



EAST WEST UNIVERSITY

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Project Report

CSE411

Section-01

- **Project Topic: Metrorail Ticket Management System**

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Introduction: This is an integrated service which provide all information about the metro rail and its routes for public. The proposed system is a web-based application which provides information regarding timings, routes, fair. This system contains an online ticket module where users can buy ticket through their bkaash or rocket payment system. There is also an admin module where admin can add stations, trains, routes and also update. The admin is a panel consisting of a group of authorized persons.

The motives of the project are as follows:

- ☐ Users can register through the site.
- ☐ User login page where users can buy tickets online.
- ☐ Users can view metro timetable and their previous journey record.
- ☐ User can also view the details and the route map.
- ☐ An admin login page where admin can add stations, train routes, update etc.

The proposed system is designed to eliminate the disadvantages of the existing system. The proposed system “Automated Metro Rail Ticket Management System” is mentioned for tracing the problems in the existing system of Bangladesh.

The system ensures:

- ☐ Increases efficiency and reliability.
- ☐ Easier Access and easy to use.
- ☐ Provide accurate information to the user for taking necessary decisions.
- ☐ The information will be correct, accurate and unambiguous.
- ☐ Information can be collected, processed and communicated more quickly and efficiently.
- ☐ System ensure that right information reaches the right person at the right time.
- ☐ Accessibility, Usability and Understandability.
- ☐ The options used can be easily accessed, used and realized.

Major Challenges to develop this system:

- According to Bangladesh perspective, the system should be much easier to the users.
- Database must be encrypted that information of travel history of a user is kept secure.
- Online payment system must be structured with proper instructions.
- Process must be faster with no failure during confirming a transaction.

System requirements:

Non-functional requirements:

Efficiency requirement: When a metro rail management system will be implemented then the user can recharge and view metro information fast & easily.

Reliability requirement: The system should accurately perform recharge, show the details of metro such as fair, route maps.

Usability requirement: The system is designed for a user-friendly environment so that user and admin of metro rail can perform various tasks easily and in an effective way.

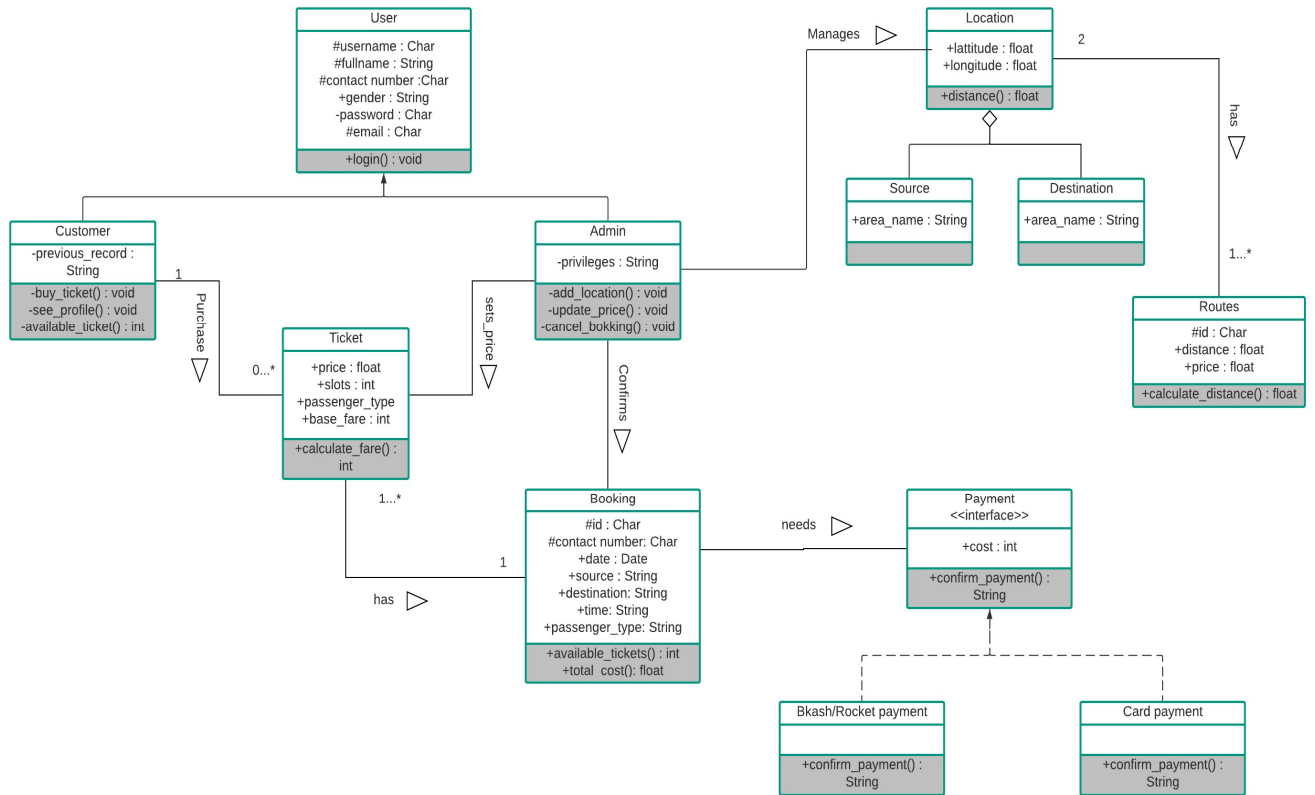
Functional requirements:

