

TICKETKATUN: A WEB BASED APPLICATION

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled “TICKETKATUN: A WEB BASED APPLICATION”, submitted by Md. Rafsan Jaman Khan Ananta, ID No: 191-15-2745 and Nitu Khatun, ID No: 191-15-2747 to the Department of Computer Science and Engineering, Daffodil International University, it has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 23-Jan-2023.

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ABSTRACT

Our railway ticket booking system is very helpful for passengers. It is a web based system where passengers can book or purchase their desired tickets from home, get information about train, get train fair prices, get information about routes, can print train tickets etc. Aim of this project is to design and build a web application and create a good system for both users and administration. Where users can easily open an account from home with some required information and can purchase their desire tickets. On the other hand, administrator also can easily maintain schedules, trains, train routes and print sales report etc. In our country, there are number of stations for the purchase the tickets like Kamalapur Station, Airport Station and Zila Stations to get desired tickets. But they do not provide online services, we have to go those stations for purchase our desired train tickets. We all know about our road traffics, and when comes vacations like Eid-ul-Fitr and Eid-ul-Adha it is more irony to get a train ticket from stations. In one word it is very stressful work to purchase tickets physically from stations. I think this is a good solution for getting up from that high level of irony and stressful work. It is a web application-based project which has a lot of features, to help us get rid of that hazard.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

For a country, transportation is an important part. If we see back or old days, transportation was limited but now people were able to move travel around the world within hours and days. Currently two types of transportation are used in Bangladesh, one is traditional and another one is modern to carry peoples and goods from one place to another place. Traditional transport includes bicycles, boats, steamers, carriages, rickshaws. And modern transports include buses, taxis, trains, planes, trucks and so on. In Bangladesh trains move in almost all the regions in Bangladesh and are very popular means of communication. When Padma bridge rail link is completed, then train can travel every divisions of Bangladesh. Almost more than 10 million people use trains in every year as their transport to travel one place to another place. In our transportation system trains role is very important.

1.2 Purpose

Purpose of this project is to make it easier whole analog or semi analog train ticketing system, in easy word project's goal is to explain the railway system, which offers information about the ticketing, billing, and cancellation for several types of bookings, including

- 1) Online purchasing.
- 2) Online payment.
- 3) Online ticket printing.

1.3 Scope

World is changing, day by day technologies also changes. For example, we can talk about phone, before 20 years phones and current days smartphone there are massively different. With current days smartphones uses latest technologies, there are a lot of different different features. If we saw our railways old days, there was only hand-written ticketing system. But now railways use computer software for managing ticketing system.

With the help of this project, we can improve traveler convenience by making it easier to buy tickets online. While most people find it convenient to buy tickets online, For individuals who reside in remote places, it has greatly simplified their lives.

The scope of this project is undertaking is rather broad. It has the following characteristics that make it simple to use, comprehend, and modify:

- Automation of Ticket Purchasing System.
- Increasing software's effectiveness.
- Save environment by less using paper.
- Management of online payment.
- Don't need paper work.
- Management of online database.
- Increasing software's precision.

1.4 Objective

After successfully logging in, users can browse the booking page and purchase the tickets of their choosing using an online payment method. For the sake of security and dependability, user information will be gathered and maintained in our database. Any useful information or database data may be added, deleted, or edited by the administrator. Administrator also have to sign in to access this or also for create schedules, trains or routes.

1.5 Expected Outcome

1. Make responsive website so that it can be accessed from any platform.
2. Time-saving for both the user and the admin.
3. Make an easy payment system for users.
4. Improving railway ticketing system.

1.6 Project Management and Finance

Admin has a dashboard where admin can add train, route, seat, tickets fare, print report and manage more other things etc.

From the user dashboard, users can search available trains, purchase tickets and print tickets. In website there is a quick online card payment system is available.

