



Course Title: Information System Analysis and Design

Project Name: All Transport Management System

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|----------------------------------|---------------|
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Introduction

Travelling from one place to another place is an essential human activity. People travel by foot, bicycle, car, train, boat, bus, aircraft, ship, or other methods, with or without luggage, and can be one way or round trip. There is no web application where a person can find all these means of travelling at one place. Moreover, digitalization in every sector makes it as a necessity of time.

The project focuses on roads of the cities of Bangladesh, most of the buses are local and have very less concern about time and have competition for getting passengers which results in huge gathering in bus as well as irregular stops e.g., buses pick passengers from middle of roads. Therefore, if buses maintain time and have systematic bus stops then more people will use buses rather using their private cars, as maintaining private car is also very costly. Metro rails will be launched soon so e-ticketing system for railways will also be included in the web app. Along with the public transport emergency transportation, cars and bikes will also be available on this web application to ensure all means of transportation at one place.

The main challenge of the project is that people are used to with the existing irregular system but if people get the benefit of timely and systematic service than the system will be popular to people easily. Calculation of relative fare for different distance is the main challenge of the system.

Motivation:

The main motivation for this software system is to find a easy way to so that anyone can easily get any kinds of transport's ticket from our website and also

To make people's life comfortable and easy so that they don't need to go one place to another for their desire transports tickets.

- i. Deals with monitoring the information and transactions of Customer.
- ii. Editing, adding and updating of records is improved which results in proper resource management of transport data.
- iii. Provide a Comprehensive set of features to enhance operational limits.
- iv. Manage the information of customer.
- v. Evaluate performance in different Scenarios.
- vi. Integration of all records of transports route.

Challenges:

- i. This is the first time in Bangladesh that we are developing all kinds of transport management software system. So it is definitely challenging for us.

- ii. There might be differences of opinion in the requirements of the functionality list, which can be difficult to decide.
- iii. If we haven't done the right technology choice or the technology that we have chosen to build our software is not the right one, then we could be in trouble.
- iv. This software system is quite a large project. We will try to brainstorm a lot of features that we want to include in this project. However, due to this pandemic situation, we may be not able to go out and communicate with different people to see what potential users may actually want from this system. So we may be not able to include all the possible features in this system.
- v. There often might be changes in the requirements, which can create complications in the way of building the system.
- vi. The requirements can often be conflicting with each other, so following a middle route by keeping all desired functionalities in mind can be difficult.

Non-functional requirement

The non-functional requirements of this software system include several software requirements standards, along with Security, Interface, Maintainability, and Reliability, among others.

1. **Security and Privacy:** This requirement assures the security of the system's data. A Logon ID and password are required for all users who use the system. As a result, individual user information would be kept private.
2. **User-Friendly Interface:** The user interface of the software system should be made as user-friendly as possible so that all users may readily utilize it. Not only should the user interface be friendly, but it should also have a modern design. We also strive to improve our performance.
3. **Maintainability:** There is a chance that the database will be damaged in some way, or that the disk will crash. The backup mechanism will protect the system data in this circumstance.
4. **Reliability:** We will ensure that our system is always available. So that user may get continuous service and do not face any inconveniences.

Functional requirement - Detail Scenario Based Description

i) **User Authentication and Authorization:** There will be separate sign in and signup pages for the administrative department of the organization and users. Admin will be authorized with all the powers to modify the website, but this authority will not be given to any other users.

Users are specified under two categories, 1) Admin and 2) Users

Users' and admins personal information are specified as below:

- i. Name
- ii. Address

- iii. Phone
- iv. Email

User Interface Scenario: The dashboard will contain different types of transportation methods which are clickable, user may select their desired transportation system along with this there will be a form above the option cards from where user can search for place they want to go. A prompt with available transportation method with fare will be visible with map marking the destination and departure location. To avail any service an user must login to the system.

Login / Sign-up Scenario: When a user clicked on the login option from the navigation bar, he/she will be redirected to the login page. If the user is an existing user, then he/she can directly log into the website by using email and password. If the user is new, then he/she can select another option to register now. If the user clicks on the register now tag, then the user will be redirected to the sign-up page. From the sign-up page users can sign up with their name, phone number, location and new password.

Dashboards Scenario: If the user successfully log in to the system then the user can see a new option in the navigation bar with his picture. He can view his profile and see full size picture of him at the left. Users can update the profile information on my profile page, users can see their travelling information on history page. Users can see review and rate their trip from the review page. User may select payment option from payment page.

Offer page scenario: This page will contain different attractive offers which will contain offer code user can copy the codes and apply to their trips.

Help page: User or employee will get all time support by messaging to contact center and they may also call to the provided cell number on this page. Some important policies will also be provided on this page.

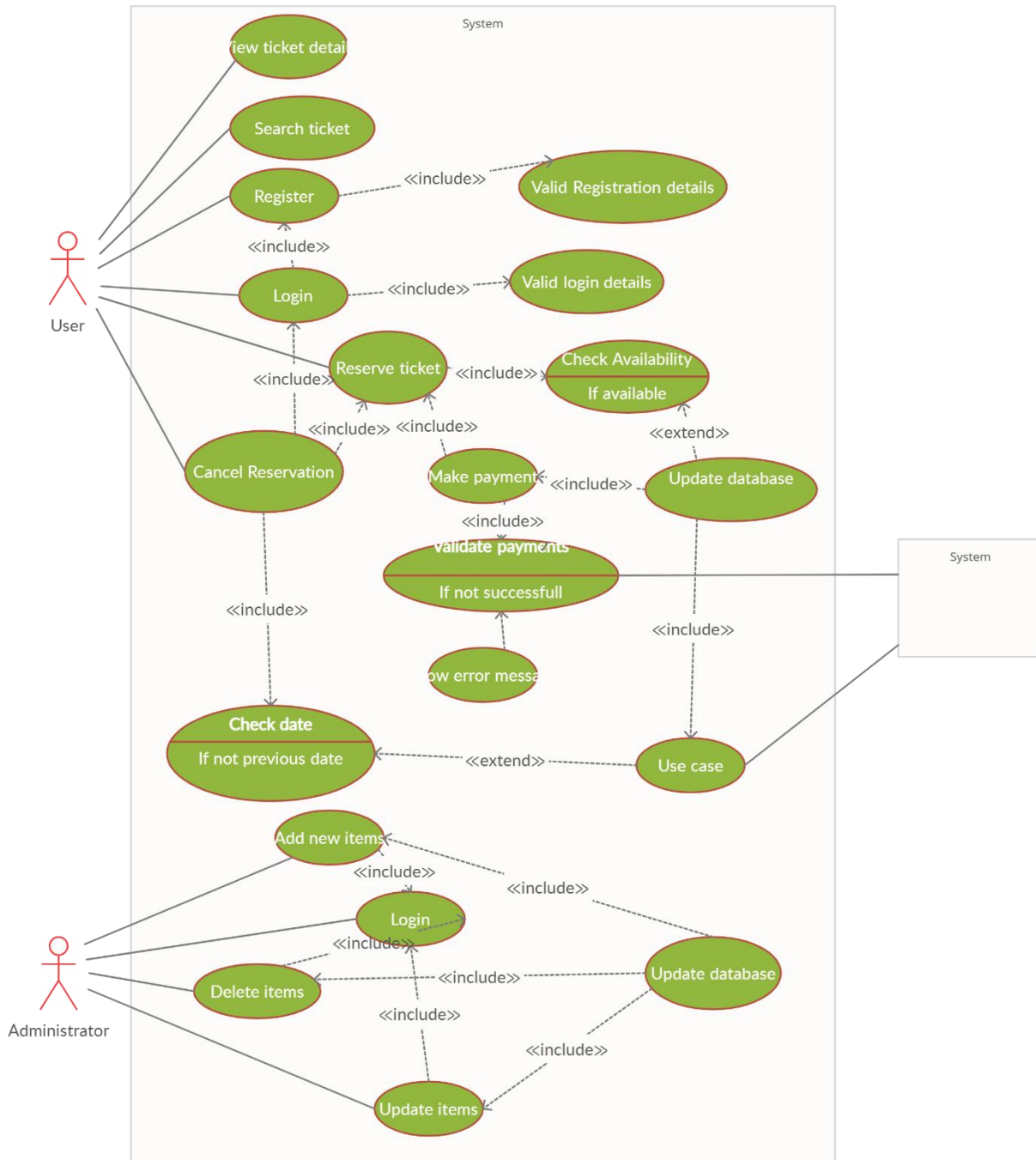
Technologies - Programming Language, Database, Others

1. **Programming language:** In the backend, we employ the Python programming language. It is one of the most frequently used and popular programming languages on the planet.
2. **Frontend:** To make the website appealing, responsive, and mobile-first, we use HTML, CSS and Bootstrap on the frontend. As a result, consumers can use all functionalities on any device.
3. **Web Framework:** This system will be built using the Django web framework. It's a web framework written in Python that may be used for quick development. It can be used to create a secure website with a simple and easy-to-maintain look.
4. **Database:** MySQL will be utilized to store all the data in the database. MySQL is a Structured Query Language (SQL)-based relational database management system. The ticket information and the user history, ride requests, comments or supports, profile information and payment information will be stored in the database.

5. **Data storage:** Our website is hosted on GitHub.