- System must be able to verify information.
- System must be able to store the information in database.
- System must be able to retrieve information when required by admin.
- User id is provided when they register.
- The system must be able to show the users balance and journey history.
- The user must be able to logout after they had finished recharging or after viewing the balance or journey history.
- System must allow the users to enter the source station and destination stations.
- System must be able to process information from database.
- The system must allow admin to add train, stations, routes, metro timetable and even add a new admin.
- The system must also allow admin to reply to the complaints send by the user.
- The system should be designed in such a way that only authorized people should be allowed to access some particular modules.
- The records should be modified by only administrators and no one else.

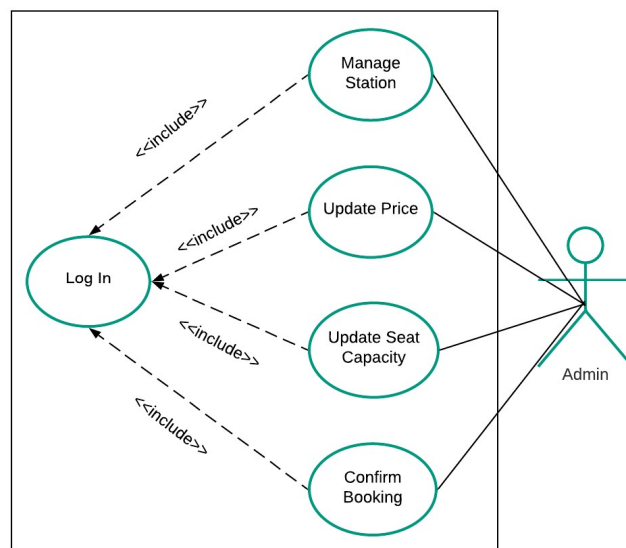
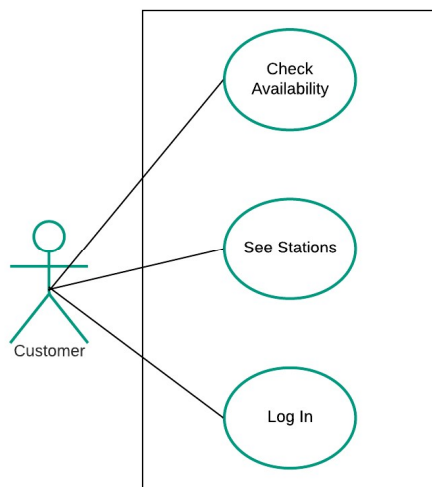
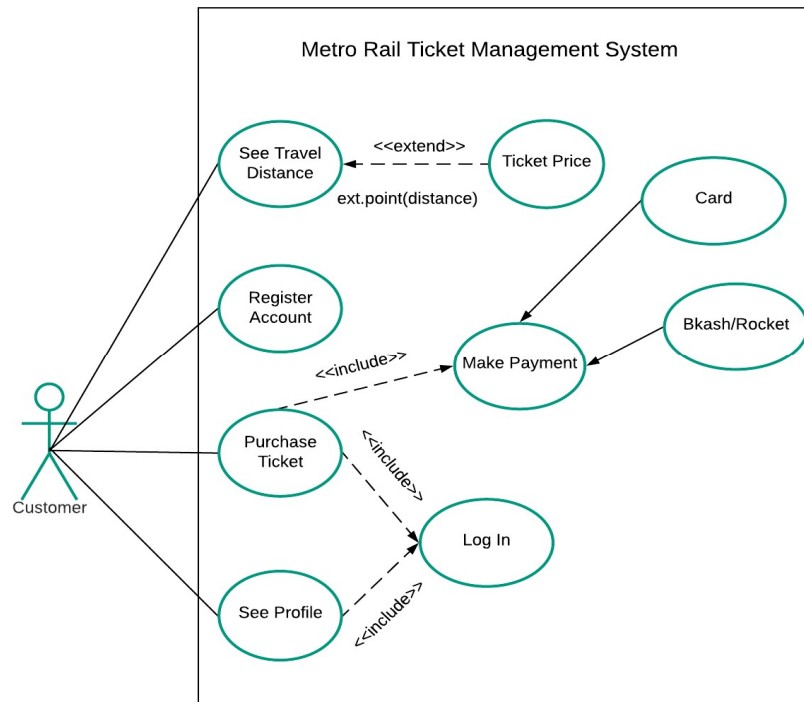
System Configuration: -

