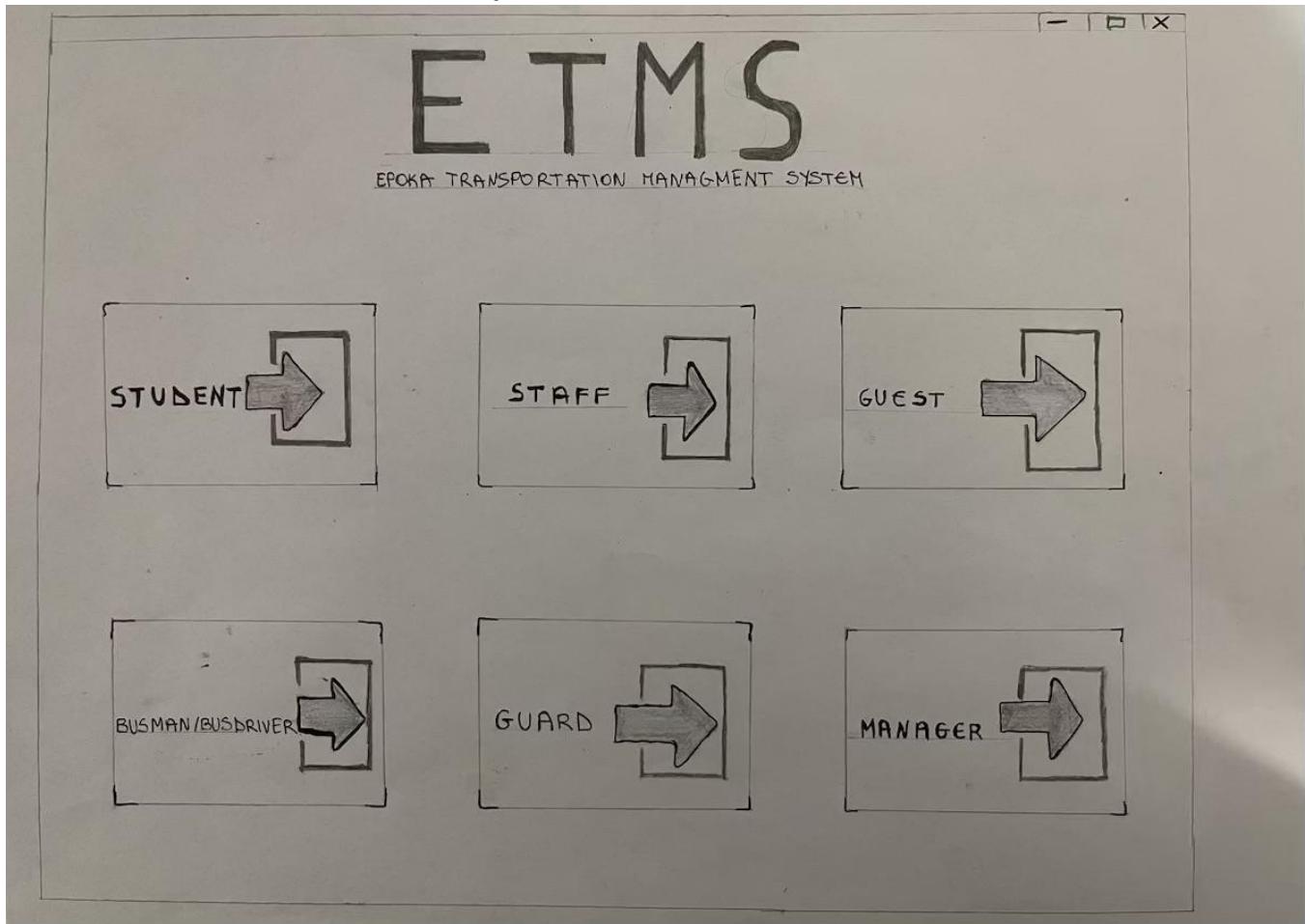
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

\*Guard can delete a reservation or view the parking space and the information around the reserved spot



Guard View

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



Landing Page

## EPOKA TRANSPORT MANAGEMENT SYSTEM

### REQUIREMENTS SPECIFICATION

\* Manager removes Bus Pass / Bus / Credit etc  
 Everytime the manager wants to remove one of the above a delete button will appear.