Unified Modeling Language Diagrams

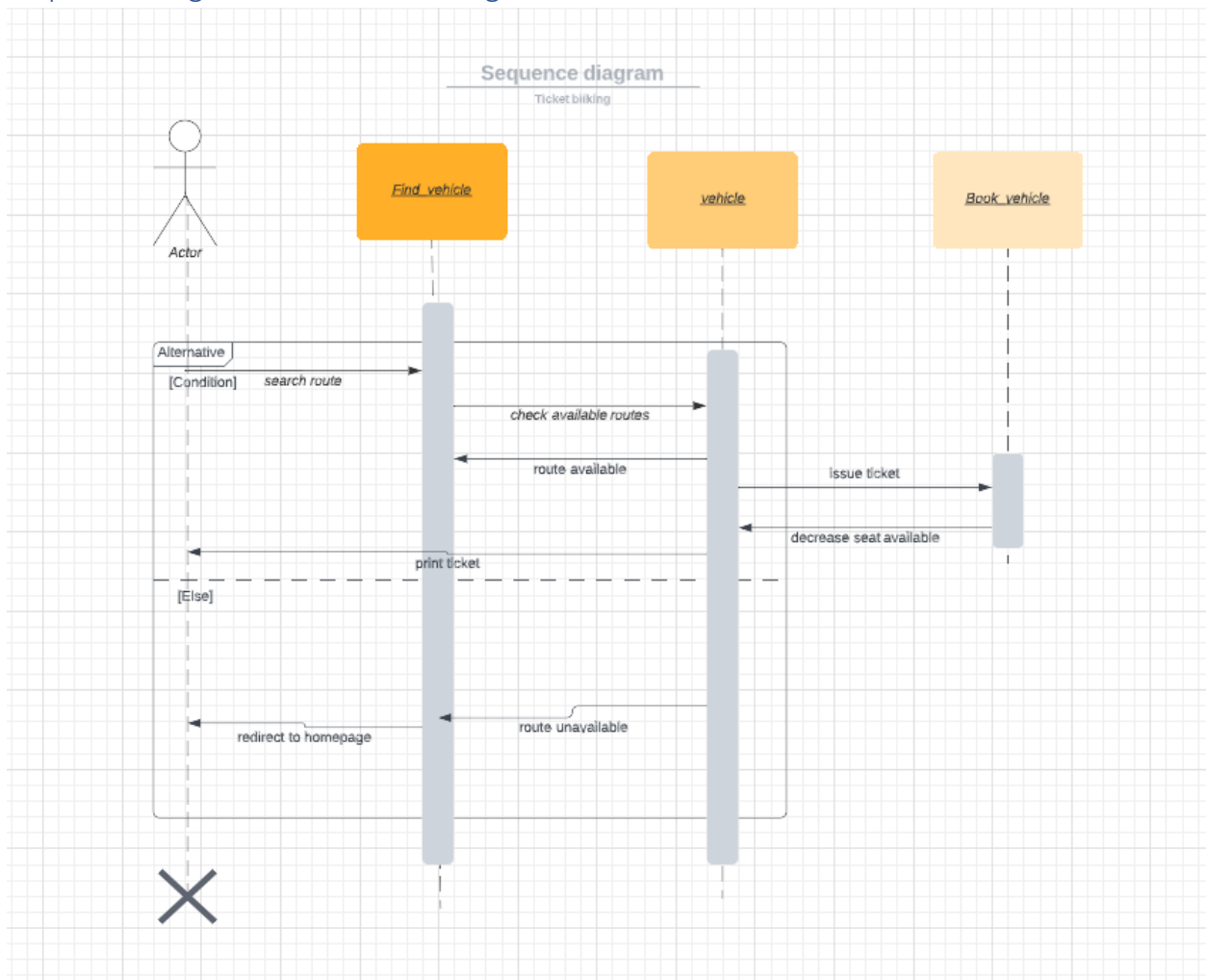
Use case diagram



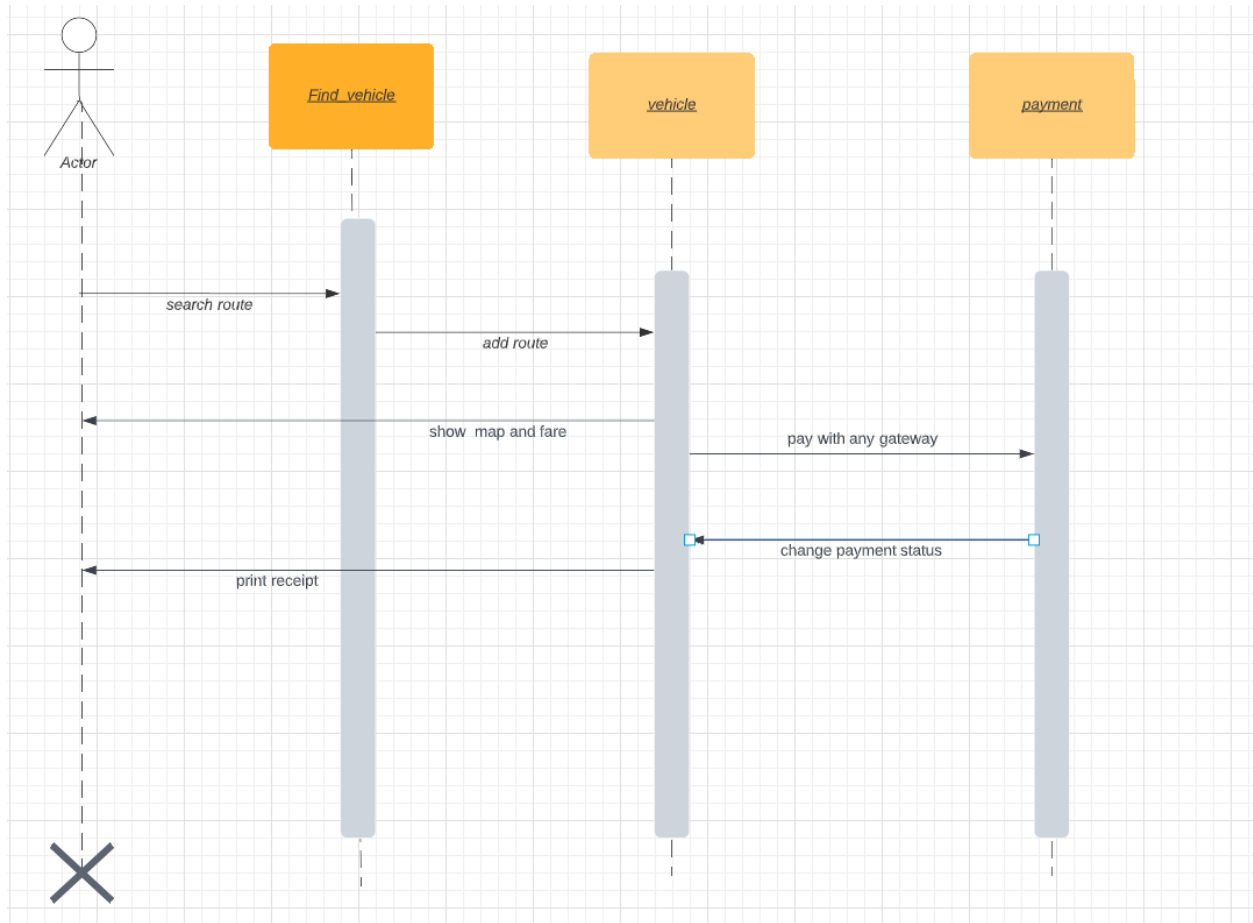
The screenshot displays a database schema for a 'transport' database. The schema includes the following tables and their fields:

- transport_pay**: id (bigint(20)), username (varchar(122)), phone (varchar(12)), transaction (varchar(122)), vehicle (varchar(12)), pmethord (varchar(12)), datesent (date).
- transport_auth_permission**: id (int(11)), name (varchar(255)), content_type_id (int(11)), codename (varchar(100)).
- transport_auth_user_permissions**: id (bigint(20)), user_id (int(11)), permission_id (int(11)).
- transport_auth_user**: id (int(11)), password (varchar(128)), last_login (datetime(6)), is_superuser (tinyint(1)), username (varchar(150)), first_name (varchar(150)), last_name (varchar(150)), email (varchar(254)), is_staff (tinyint(1)), is_active (tinyint(1)), date_joined (datetime(6)).
- transport_auth_group_permissions**: id (bigint(20)), group_id (int(11)), permission_id (int(11)).
- transport_auth_group**: id (int(11)), name (varchar(150)).
- transport_auth_user_groups**: id (bigint(20)), user_id (int(11)), group_id (int(11)).
- transport_django_admin_log**: id (int(11)), action_time (datetime(6)), object_id (longtext), object_repr (varchar(200)), action_flag (smallint(5) unsigned), change_message (longtext), content_type_id (int(11)), user_id (int(11)).
- transport_django_content_type**: id (int(11)), app_label (varchar(100)), model (varchar(100)).
- transport_transport_resetpass**: id (bigint(20)), username (varchar(122)), phone (varchar(12)), email (varchar(122)), history (varchar(12)), dateused (date), created (datetime(6)).
- transport_transport_rider**: id (bigint(20)), password (varchar(200)), frame (varchar(200)), lname (varchar(200)), email (varchar(200)), phone (varchar(13)), address (varchar(200)), profile_pic (varchar(100)), user_id (int(11)).
- transport_django_migrations**: id (bigint(20)), app (varchar(255)), name (varchar(255)), applied (datetime(6)).
- transport_transport_contact**: id (bigint(20)), time (varchar(122)), phone (varchar(122)), email (varchar(122)), message (longtext), date (date).
- transport_transport_bus**: id (bigint(20)), bus_name (varchar(30)), From (varchar(20)), To (varchar(20)), Class (varchar(20)), nos (decimal(2,0)), rem (decimal(2,0)), price (decimal(6,2)), date (date), time (time(6)).
- transport_transport_air**: id (bigint(20)), air_name (varchar(30)), From (varchar(20)), To (varchar(20)), Class (varchar(20)), nos (decimal(2,0)), rem (decimal(2,0)), price (decimal(6,2)), date (date), time (time(6)).
- transport_transport_train_book**: id (bigint(20)), email (varchar(254)), name (varchar(30)), userid (decimal(2,0)), trainid (decimal(2,0)), train_name (varchar(30)), From (varchar(30)), To (varchar(30)), nos (decimal(2,0)), price (decimal(6,2)), date (date), time (time(6)), status (varchar(11)), paymentstatus (varchar(11)).
- transport_transport_launch**: id (bigint(20)), launch_name (varchar(30)), From (varchar(20)), To (varchar(20)), Class (varchar(20)), nos (decimal(2,0)), rem (decimal(2,0)), price (decimal(6,2)), date (date), time (time(6)).
- transport_transport_launch_book**: id (bigint(20)), email (varchar(254)), name (varchar(30)), userid (decimal(2,0)), launchid (decimal(2,0)), launch_name (varchar(30)), From (varchar(30)), To (varchar(30)), nos (decimal(2,0)), price (decimal(6,2)), date (date), time (time(6)), status (varchar(11)), paymentstatus (varchar(11)).
- transport_transport_car**: id (bigint(20)), email (varchar(254)), name (varchar(30)), userid (decimal(2,0)), From (varchar(20)), To (varchar(20)), time (time(6)), price (decimal(6,2)), status (varchar(11)), paymentstatus (varchar(11)).
- transport_transport_microbus**: id (bigint(20)), userid (decimal(2,0)), email (varchar(254)), name (varchar(30)), From (varchar(20)), To (varchar(20)), date (date), time (time(6)), price (decimal(6,2)), status (varchar(11)), paymentstatus (varchar(11)).
- transport_transport_bike**: id (bigint(20)), email (varchar(254)), name (varchar(30)), userid (decimal(2,0)), From (varchar(20)), To (varchar(20)), date (date), time (time(6)), price (decimal(6,2)), status (varchar(11)), paymentstatus (varchar(11)).
- transport_transport_train**: id (bigint(20)), train_name (varchar(30)), From (varchar(20)), To (varchar(20)), Class (varchar(20)), nos (decimal(2,0)), rem (decimal(2,0)), price (decimal(6,2)), date (date), time (time(6)).
- transport_transport_bus_book**: id (bigint(20)), email (varchar(254)), name (varchar(30)), userid (decimal(2,0)), busid (decimal(2,0)), bus_name (varchar(30)), From (varchar(30)), To (varchar(30)), nos (decimal(2,0)), price (decimal(6,2)), date (date), time (time(6)), status (varchar(11)), paymentstatus (varchar(11)).