1.7 Literature Review

A person's life depends on their mode of transportation. The main objective of this thing is to make traveling much more relaxing by eradicating one of the most common concerns with relation to having a ticket with you, especially when you're traveling. For this reason, some researchers proposed a biometric-based ticketing system that is not only applicable to the metro train scenario but also to other scenarios [1]. They consider each person's

fingerprint as soon as they register, purchase tickets, and validate fingerprint on the day of trip to ensure that they can travel on a specific day and on the desired train to the user's selected location. As a result, they are creating a system where their fingerprints will serve as the ticket and there won't be a need for a physical one. The fingerprint sensor will connect to Arduino, and Arduino will then store the fingerprint information in the cloud. They suggest putting the delicate fingerprint data on the cloud using a two-way encryption protocol. This standard for two-way encryption encrypts data twice: once during data generation at the hardware level, and once again before it is stored in a cloud database. Simply add an additional encryption algorithm to the fingerprint data that has already been encrypted for more protection before saving it to the cloud database. Once registration is complete, the user proceeds to book tickets, looks for trains in accordance with their preferences, and does so using the registered fingerprint that they entered during registration. The user then visits the ticketing kiosk on the day of the trip and presses their finger against the fingerprint reader. If the same person's information is found in the database with a reference to the same date, the gates will open and they can travel; however, when they arrive at their destination station, they must punch their fingerprint once more in order to exit the station. The AES technique will be used in the Arduino to do the encryption. The fingerprint sensor provides the hexadecimal message, which is then encrypted and sent to the cloud. A second hybrid encryption algorithm will be used to encrypt the data after it has been sent to the cloud a second time, and the data will then be added to the cloud database.

Customer satisfaction with Bangladesh Railway's e-ticketing system is examined by some researchers [2]. Additionally, the gender perspective is examined in relation to the elements of service quality. Railway transit, as we are all aware, is widely believed to be more economical, environmentally friendly, and convenient than other means of transportation worldwide and has a considerable influence on a nation's economic development. Through the use of e-tickets, the sales process from the consumers travel activities can be physically and economically documented. Of all the transportation sectors, Bangladesh Railway handles 20% of all passengers; yet, the performance of the total service quality of the railway is noticeably subpar to meet the increased demand in contemporary times. They

discovered that 91% of passengers struggle to purchase tickets manually as a result of lengthy lines, and occasionally give up after such a wait. Therefore, they advocated for ensuring transparency in the process of ordering train tickets. According to a 2013 study by Lee and his colleagues, the requirement for interaction at self-service kiosks in the USA considerably influenced how well services were viewed by women. Technology did not have a bigger impact on service quality for women than it did for men. This body of literature demonstrates that while technological elements may not have a difference impact on male and female customers in wealthy countries, they may in underdeveloped countries. Given Bangladesh's patriarchal society and low technological growth, technology is a significant problem for both men and women in that country. This research will have a significant impact on literature because e-ticketing was only recently introduced in Bangladesh. However, this technological service has not yet given gender concerns a lot of attention.

One of the most significant modes of transportation, rail transport, has contributed significantly to world biggest economic tycoon China's transportation sector. Rapidly China's economy is growing, with this their railway lines, passengers and goods transport through railway is increasing massively. With such a large consumer base, the issue of purchasing rail tickets has been particularly noticeable and they are facing many problems. So, some researchers introduce a new online railway ticketing system, by this system they are trying to solve previous systems problems [3]. They use three-layer structure on their proposed system and they are database layer, application service layer and user interface layer. Data is stored in a database layer, including user registration information, information about ordering tickets, information about tickets, and other data. On the other hand, between function calls, application service layer interface is given between the user interface layer and the system modules, with the application service layer handling system functions and business logic. In accordance with the upper layer's service request, this layer also makes database modifications. On the other hand, An application called user interface layer runs on a distant user's computer. It shows the user the server's services that are offered. This software sends a request to the server after the user chooses a service. This

application displays the processed result to the user after the server returns it. The following system features are available: client registration, customer cancellation, search, booking, and refunding capabilities. They develop business processes, logic models, databases, and physical databases on this paper with useful characteristics.