No	Month	Student ID	Student Name	Delete
01	May	xxxxxx	John John	<input type="button" value="Delete"/>

\* If Manager wants to edit any of the table cells he can perform that action to (like the Bus, Employee etc) he will firstly click on edit than the cell he wants to edit and perform the changes

No	Date	Time	Bus Driver ID	BD Name	Bn ID	Bn Name	Booked Details
01	xx-xx-xx	13:55	3	B. A	1	C.D	25/60 <input type="button" value="Details"/> <input type="button" value="Edit"/>

\* Manager wants to add Bus Pass / Bus / credit / employee or any other entity he has the access to edit a form will appear.

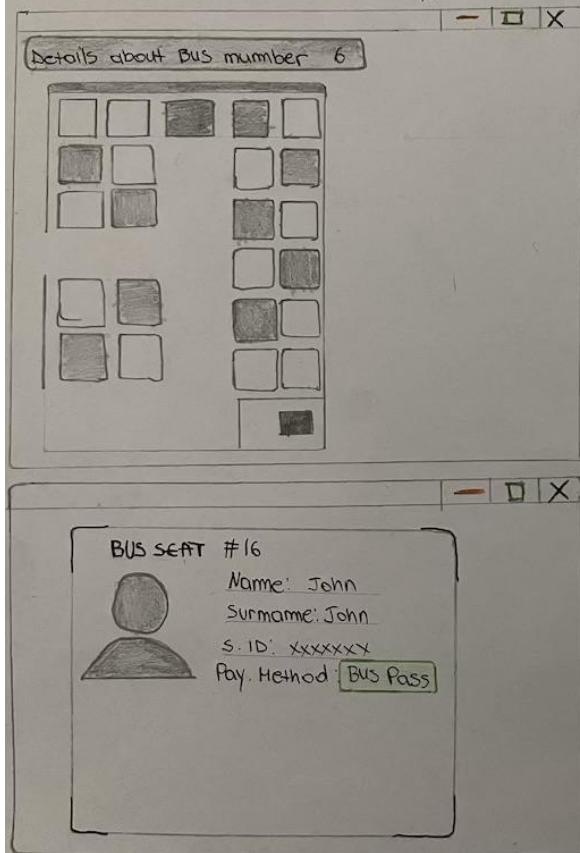
- □ X	
ADD BUS	
Bus ID:	<input type="text"/>
Date:	<input type="text"/>
Time:	<input type="text"/>
BD ID:	<input type="text"/>
BD Name:	<input type="text"/>
Busman ID:	<input type="text"/>
Busman Name:	<input type="text"/>
<input type="button" value="CONFIRM"/>	

- □ X	
Edit Bus details	
Date:	<input type="text" value="xx-xx-xxxx"/>
Time:	<input type="text" value="13:55"/>
BD ID:	<input type="text" value="3"/>
BD Name:	<input type="text" value="B.A"/>
Bm ID:	<input type="text" value="1"/>
Bm Name:	<input type="text" value="CD"/>
<input type="button" value="CONFIRM"/>	