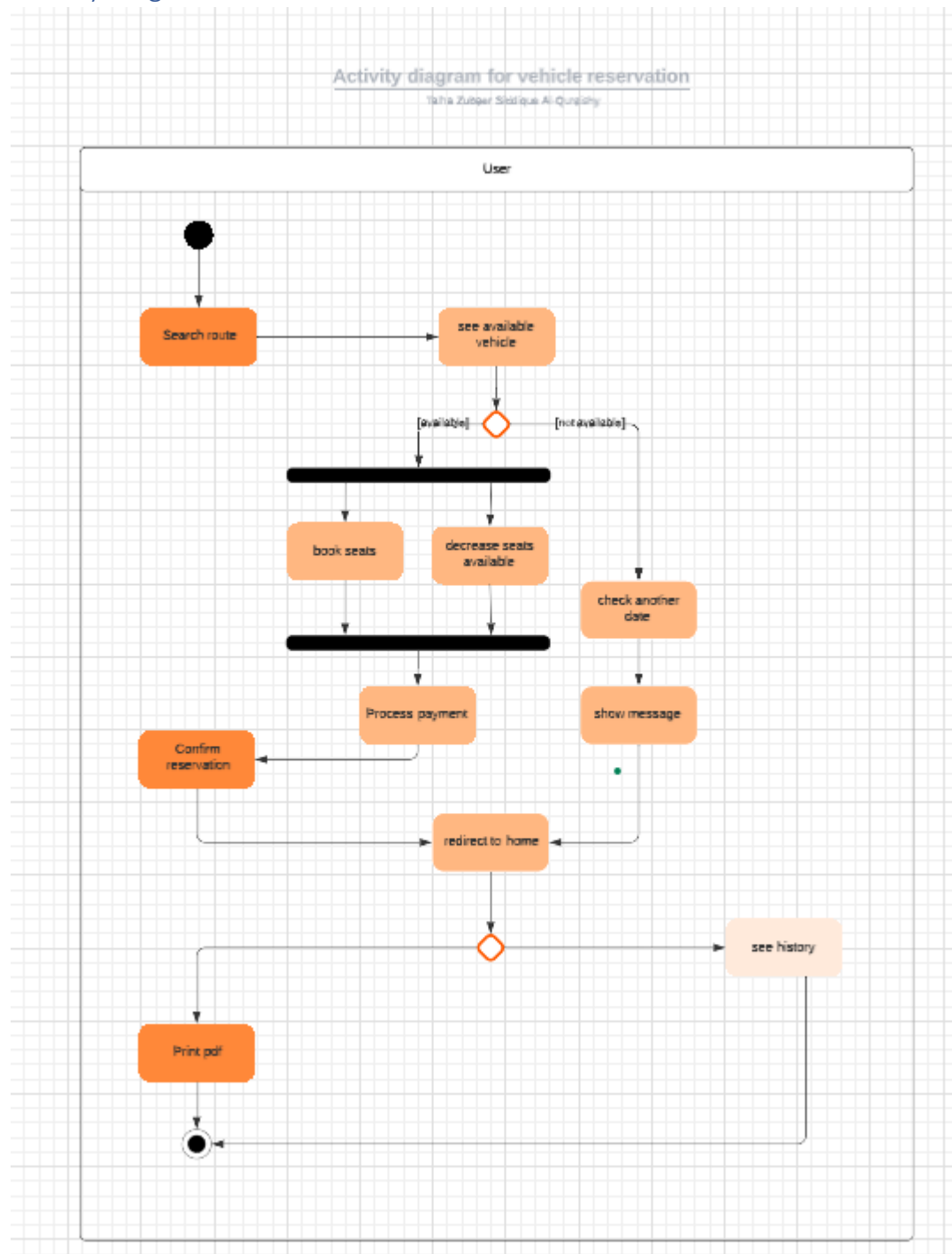
Sequence Diagram for ticket booking



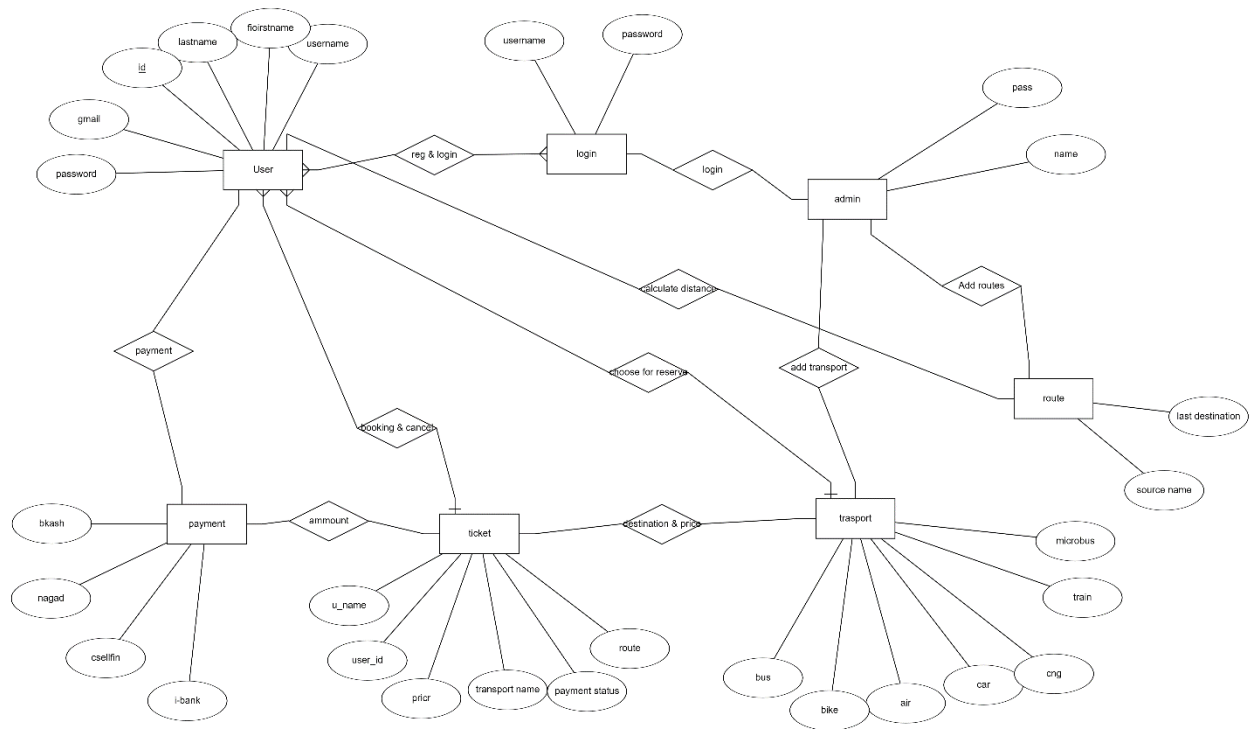
Sequence diagram for ride requesting



Activity Diagram for user

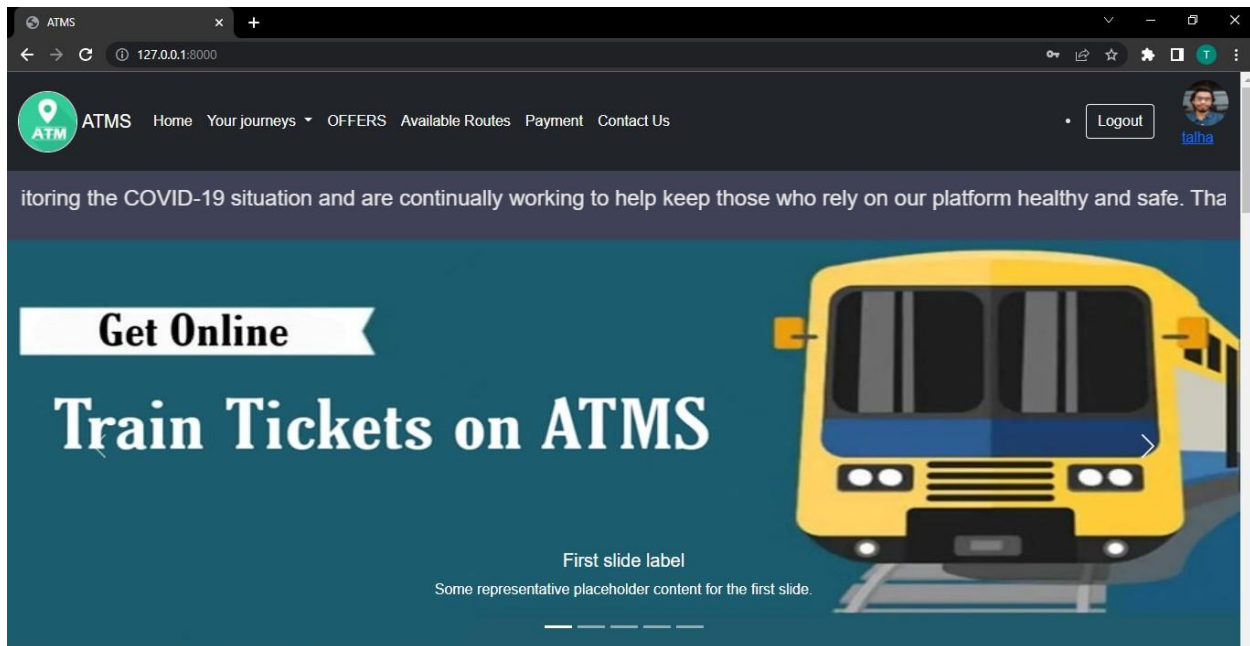


ER Diagram

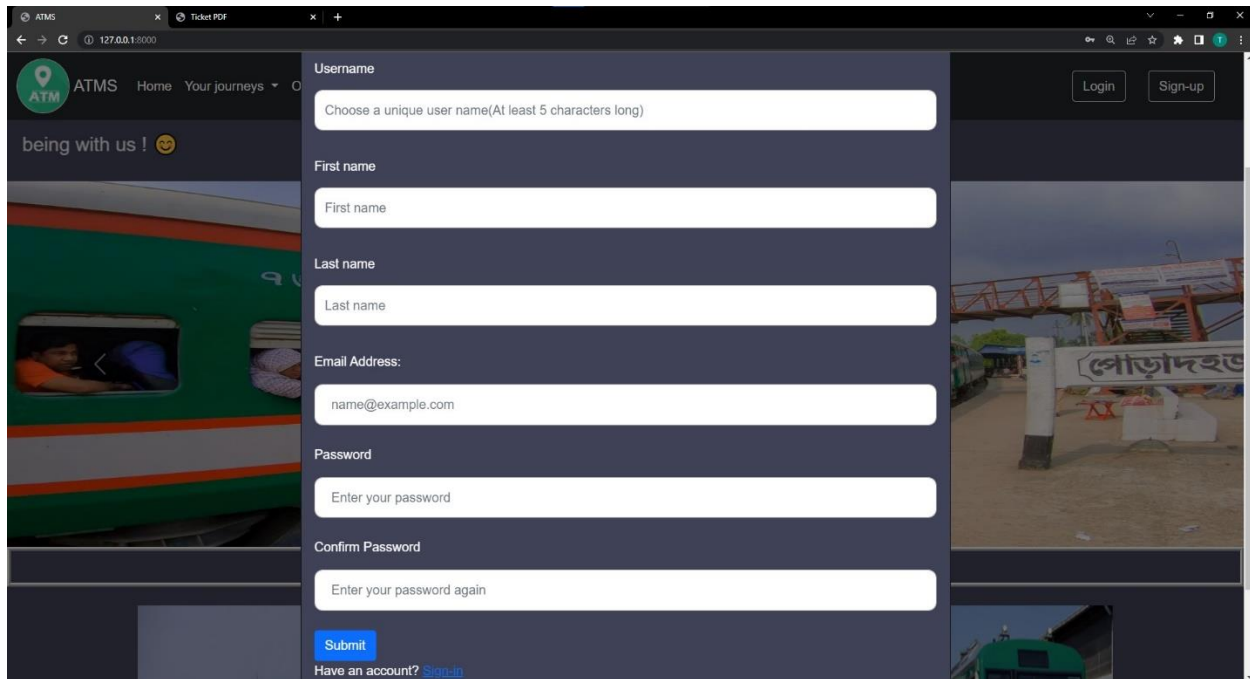


GUI Screenshot

This is the home page and at the top right of the navigation bar a profile picture of the user is shown.