- | | |
|----------------------|---------------|
| ❖ Front End | : HTML, CSS |
| ❖ Scripts | : JavaScript. |
| ❖ Back-End | : Python. |
| ❖ Database | : PostgreSQL |
| ❖ Back-End Framework | : Django |

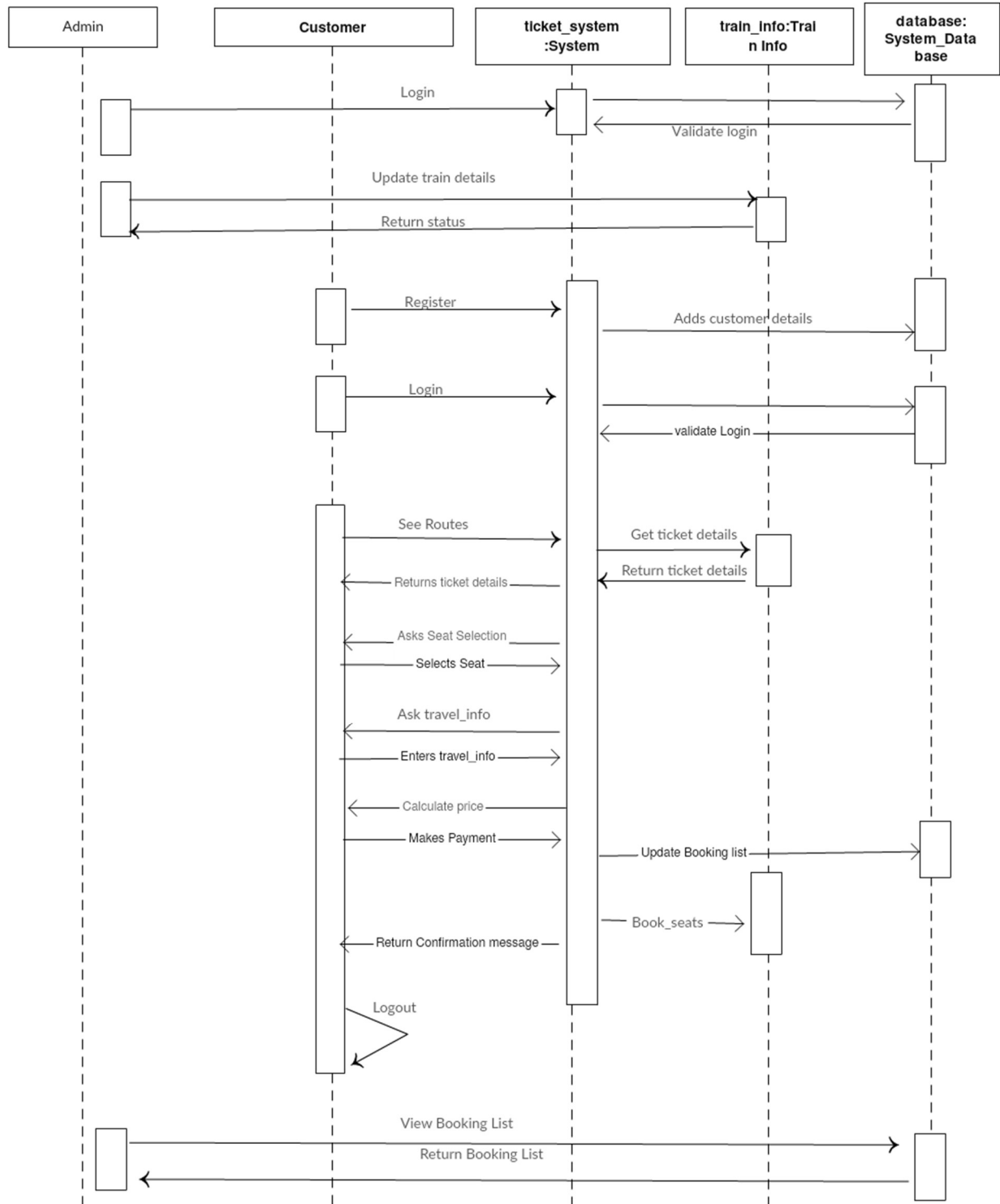
Class Diagram:



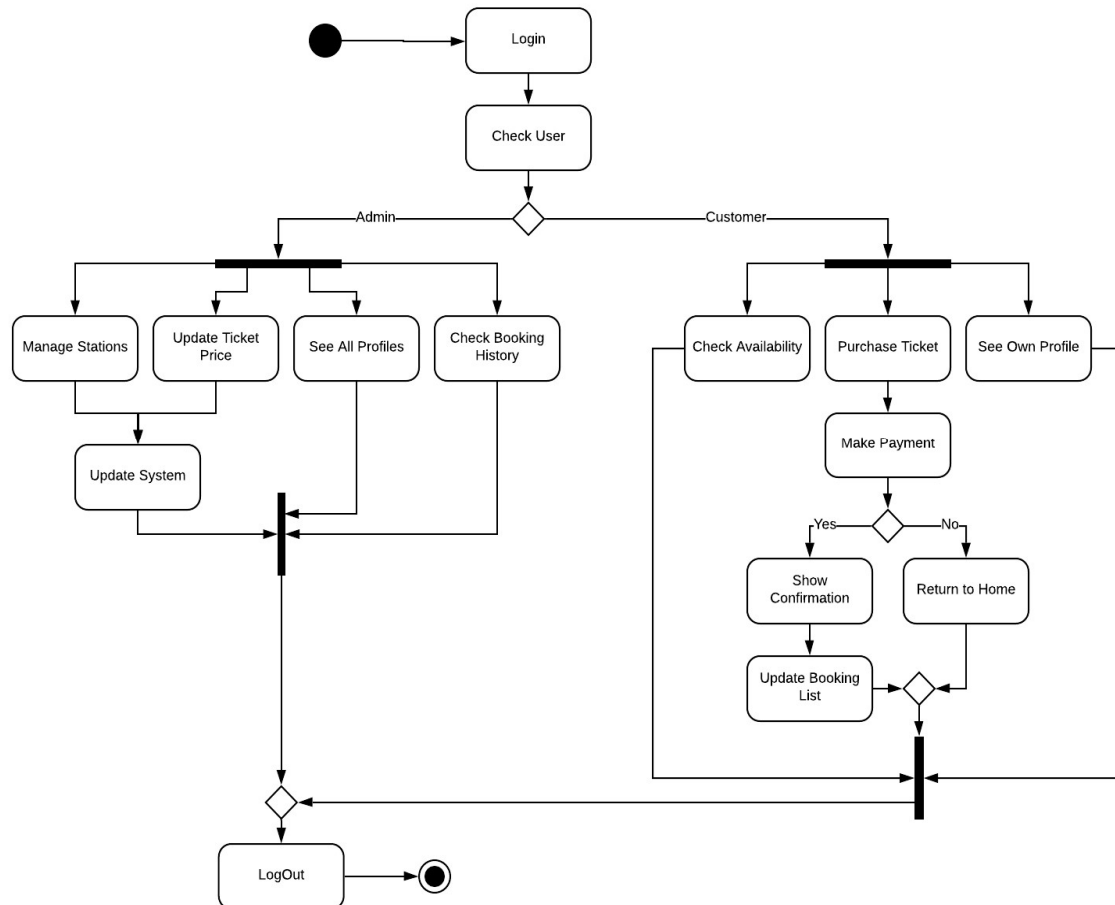
Use Case Diagram:



Sequence Diagram:



Activity Diagram:



System Overview:

Home Page

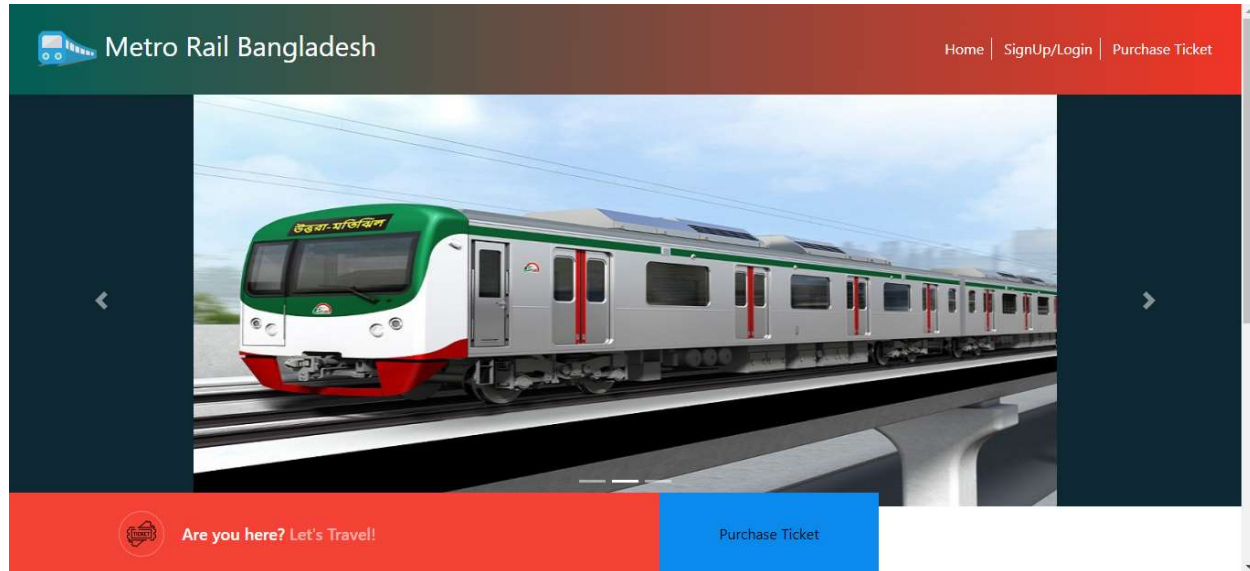


Fig: Home Page Slider

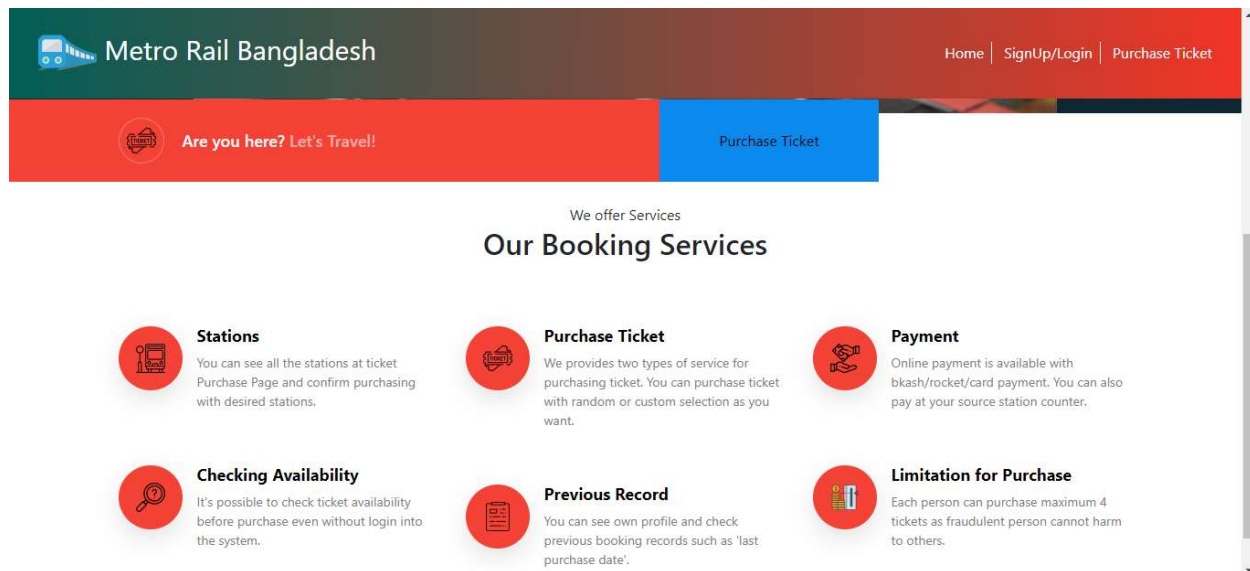


Fig: Services are briefly described

Permission for controlling system is done with navigation bar, where normal user can only see his own profile and admin can manage all necessary portions. So that the navigation bar will show extra options when the logged in user is an admin.