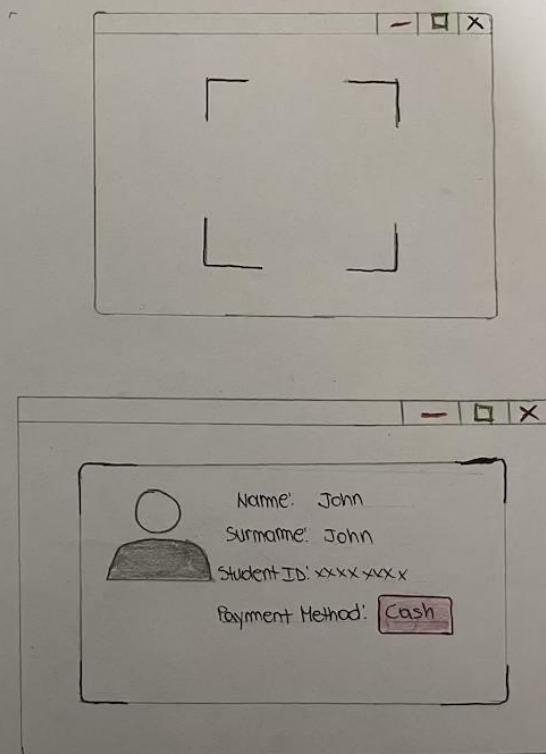
### Manager Actions

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

\*When manager wants to view bus details a view of the bus will be displayed. When Manager clicks on one of the reserved seats additional information will appear



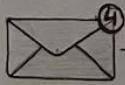
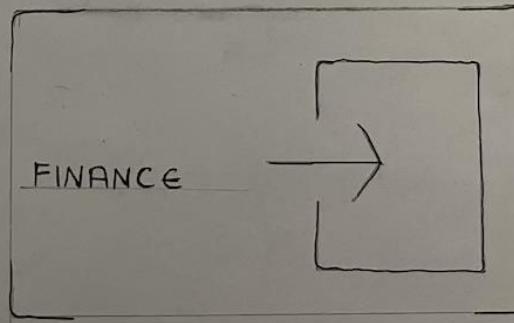
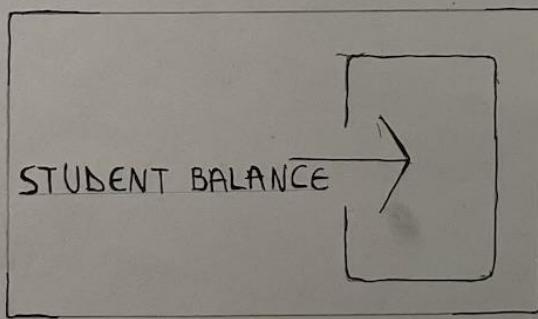
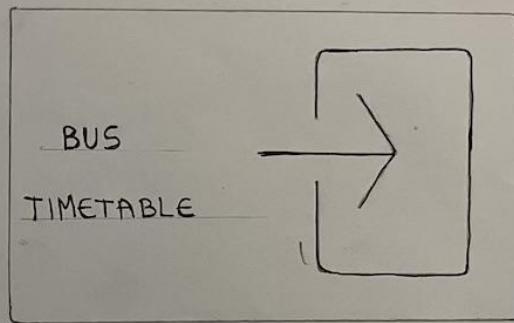
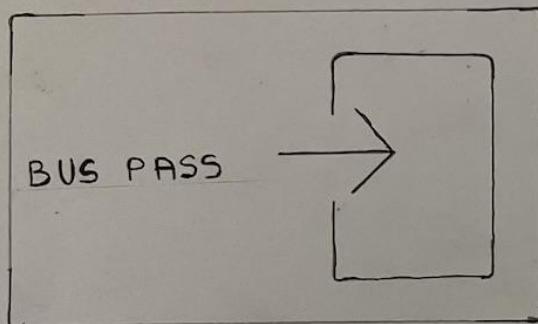
\* Busman Scans QR Code. For each scan a pop up window will show with some details as shown above



Manager Busman

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

[Minimize] [Close] Manager Name 



→ Manager checks all the students that have requested  
a new bus at a certain times