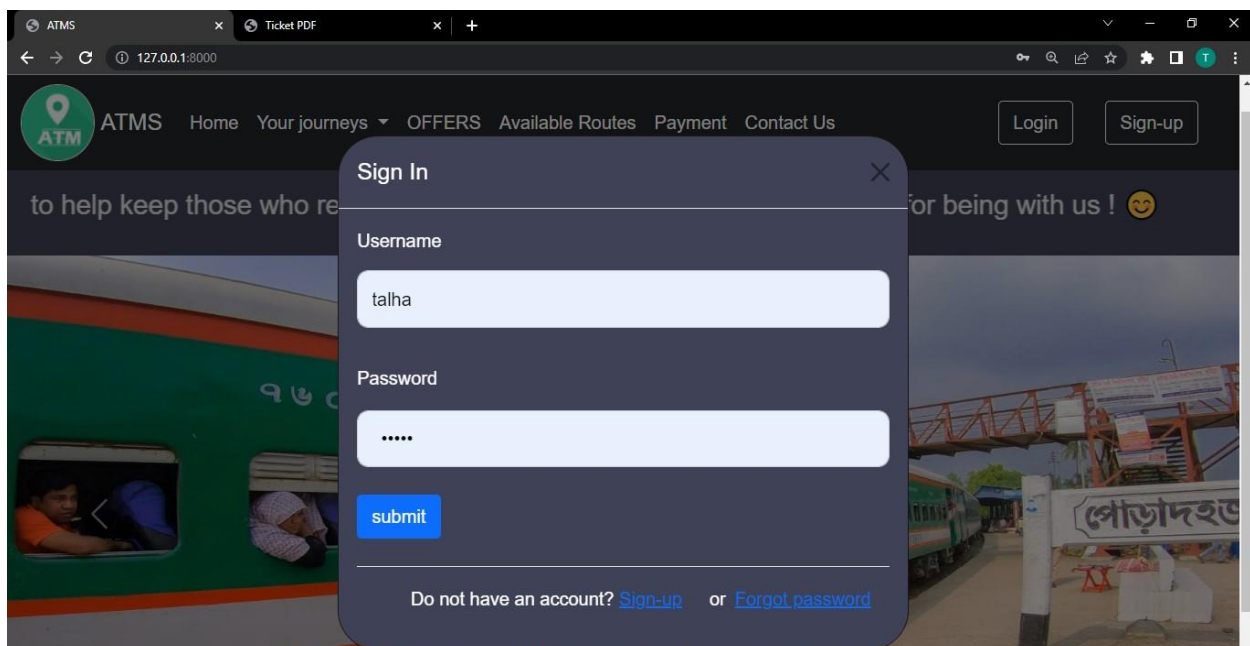


A user must login to get the services and the profile page will only be active while user is logged in. To log in a user must register to the site with the information shown in the image.



The image shows a web browser window displaying the registration page of the ATMS website. The page has a dark blue header with the ATMS logo and navigation links: Home, Your journeys, OFFERS, Available Routes, Payment, and Contact Us. There are 'Login' and 'Sign-up' buttons in the top right corner. The main content area is a dark blue form with white input fields. The form includes fields for Username (with a note: 'Choose a unique user name (At least 5 characters long)'), First name, Last name, Email Address (with the placeholder 'name@example.com'), Password, and Confirm Password (with the placeholder 'Enter your password again'). A blue 'Submit' button is at the bottom of the form, and a link 'Have an account? Sign up' is below it. The background of the page features a collage of images, including a train and a bridge.

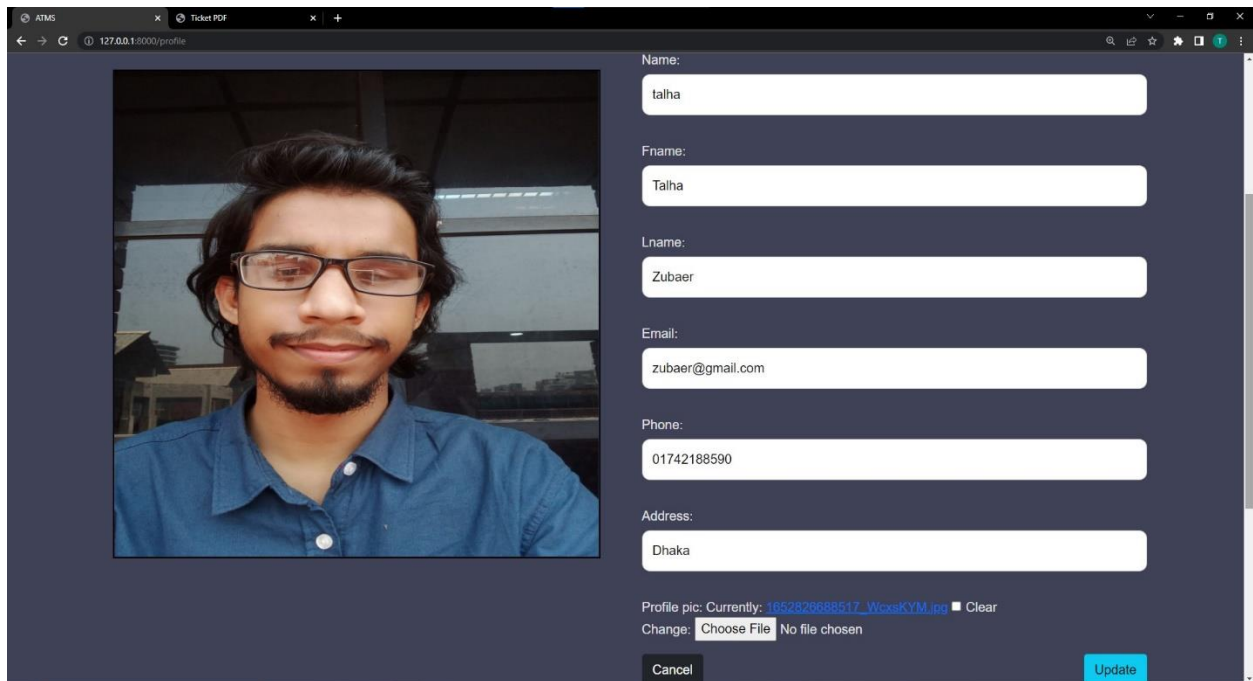
Registered user can log in to the site by providing the following credentials in the image below.



The image shows a web browser window displaying the ATMS website. A 'Sign In' modal is open in the center of the screen. The modal has a dark blue background with white text and input fields. It includes fields for Username (with the value 'talha') and Password (with masked characters '.....'). A blue 'submit' button is at the bottom of the modal. Below the button, there is a link 'Do not have an account? Sign-up or Forgot password'. The background of the page shows the ATMS website header and a collage of images, including a train and a bridge.

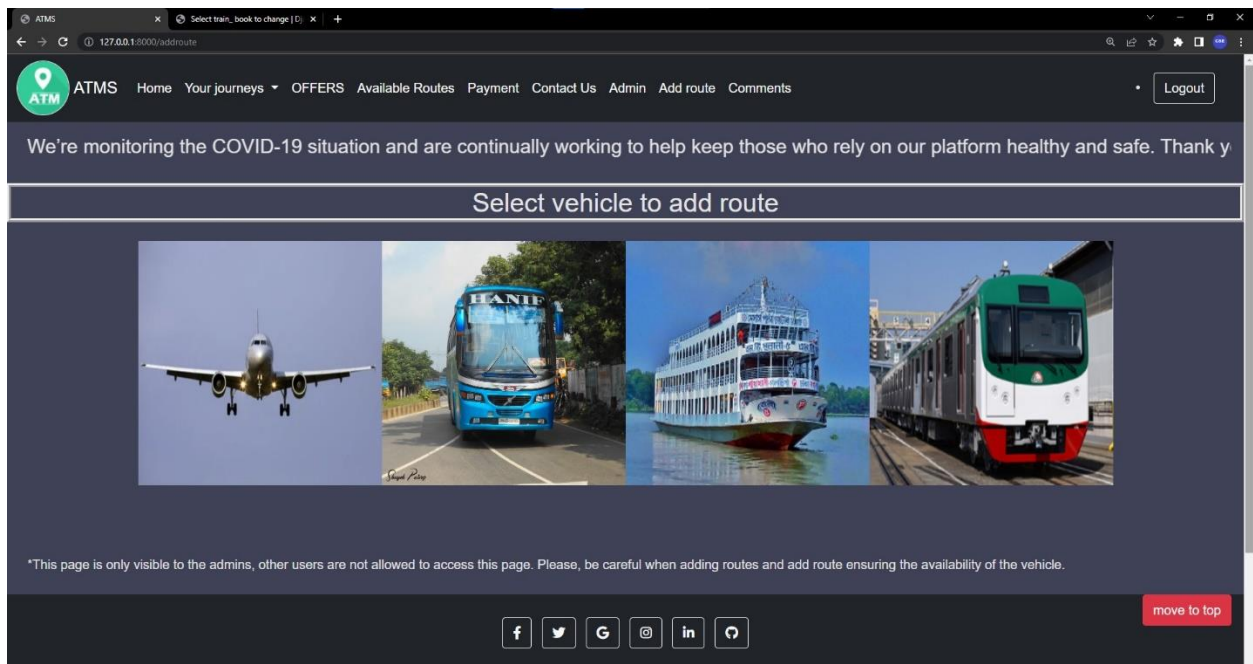
The username and password will be checked by the server and if correct credentials are provided user will be redirected to the home page again. Now he/she can access to all the services that are allowed to a user.

User can update their profile information and see their profile information from the page shown below.



The screenshot shows a web browser window with the URL `127.0.0.1:8000/profile`. The page features a profile picture of a man with glasses and a blue shirt. To the right of the photo is a form with the following fields: Name (filled with 'talha'), Fname (filled with 'Talha'), Lname (filled with 'Zubaer'), Email (filled with 'zubaer@gmail.com'), Phone (filled with '01742188590'), and Address (filled with 'Dhaka'). Below the form, there is a section for the profile picture, showing the current file '185232688517_WcxsKYM.jpg' and a 'Choose File' button. At the bottom right of the form area are 'Cancel' and 'Update' buttons.

To provide services to the users, admin need to specify the routes and the associated vehicles. Admins select any vehicle and add routes from the interface below.