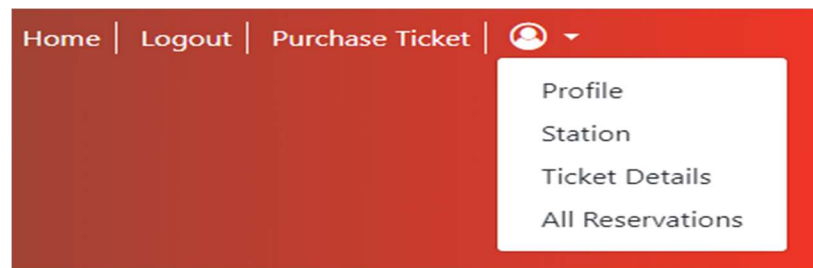


Fig: Admin nav-bar

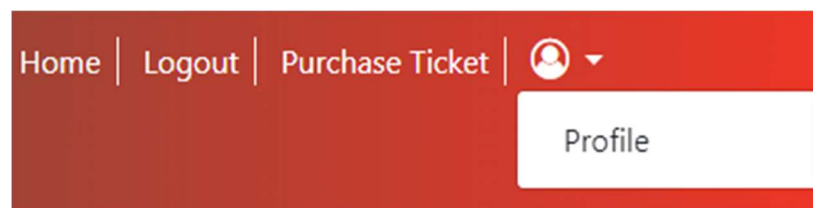
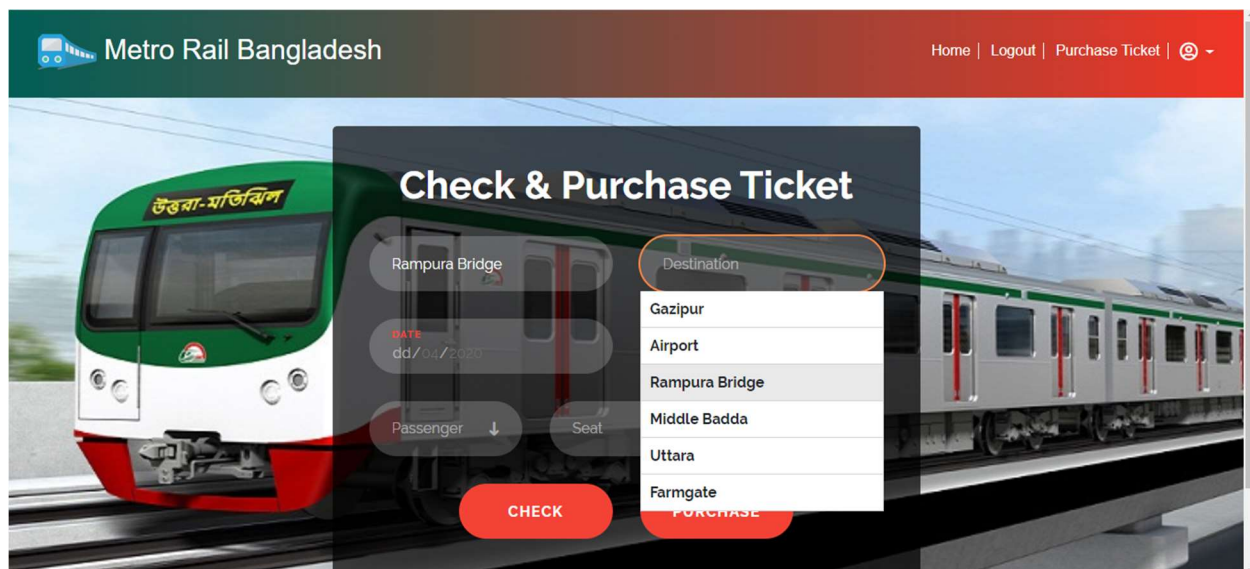
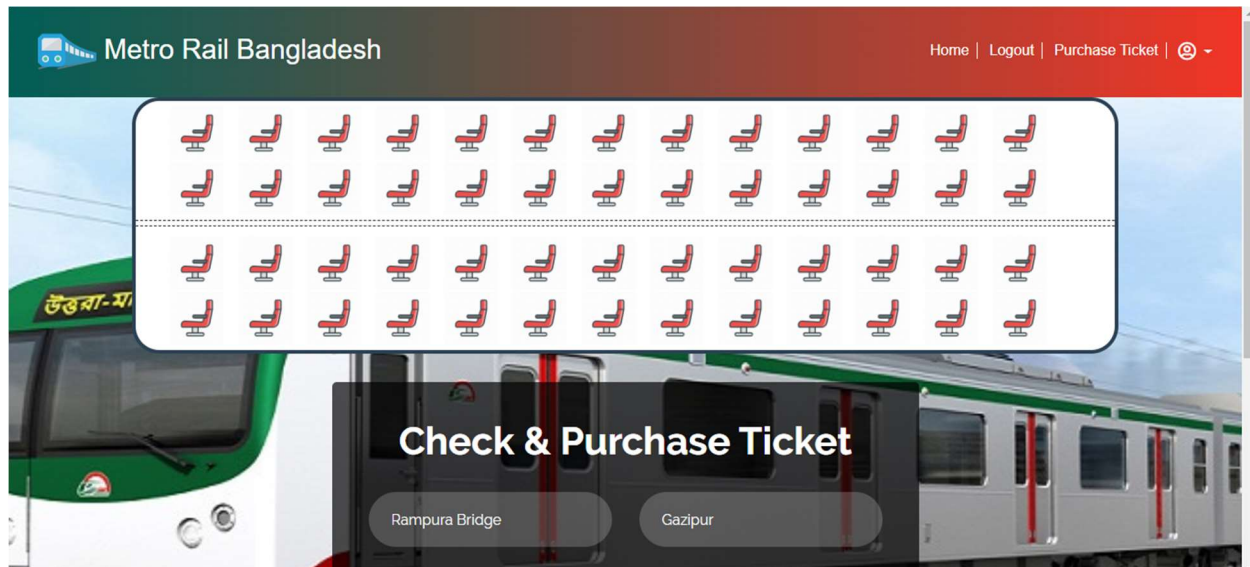