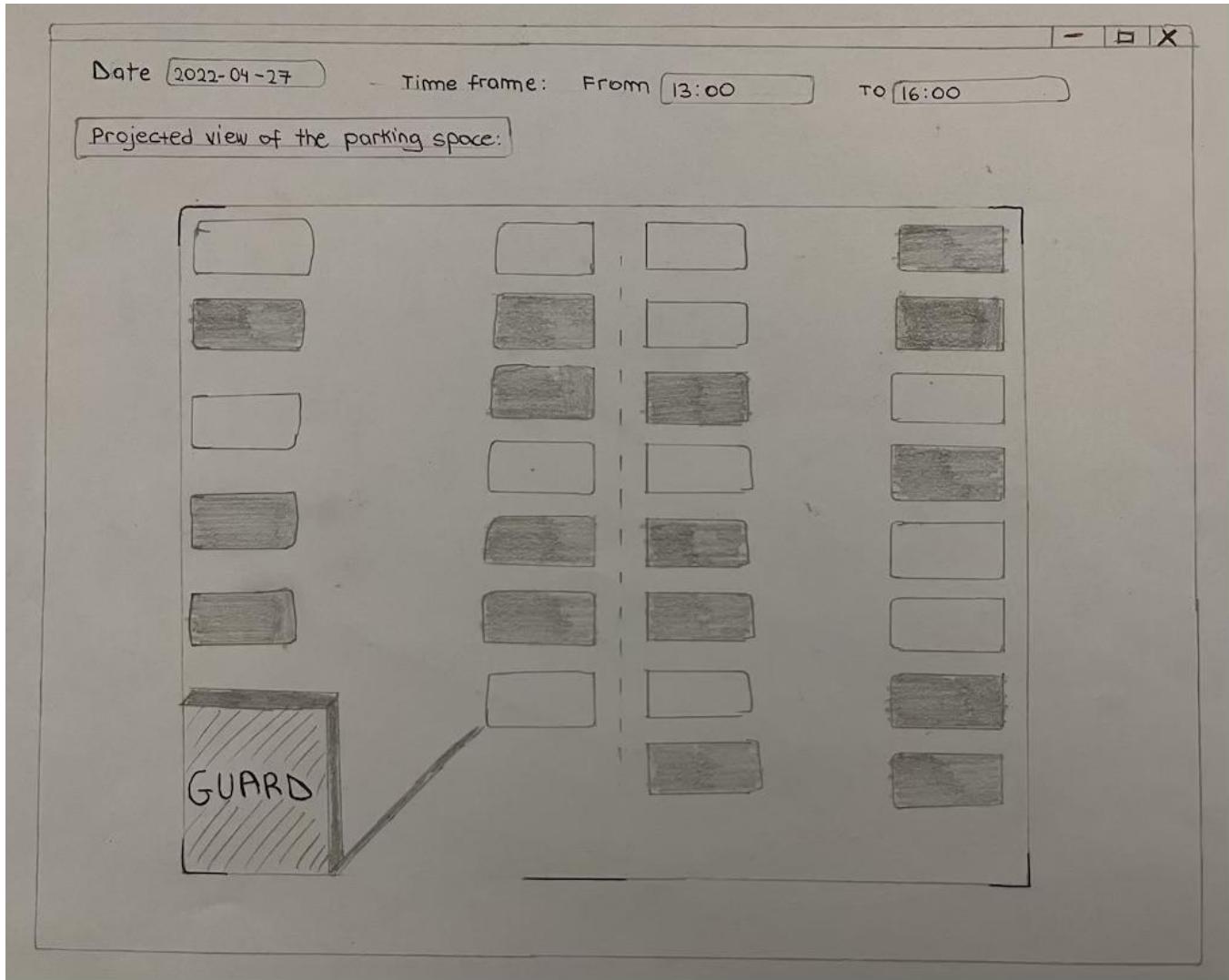
Manager Landing Page

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

<p>• Manager adds a bus pass</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px; margin-right: 10px;">+ Add bus pass</span> <span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">- Remove bus pass</span> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>Month</th> <th>Student ID</th> <th>Student Name</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>May</td> <td>XXXXXX</td> <td>John John</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	No	Month	Student ID	Student Name	01	May	XXXXXX	John John													<p>• Manager adds/removes bus</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px; margin-right: 10px;">+ Add bus</span> <span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">- Remove bus</span> <span style="margin-left: 10px;">Route: Tirana-Campus ▾ View: (Students) <span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 5px; margin-left: 10px;">EDIT</span></span> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>Date</th> <th>Time</th> <th>Bus Driver ID</th> <th>Bus Name</th> <th>Bus ID</th> <th>Driver Name</th> <th>Booked</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>xx-xx-xxxx</td> <td>13:55</td> <td>3</td> <td>J.J</td> <td>2</td> <td>A.K</td> <td>35/60</td> </tr> <tr> <td>02</td> <td>xx-xx-xxxx</td> <td>14:55</td> <td>6</td> <td>A.B</td> <td>1</td> <td>C.D</td> <td>60/60</td> </tr> <tr> <td>03</td> <td>xx-xx-xxxx</td> <td>15:55</td> <td>2</td> <td>B.E</td> <td>3</td> <td>E.F</td> <td>20/60</td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Booked</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>35/60</td> <td><span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">View details</span></td> </tr> <tr> <td>60/60</td> <td><span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">View details</span></td> </tr> <tr> <td>20/60</td> <td><span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">View details</span></td> </tr> </tbody> </table> </div>	No	Date	Time	Bus Driver ID	Bus Name	Bus ID	Driver Name	Booked	01	xx-xx-xxxx	13:55	3	J.J	2	A.K	35/60	02	xx-xx-xxxx	14:55	6	A.B	1	C.D	60/60	03	xx-xx-xxxx	15:55	2	B.E	3	E.F	20/60	Booked	Details	35/60	<span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">View details</span>	60/60	<span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">View details</span>	20/60	<span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">View details</span>							
No	Month	Student ID	Student Name																																																																	
01	May	XXXXXX	John John																																																																	
No	Date	Time	Bus Driver ID	Bus Name	Bus ID	Driver Name	Booked																																																													
01	xx-xx-xxxx	13:55	3	J.J	2	A.K	35/60																																																													
02	xx-xx-xxxx	14:55	6	A.B	1	C.D	60/60																																																													