The screenshot shows the 'Select vehicle to add route' page in the ATMS application. The page has a dark blue header with the ATMS logo and navigation links: Home, Your journeys, OFFERS, Available Routes, Payment, Contact Us, Admin, Add route, and Comments. A 'Logout' button is in the top right. Below the header is a message: 'We're monitoring the COVID-19 situation and are continually working to help keep those who rely on our platform healthy and safe. Thank y'. The main content area is titled 'Select vehicle to add route' and displays four vehicle options: an airplane, a blue bus, a white ferry, and a green and white train. At the bottom, there is a disclaimer: '*This page is only visible to the admins, other users are not allowed to access this page. Please, be careful when adding routes and add route ensuring the availability of the vehicle.' and a 'move to top' button.

Admins need to provide the following information of vehicles to register a route for a certain vehicle.

The screenshot shows a web browser window with the URL `127.0.0.1:8000/bus`. The page has a dark blue header with the ATMS logo and navigation links: Home, Your journeys, OFFERS, Available Routes, Payment, Contact Us, Admin, Add route, and Comments. A 'Logout' button is in the top right. Below the header, a message states: 'We're monitoring the COVID-19 situation and are continually working to help keep those who'. The main heading is 'Add tickets for bus'. The form is titled 'Details' and contains several input fields: 'From', 'To', 'Bus Name', 'Price of ticket', 'no of seats in the bus', and 'Select class' (a dropdown menu). There are also date pickers for 'mm/dd/yyyy' and a time picker for '---:-- --'. At the bottom of the form are 'Clear Form' and 'Submit Form' buttons. A 'move to top' button is in the bottom right corner. Social media icons for Facebook, Twitter, Google+, Instagram, LinkedIn, and YouTube are at the bottom center, followed by the text 'Thank you for being with us'.

Route information are updated, now user can see the routes in the available vehicle tab selecting from the navigation bar. Available vehicles are shown like this.

The screenshot shows a web browser window with the URL `127.0.0.1:8000/availableroutes`. The page has a dark blue header with the ATMS logo and navigation links: Home, Your journeys, OFFERS, Available Routes, Payment, Contact Us, Admin, Add route, and Comments. A 'Logout' button is in the top right. Below the header, the page is divided into four sections, each with a red heading: 'air tickets', 'bus tickets', 'launch ticket', and 'train ticket'. Each section contains a table with route information.

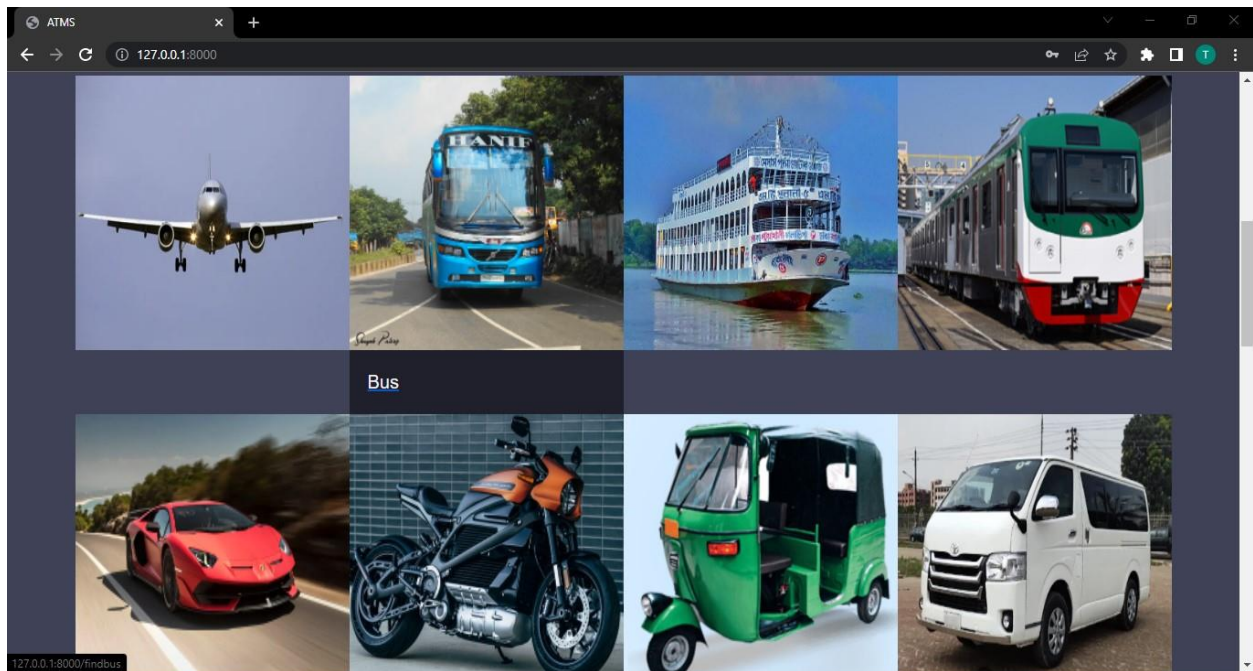
| From | To | Air-Name | date | time |
|------------|-----------|--------------------|--------------|-----------|
| Bangladesh | Singapore | US Bangla Airlines | May 30, 2022 | 7:30 a.m. |

| From | To | Bus Name | date | time |
|-------|--------|------------------|--------------|--------|
| Dhaka | Khulna | Hanif Enterprise | May 30, 2022 | 6 a.m. |

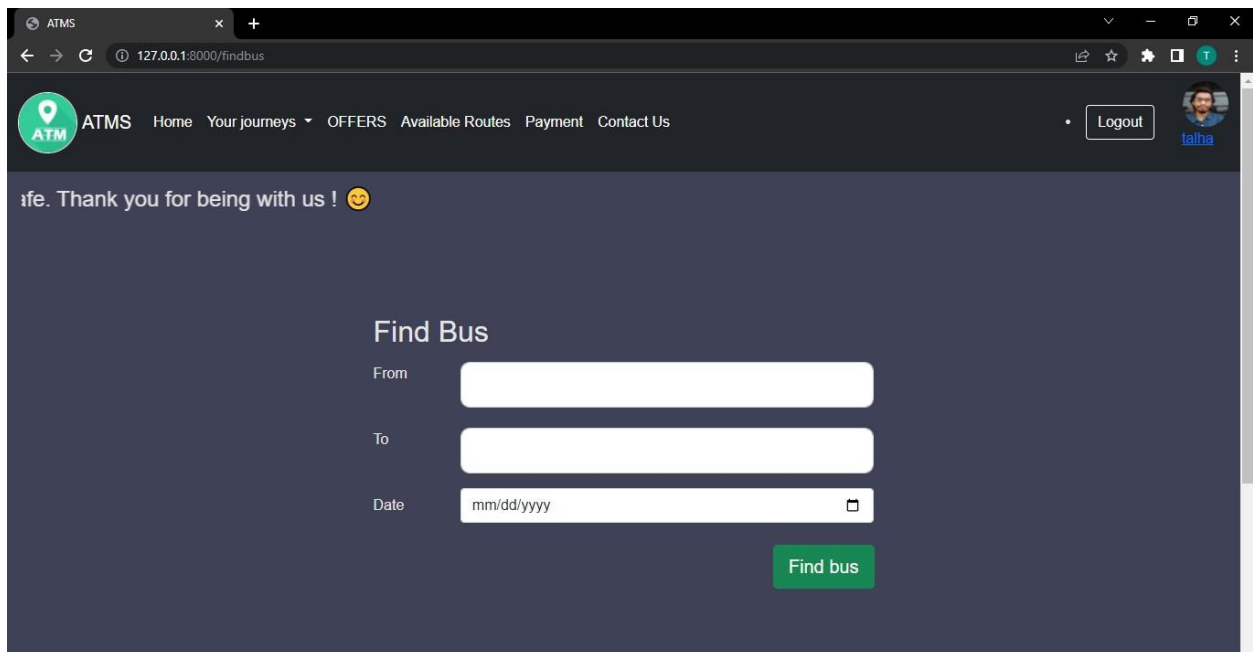
| From | To | Launch Name | date | time |
|-------|------------|-------------|--------------|-----------|
| Dhaka | Chittagong | Bkash | May 30, 2022 | 5:29 p.m. |

| From | To | Train Name | date | time |
|-------|----------|-------------|--------------|--------|
| Dhaka | Rajshahi | Bangabandhu | May 30, 2022 | 8 a.m. |

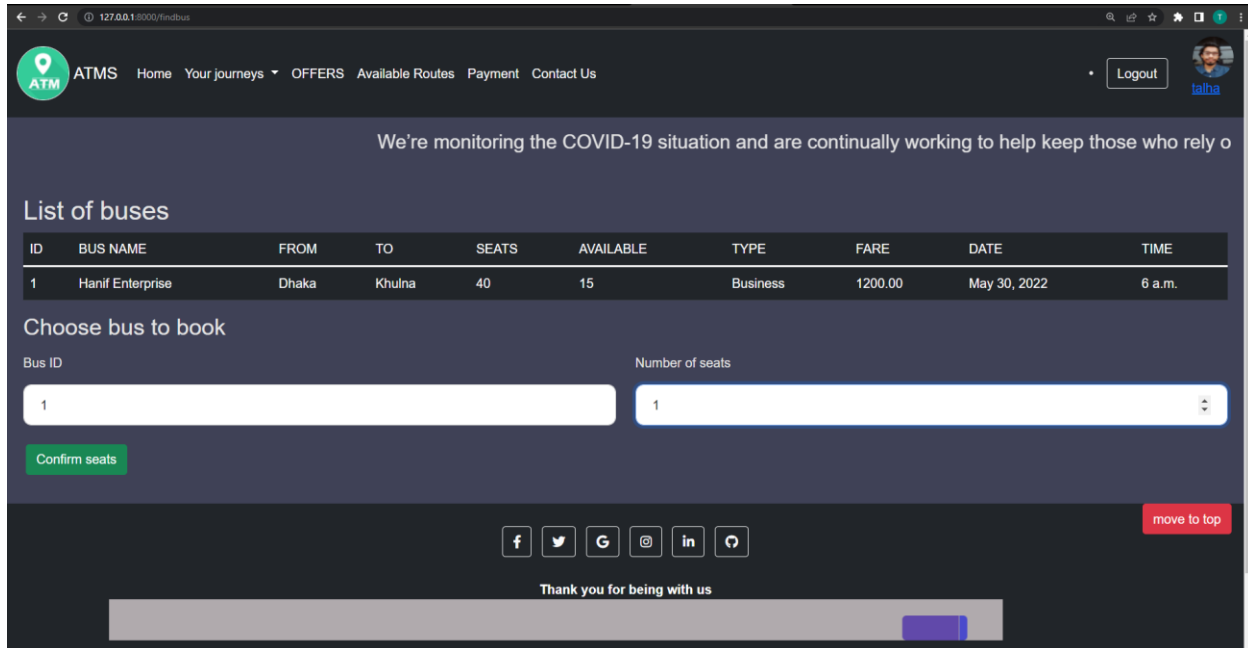
User can select any vehicle they wish to travel with from the interface below.



When user select any vehicle from the top column the following interface is shown.



After providing the starting and destination location user can see the available vehicles at that route then user can select the vehicle by inserting the vehicle id and the number of seats.