Fig: Customer nav-bar

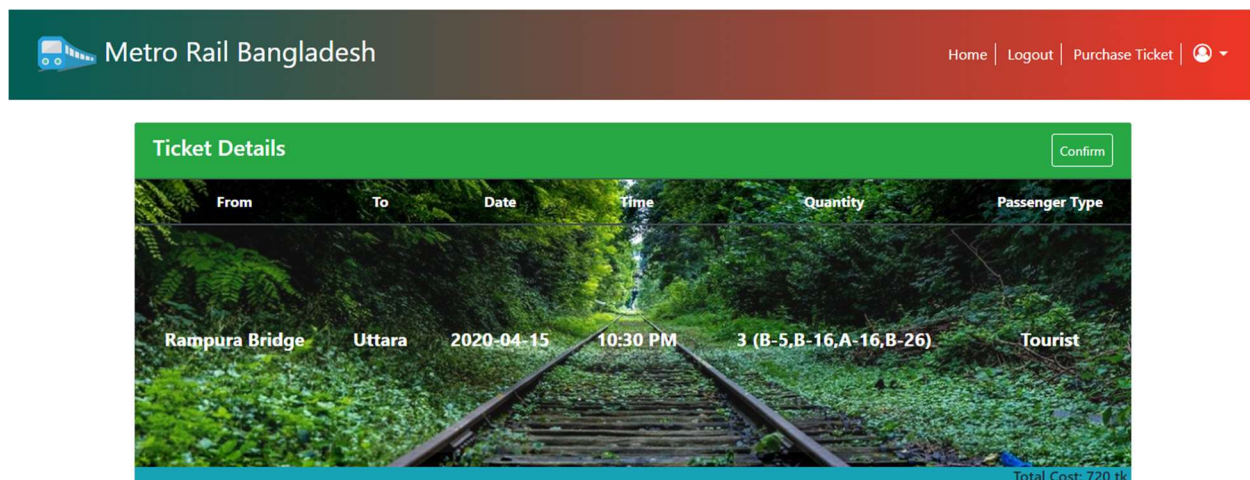
Ticket Purchase



Users can purchase tickets with providing trip details. All listed stations will be showed just after clicking on an input field.



User can choose tickets randomly or with custom selection from the “seat” option. Each user can purchase maximum 4 tickets at a time and maximum 2 days before a trip.



Before purchase, a confirmation page will be displayed with ticket details and user needs to click on the “confirm” button for a successful reservation.

Profile

Metro Rail Bangladesh

Home | Logout | Purchase Ticket | admin

Profile Other info

Full name Mr. x

Age 23

Gender male

Contact Number 53241224

Email admin@gmail.com

Username admin

Password

Confirm password

Cancel Save Changes

Profile section contains all information of the current user. And user can update his information except username. Only admin can see all users profile.

Metro Rail Bangladesh

Home | Logout | Purchase Ticket | admin

Profile Other info

No. of booking records: 2

Last Purchase Ticket May 8, 2020

Profile section contains also purchase record such as active reservations, last purchase date and total records. Users are able to cancel their active reservations by clicking on the “cancel” button.

Station Management

The screenshot displays the 'Metro Rail Bangladesh' web application. At the top, there is a navigation bar with 'Home', 'Logout', and 'Purchase Ticket' links. The main content area features a dark header for 'Add Station From Map'. Below this, there is a form with the following fields:

- Area:** A text input field containing 'Tongi'.
- Latitude:** A text input field containing '23.898629248592282'.
- Longitude:** A text input field containing '90.40838241577148'.
- Add:** A red button to submit the form.

To the right of the form is a green box titled 'Available Places' containing a list of locations with red 'X' icons next to them:

- Gazipur
- Airport
- Rampura Bridge
- Middle Badda
- Uttara

Below the form is a map showing the location of Tongi. The map includes labels for 'Tongi Junction', 'Boro Dewra', 'Kakil Sataish', 'Bhatuliya', 'Gopalpur', and 'Mausaid'. The map also shows the 'Turag River' and 'BSCIC Industrial Estate'.

Admin can add stations from map by searching or selecting desired location and there will be a form filled with station name, latitude and longitude. Admin can also edit these values and submit for new station.

This screenshot shows the same 'Add Station From Map' form as the previous image, but with a 'Remove Place' dialog box overlaid. The dialog box has a title bar with a close button (X) and contains the following text:

Remove Place


Are You Sure to Remove this Place From the List?


At the bottom of the dialog box are two buttons: 'Cancel' and 'Yes'.

The background form and map are slightly blurred, indicating the dialog box is the active element.

Admin can also remove stations by simply click on “x” button at right side table, if some of those will not be used. An alert window will be displayed for confirmation. If “Yes” button is pressed, the station will be immediately deleted.