03	xx-xx-xxxx	15:55	2	B.E	3	E.F	20/60																																																													
Booked	Details																																																																			
35/60	<span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">View details</span>																																																																			
60/60	<span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">View details</span>																																																																			
20/60	<span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">View details</span>																																																																			
<p>• Manager updates student balance</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px; margin-right: 10px;">+ Add credit</span> <span style="border: 1px solid #ccc; border-radius: 5px; padding: 2px 10px;">- Remove credit</span> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Student ID</th> <th>Student Name</th> <th>Total</th> <th>Date</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>XXXXXXX</td> <td>John John</td> <td>100.00</td> <td>xx-xx-xx</td> <td>13:21</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Student ID	Student Name	Total	Date	Time	XXXXXXX	John John	100.00	xx-xx-xx	13:21																<p>• Manager checks all the student requests</p> <div style="border: 1px solid black; padding: 5px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>Route</th> <th>Time</th> <th>Date</th> <th>Student Name</th> <th>Student ID</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>T-C</td> <td>13:55</td> <td>27-03-2022</td> <td>John John</td> <td>XXXXXXXXXX</td> </tr> <tr> <td>02</td> <td>T-C</td> <td>13:55</td> <td>27-03-2022</td> <td>Army Army</td> <td>XXXX XXXX</td> </tr> <tr> <td>03</td> <td>T-C</td> <td>13:55</td> <td>27-03-2022</td> <td>Jack Jack</td> <td>XXXX XXXX</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> </div>	No	Route	Time	Date	Student Name	Student ID	01	T-C	13:55	27-03-2022	John John	XXXXXXXXXX	02	T-C	13:55	27-03-2022	Army Army	XXXX XXXX	03	T-C	13:55	27-03-2022	Jack Jack	XXXX XXXX																		
Student ID	Student Name	Total	Date	Time																																																																
XXXXXXX	John John	100.00	xx-xx-xx	13:21																																																																
No	Route	Time	Date	Student Name	Student ID																																																															
01	T-C	13:55	27-03-2022	John John	XXXXXXXXXX																																																															
02	T-C	13:55	27-03-2022	Army Army	XXXX XXXX																																																															
03	T-C	13:55	27-03-2022	Jack Jack	XXXX XXXX																																																															

Manager Views

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

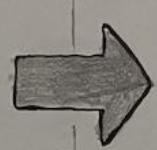


Parking View

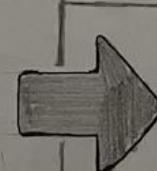
**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION

Student Name \_\_\_\_\_

TRANSPORT

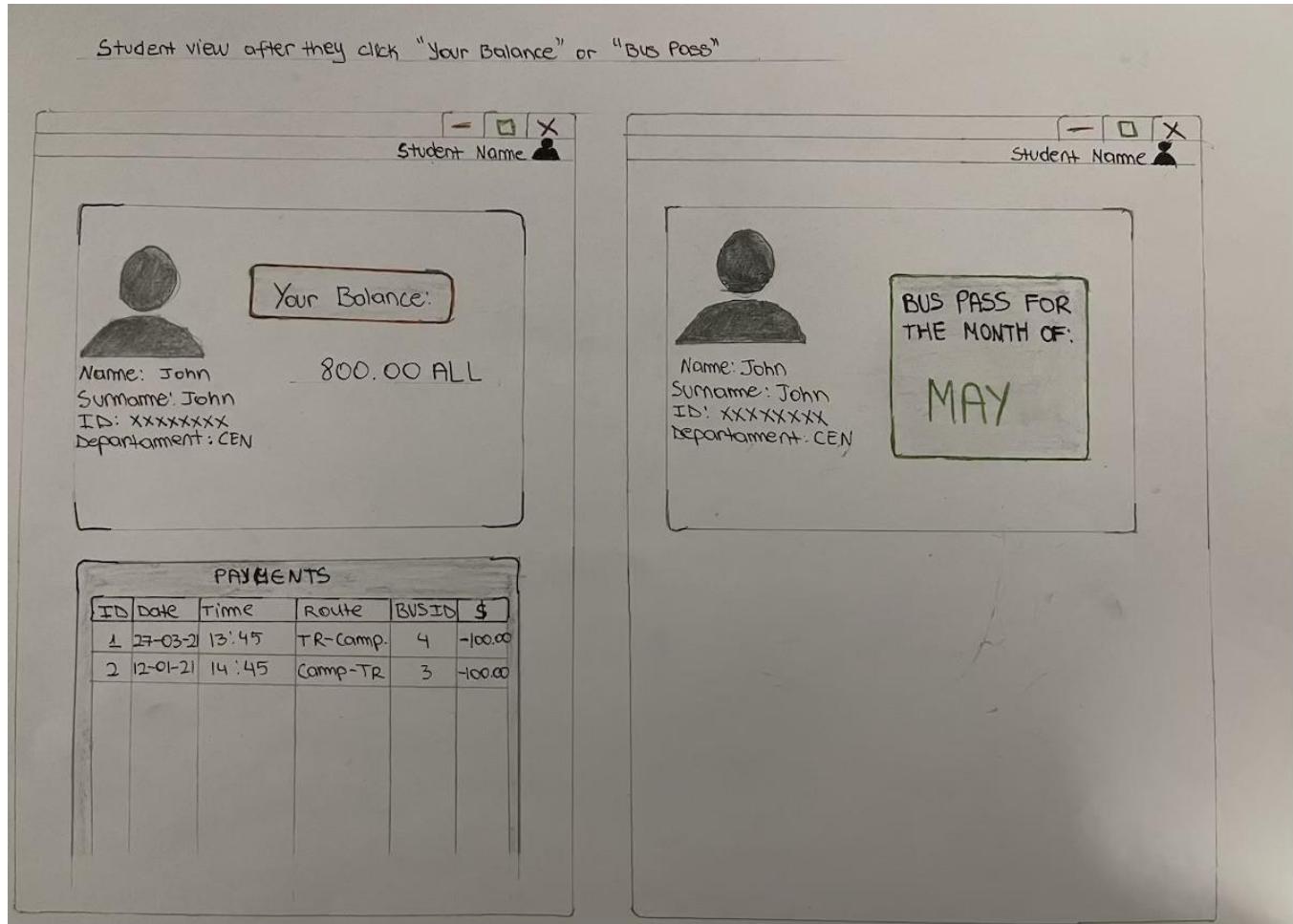


PARKING



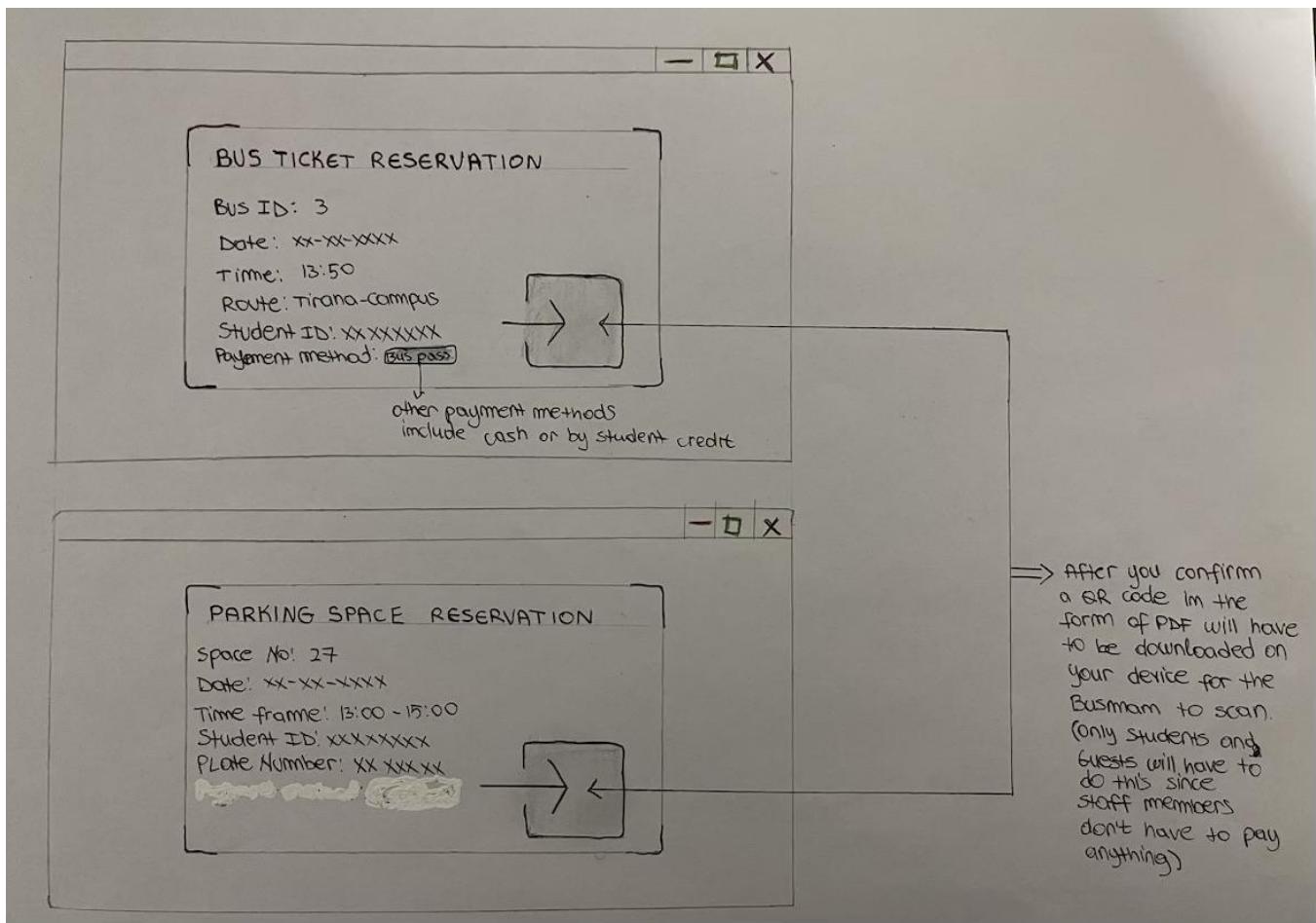
Second Page

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



Student Bus Pass Balance

**EPOKA TRANSPORT MANAGEMENT SYSTEM**  
REQUIREMENTS SPECIFICATION



Ticket

***EPOKA TRANSPORT MANAGEMENT SYSTEM***  
REQUIREMENTS SPECIFICATION