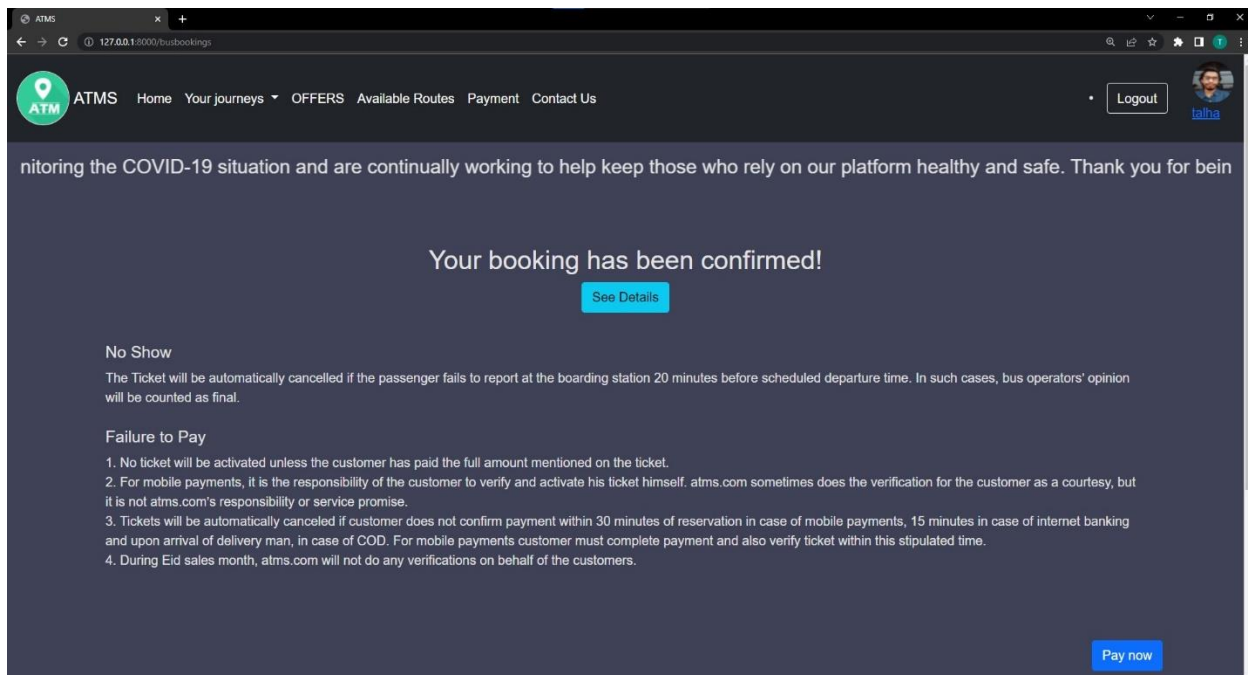


The screenshot shows the ATMS website interface. At the top, there's a navigation bar with links: Home, Your journeys, OFFERS, Available Routes, Payment, and Contact Us. A 'Logout' button is visible next to a user profile picture. Below the navigation bar, a message states: 'We're monitoring the COVID-19 situation and are continually working to help keep those who rely on our platform healthy and safe. Thank you for being with us.' The main section is titled 'List of buses' and contains a table with the following data:

| ID | BUS NAME | FROM | TO | SEATS | AVAILABLE | TYPE | FARE | DATE | TIME |
|----|------------------|-------|--------|-------|-----------|----------|---------|--------------|--------|
| 1 | Hanif Enterprise | Dhaka | Khulna | 40 | 15 | Business | 1200.00 | May 30, 2022 | 6 a.m. |

Below the table, there's a 'Choose bus to book' section with two input fields: 'Bus ID' (containing '1') and 'Number of seats' (containing '1'). A green 'Confirm seats' button is located below these fields. At the bottom of the page, there are social media icons for Facebook, Twitter, Google+, Instagram, LinkedIn, and YouTube, along with a 'move to top' button and a 'Thank you for being with us' message.

As the user select vehicle and specify number of seats and confirm seats, tickets are booked for the user and the following interface with some policy and caution is shown.



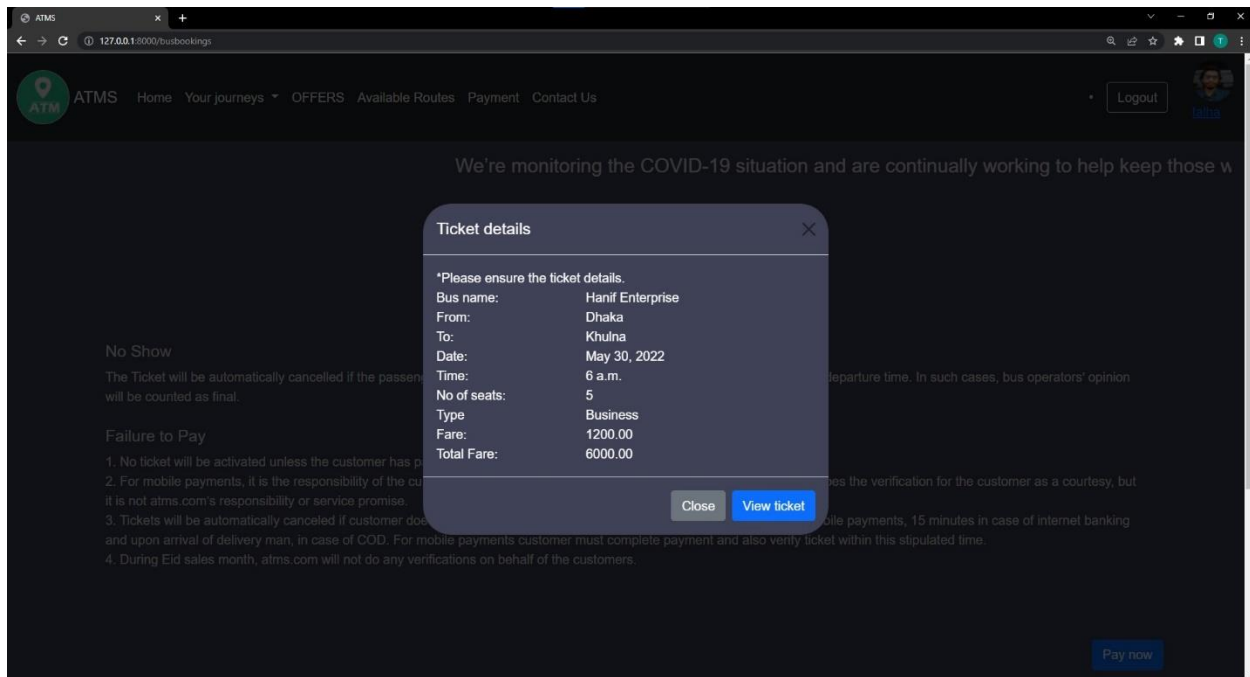
The screenshot shows the ATMS website interface after a successful booking. The main message is 'Your booking has been confirmed!' with a 'See Details' button. Below this, there are two sections: 'No Show' and 'Failure to Pay'. The 'No Show' section states: 'The Ticket will be automatically cancelled if the passenger fails to report at the boarding station 20 minutes before scheduled departure time. In such cases, bus operators' opinion will be counted as final.' The 'Failure to Pay' section contains four numbered points:

1. No ticket will be activated unless the customer has paid the full amount mentioned on the ticket.
2. For mobile payments, it is the responsibility of the customer to verify and activate his ticket himself. atms.com sometimes does the verification for the customer as a courtesy, but it is not atms.com's responsibility or service promise.
3. Tickets will be automatically canceled if customer does not confirm payment within 30 minutes of reservation in case of mobile payments, 15 minutes in case of internet banking and upon arrival of delivery man, in case of COD. For mobile payments customer must complete payment and also verify ticket within this stipulated time.
4. During Eid sales month, atms.com will not do any verifications on behalf of the customers.

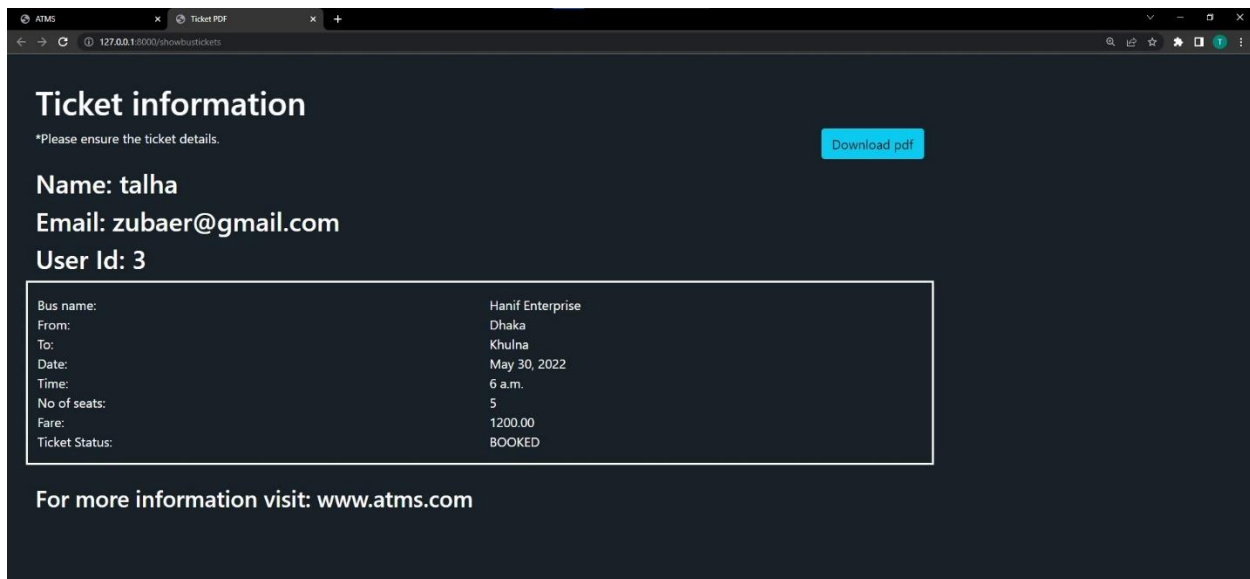
A blue 'Pay now' button is located at the bottom right of the page.

By clicking the see details button a user can see the details of his tickets with the fare details.

Tickets information are shown on a modal with the following information.