Ticket Management

 Metro Rail Bangladesh

Home | Logout | Purchase Ticket | 

Current Ticket Details

Class Type:

Tourist

Total Slots:

10


Price(per km):


20







Update

Ticket price is based on different types of passenger such as tourist, student, general people etc. Clicking on each type will show current fare and slots for that type of passengers. These values can be updated every time.

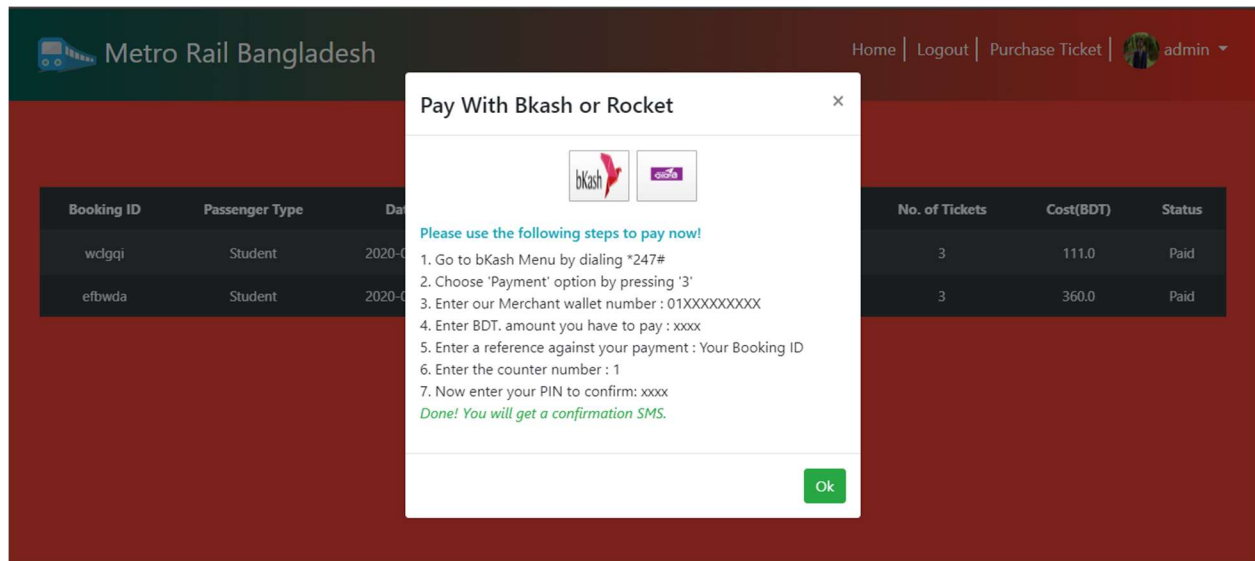
Booking List

 Metro Rail Bangladesh

Home | Logout | Purchase Ticket |  admin

| Name | Booking ID | Contact Number | Passenger Type | Date | Time | Start Point | Destination | No. of Tickets | Cost(BDT) | Cancel | Payment |
|--------------|------------|----------------|----------------|------------|----------|-------------|----------------|----------------|-----------|---|-----------|
| Mr. Salekin | wicdok | 01927904143 | Student | 2020-05-02 | 02:00 PM | Badda | Mouchak | 2 | 74.0 |  | Confirmed |
| Mr. x | wclgqi | 53241224 | Student | 2020-05-06 | 02:00 PM | Badda | Mouchak | 3 | 111.0 |  | Confirmed |
| Shams Jubair | xpgkon | 123456789 | Tourist | 2020-05-10 | 02:00 PM | Motijheel | Uttara | 2 | 530.0 |  | Confirm |
| Shams Jubair | ldujso | 123456789 | Tourist | 2020-05-12 | 10:00 AM | Mirpur-10 | Mogbazar | 2 | 246.0 |  | Confirm |
| Shams Jubair | knldsn | 123456789 | Tourist | 2020-05-10 | 10:30 PM | Motijheel | Rampura Bridge | 3 | 225.0 |  | Confirm |
| Mr. x | efbwda | 53241224 | Student | 2020-05-08 | 10:00 AM | Uttara | Rampura Bridge | 3 | 360.0 |  | Confirmed |

Admin can see full booking history along with all information's. Admin can also remove/confirm reservations.



Users can see payment instruction on their own booking list. After a successful payment, an admin will confirm that booking.

Future Work:

For future expansion the system can be web enabled so that clients can make various enquiries about trains between stations. Payment method can be developed with online verification system such that a booking will be automatically confirmed after successful payment. But it is not possible without some money transaction authorizations. Also, there can be developed a route map so that all the stations will be identified easily. But to do this, routing API needed which can be gained in future.