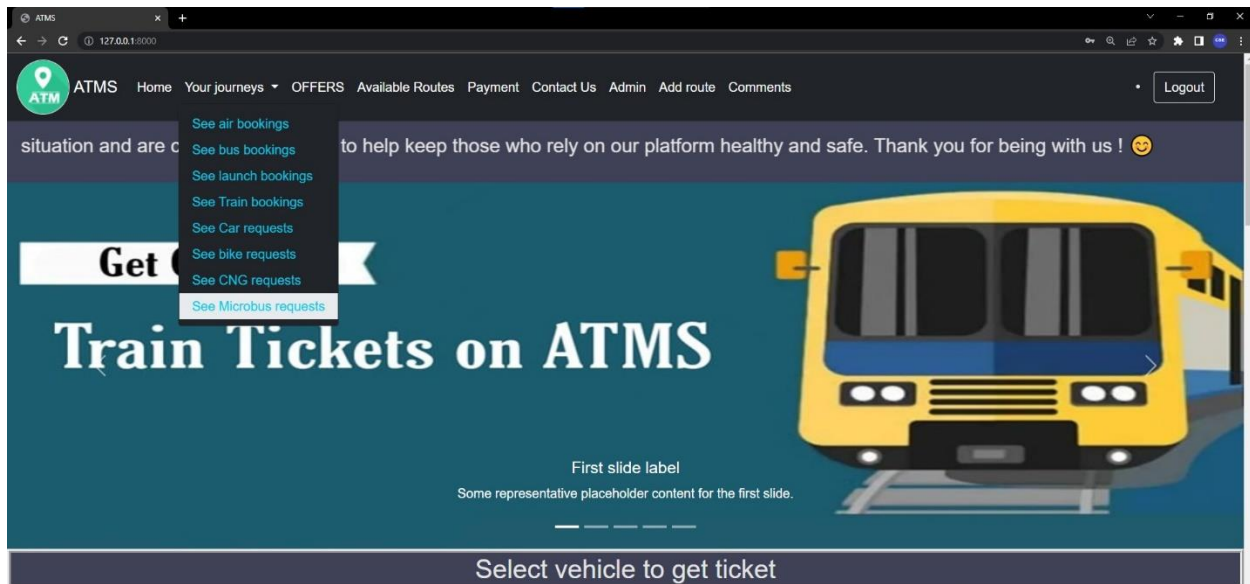


If a user wish to see the ticket in a new tab, he/she can click on the view ticket button and it will take him/her to a new tab.

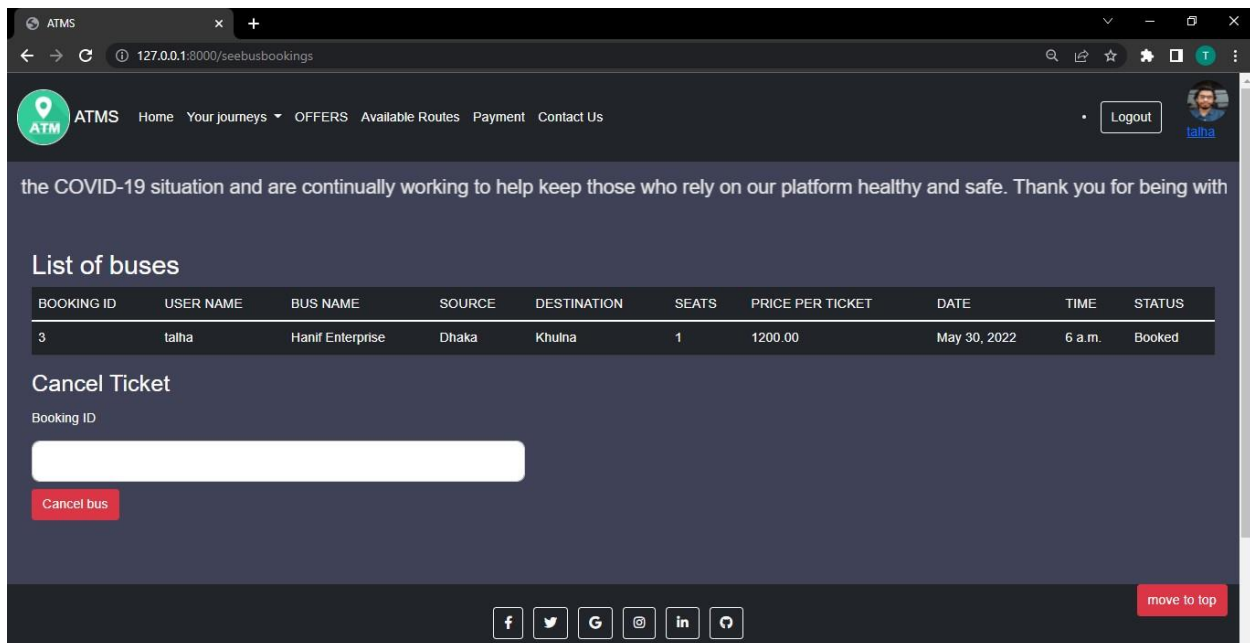


User can print his ticket if computer is connected to a printer or print a copy of the ticket as PDF. An example pdf of ticket is attached in the project directory.

A user can see his bookings and requests from your journey tab.



In the journey history the list of journeys will be shown. From here a user can cancel his tickets. On cancelling before 6 hours of journey time 20% price will not be refunded otherwise user will not be able to claim any refund.



User can select rides from the bottom column of the vehicles at the homepage. On selecting the desired vehicle for ride user will see the interface below.

The screenshot shows the 'Request a Car' form in the ATMS application. The form is titled 'Request a Car' and is located under the 'Booking Details' section. It contains two input fields for the pick-up and drop-off locations. The pick-up location is 'Azimpur,Dhaka' and the drop-off location is 'Khamarbari,Dhaka'. There are 'Clear Form' and 'Submit Form' buttons. Below the form, there are social media icons for Facebook, Twitter, Google+, Instagram, LinkedIn, and YouTube. A 'Thank you for being with us' message is displayed, followed by a progress bar. At the bottom, there are links for 'Home', 'Email Us', 'About', 'Support', and 'Terms and Conditions'.

ATMS Home Your journeys OFFERS Available Routes Payment Contact Us Logout talha

We're monitoring the COVID-19 situation and are continually working to help keep those who rely on our platform he

Request a Car

Booking Details

Azimpur,Dhaka

Khamarbari,Dhaka

Clear Form Submit Form

move to top

Thank you for being with us

[Home](#) [Email Us](#) [About](#) [Support](#) [Terms and Conditions](#)

As the user provide the pick-up and drop-off location a map is generated, distance is measured from the map. According to the distance a fare is determined and a ride is requested.

The screenshot shows the 'Distance and fare details' page in the ATMS application. The page displays the user's details, the distance, fare, status, and payment status. A map is shown on the right side of the page, illustrating the route from the pick-up location to the drop-off location. The user's details are: Username: talha, Distance: 4.66 KM, Fare: 69.9 BDT, Status: REQUESTED, Payment: UNPAID. There are 'Print Receipt' and 'Pay now' buttons. Below the details, there are social media icons for Facebook, Twitter, Google+, Instagram, LinkedIn, and YouTube. A 'move to top' button is located at the bottom right.

ATMS Home Your journeys OFFERS Available Routes Payment Contact Us Logout talha

We're monit

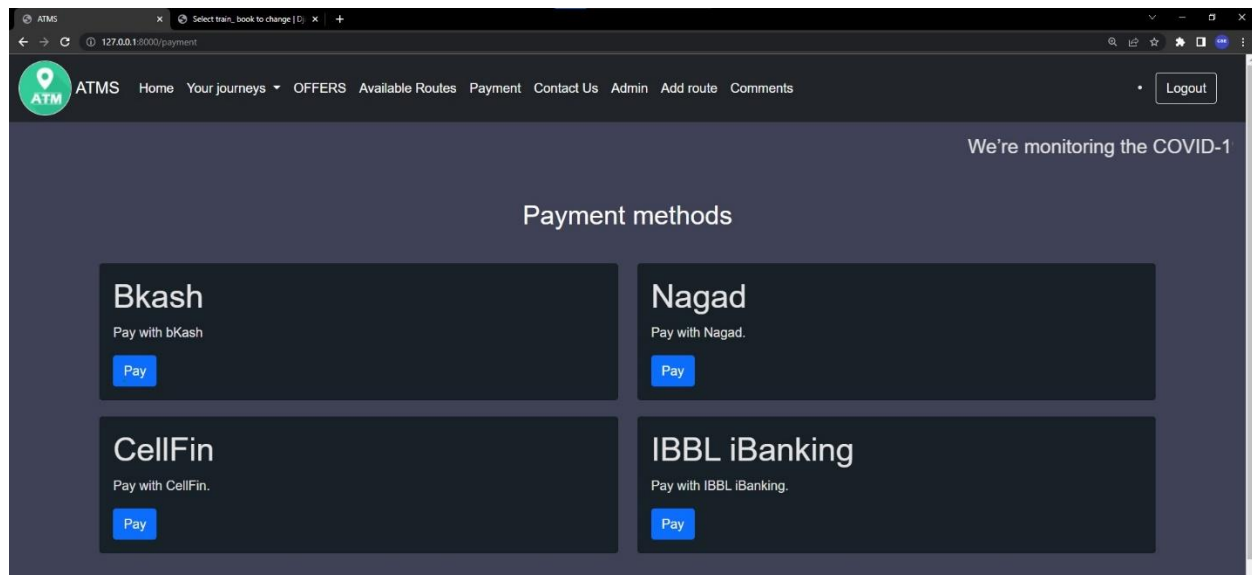
Distance and fare details

| | |
|-----------|-----------|
| Username: | talha |
| Distance: | 4.66 KM |
| Fare: | 69.9 BDT |
| Status: | REQUESTED |
| Payment: | UNPAID |

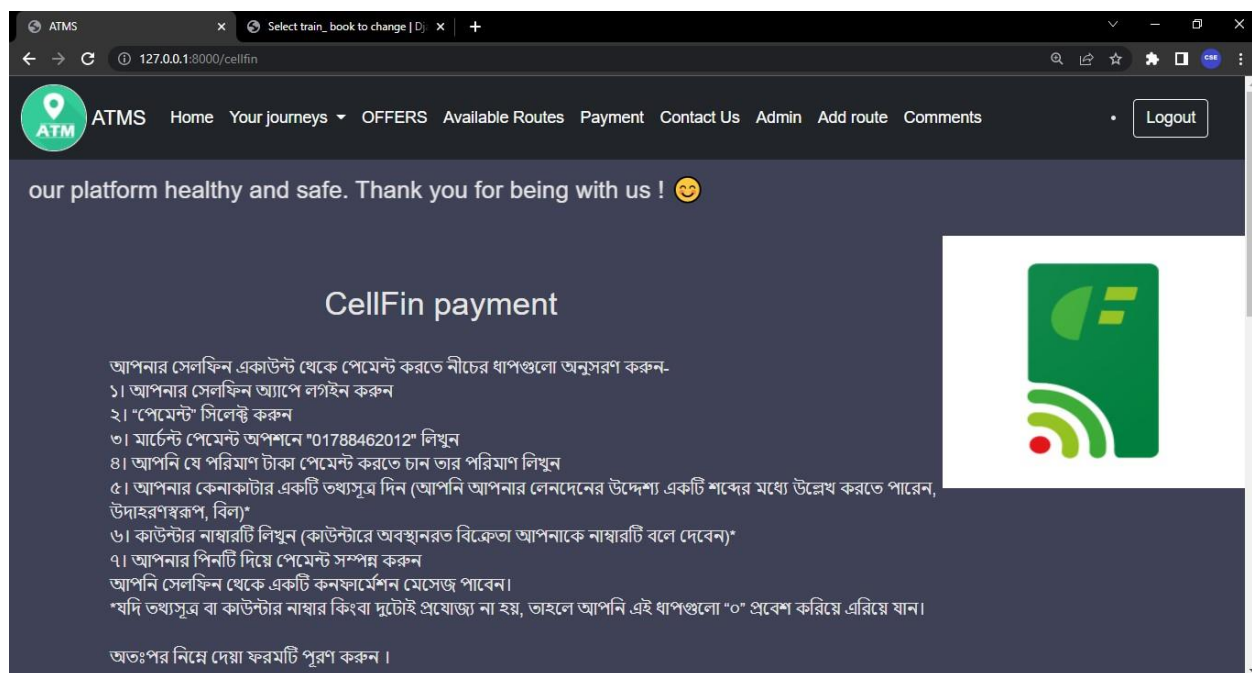
Print Receipt Pay now

move to top

After booking any vehicle user need to pay before getting the ticket. User chose any gateway to pay for his services from the following interface.



When user select the payment method user need to follow the following procedure.



User need to provide the following information after paying for tickets.

Payment conformation form

Username

Phone

Transaction id

Vehicle name

Date sent

[Confirm Payment](#)

[f](#)
[t](#)
[G](#)
[@](#)
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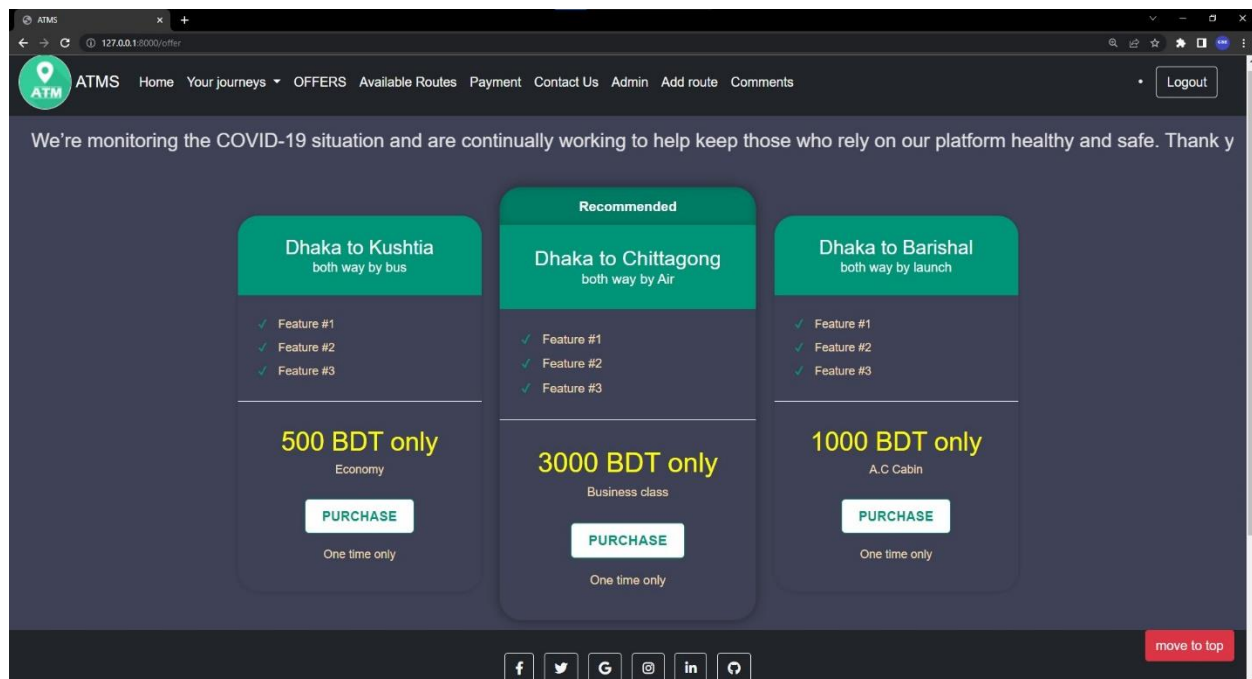
The payment information is updated and admins can see the payment information and update the payment for the service taken.

| Payment | | | | | |
|---------|---------|-------------|----------------|-----------|--------------|
| Name | Method | Phone | Transaction id | Vehicle | Date paid |
| talha | Bkash | 01235469 | dfd2g62g6 | aeroplane | May 20, 2022 |
| mahade | Nagad | 01969589689 | dfd2g62g6 | bike | May 21, 2022 |
| jobayer | CellFin | 01742188581 | sdfff121dfdf | bike | May 19, 2022 |

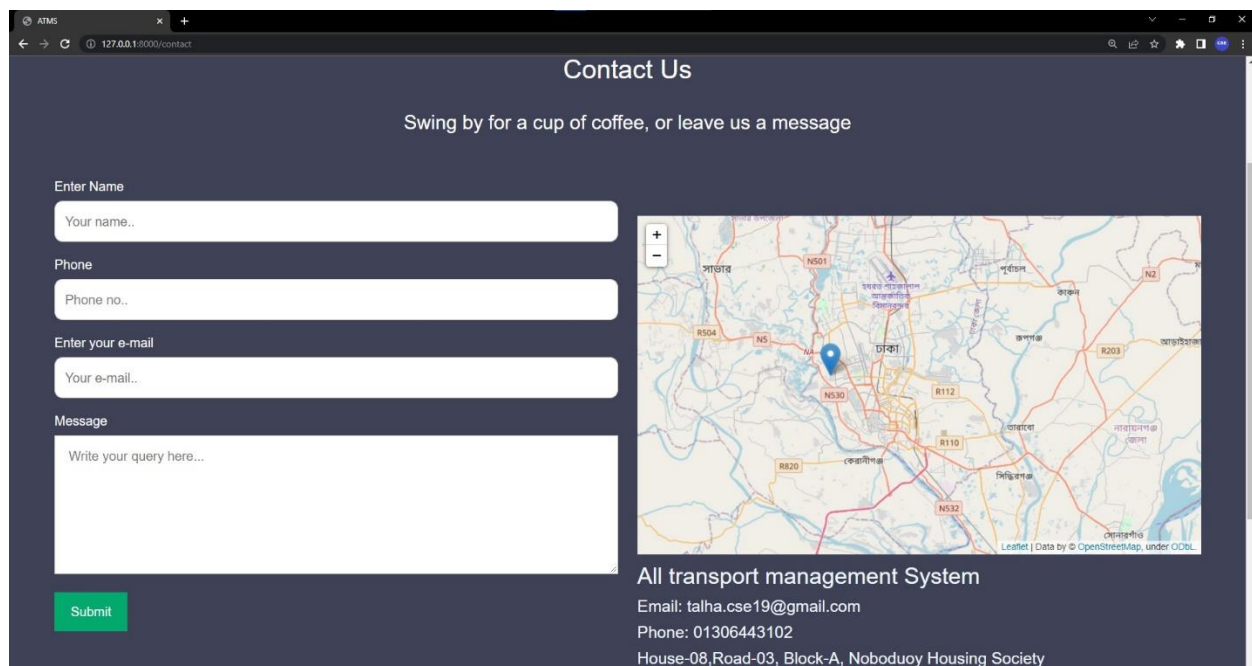
| air bookings | | | | | | | | |
|--------------|------------|-----------|--------------|-----------|---------|--------|---------|------------------------|
| Name | From | To | Date | Time | Fare | Status | Payment | Update |
| talha | Bangladesh | Singapore | May 30, 2022 | 7:30 a.m. | 9999.99 | Booked | Paid | Update |

| bus bookings | | | | | | | | |
|--------------|-------|--------|--------------|--------|---------|--------|---------|------------------------|
| Name | From | To | Date | Time | Fare | Status | Payment | Update |
| mahade | Dhaka | Khulna | May 30, 2022 | 6 a.m. | 1200.00 | Booked | Paid | Update |
| admin | Dhaka | Khulna | May 30, 2022 | 6 a.m. | 1200.00 | Booked | Paid | Update |
| talha | Dhaka | Khulna | May 30, 2022 | 6 a.m. | 1200.00 | Booked | Paid | Update |

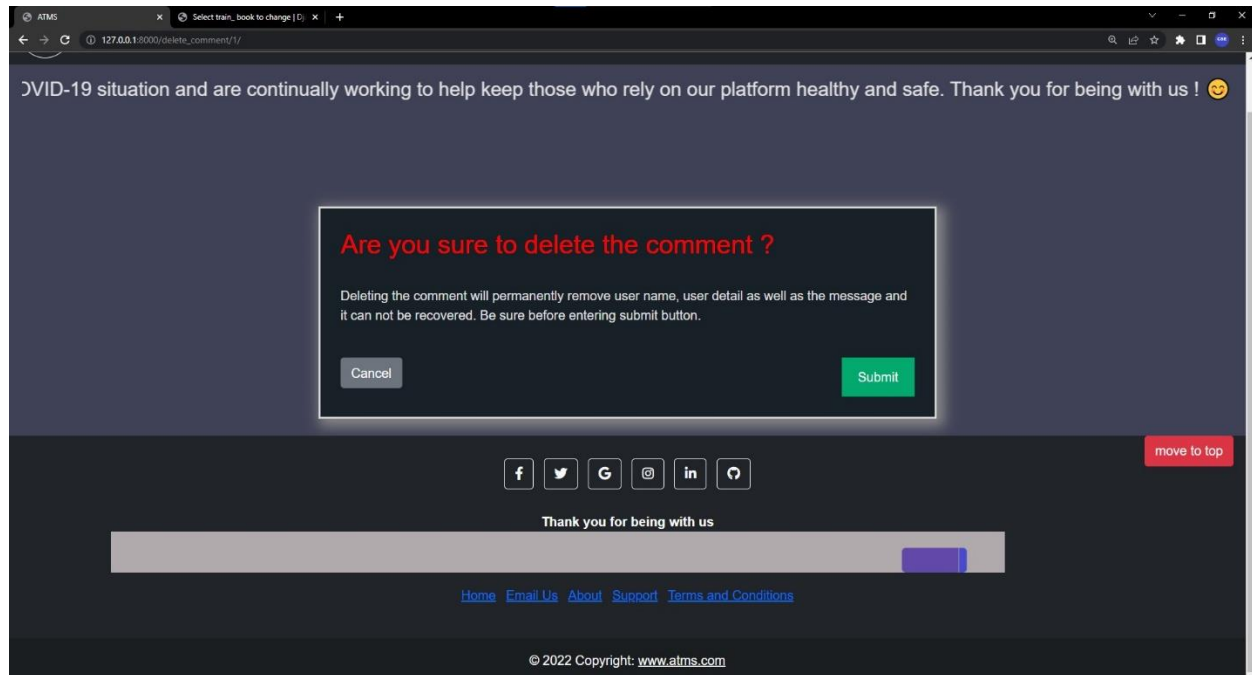
Offers are provided to the users for their convenience and to provide good users' experience.



User may send any query or contact us 24/7 to provide emergency services and get any query from the valuable user. User may also visit our office so, the location and address is provided.



To avoid redundant query and any unnecessary query admin may delete queries. On deletion the following prompt will be shown. Then admin can confirm deletion of comments.



Conclusion

There are so many things that can be done to improve the project. We will be updating the site with many more interesting attributes and features. Nevertheless of this we have tried to see the corner cases and solve them as far as we can.