Some security protections like ticket snatching are now missing from the market's software for buying train tickets. Some researchers proposed a system to increase system security and development efficiency, they created and developed its own server-side framework [4]. Functional requirements and non-functional requirements are used to analyze the system needs. The system's overall design, which includes the partitioning of functional modules and database design, has a significant impact. The system is split into two sections: background system management and foreground function module. The user registration, ticket inquiry and sales, information browsing, message, change of plans, and refund capabilities are all included in the foreground function module. The background system management, on the other hand, also has several features, including user and ticket administration, message center management, order statistics, personal information alteration, information releases, and booking information, among others. Ten functional categories can be used to group the suggested system. Order, Push, System Timing Task, User Information Management, Train Ticket Inquiry, Red Envelope Distribution Coupon, Partner Docking, Inquiry, Ticket Snatching, and User Feedback Modules are the modules that are discussed. The Order module is the system's primary functional need. Through it, users can access the application and complete the necessary steps for purchasing tickets, as well as query for the next available train, add a passenger, submit their order, and pay for tickets or cancel it. Users can access train information using the train ticket enquiry module. The user then accesses the query page and uses this control to pick the train number category, query date, originating station, and destination station. The order is packaged on MISC big field storage and contains the necessary data as well as the data requested by the order details page. A robust and effective cluster system is formed by making heavy use of load balancing technologies and combining it with separately created load balancing modules, which also greatly speeds up user access. The system's functional modules are

separated into distinct categories. Entity relations enable the design of the entire database, reducing database table redundancy.

There are some researchers envisioned a system where the use of ATM machines may be practical for purchasing train tickets and could be a good initiative to new rail booking technology [5]. First, a screen will display a common program of the ATM and is visible to consumers who are attempting to book a ticket. Users of this system can use ATMs to book train tickets in addition to cash withdrawals. Users must initially insert their ATM cards and pin codes into the machine. Following the insertion of the ATM pin, the screen would display the options Banking & Railway Reservation or Railway Ticket. Users can now pick between the two aforementioned alternatives. If a person wants to conduct financial transactions, he can pick the banking option and continue. Users must select the ticket booking option if they want to make a reservation. Users have two choices after clicking the book ticket option General Ticket and Reservation Ticket. User can book a general class ticket by clicking the general ticket button and entering the necessary information. However, if he chooses the reservation option, he will be required to input the names of the destinations and the date of departure and he will then be given a list of the specifics of the seats and their availability. One issue is that, if more than one person is traveling, the user must enter each person's name using the keyboard on the device. Let's now discuss the real architecture of the ATM machine with the online reservation module for trains. They will need two servers for this, a bank server and a rail server. After successfully inputting the card and pin, a user will be presented with two options: banking and ticket booking. If he chooses banking, this module will provide him the choice between a regular ticket and a reservation ticket. If the user needs to make a general reservation, they should choose the general ticket generating option and provide the destination's name. The system software then automatically gets the current date and creates a slip. When a user confirms a ticket, the debit/credit module handles the rest of the procedure. In this module, the railway account is credited and the ATM account holder account is debited. The user receives a printed slip once this entire process is finished. Every financial

transaction will be completely secure and beneficial to the bank. The bank will charge a fee for offering this feature.

Some researchers proposed an RFID-based user identification system for Indian Railways [6]. This system, which consists of the two crucial parts tag and radar, employs radio waves to communicate data between a mobile device with memory and a host computer. The tag is similar to a barcode label and comes in a variety of sizes and styles. It has a tiny microprocessor attached to an antenna. The reader operates in a manner akin to a barcode scanner. The RFID reader uses electromagnetic waves, whereas the barcode scanner uses laser beams. The scanner communicates with the tag antenna via a signal that is transmitted by an antenna in order to transfer these waves. These days, RFID technology is widely used in the identification process, and it can also be used in systems that use optical scanning. Therefore, a ticket checker equipped with a wireless hand-held device that includes a card reader would be included in the travel process. Each passenger would be required to hand over their cards so the checker could swipe them. The device could show the user's information, including name, age, sex, and card number, as they swiped. Additionally, the chronology of travel as well as the status of reservations, balance before swiping, and available balance may all be shown. The checker might input the destination codes, allowing for the precise amount to be calculated. The working of the card reader, which depends on information exchange between the reader and the national database, is summarized in a block diagram that will be employed. The database and wireless data interchange must have the fewest possible errors for the system to be reliable. Wireless protocol, a national database, and handheld devices are all interconnected. This method has several benefits, such as the fact that the issue of passenger identification would not arise since the card would have a photograph of the bearer and that they could even resort to having a key that should be known only to the card holder making it more secure. Because such modifications would be stored in the database, the ticket checker may confirm the passenger's claim whether the reservation was made over the phone or online. On the other hand, foreign visitors to the nation may be given a temporary card as part of the visa

application process, allowing real visitors to travel and denying terrorists access to the core of our transportation network.

Some researchers put forth a powerful mobile app that offers many other factor facilities in addition to online transportation money transactions [7]. MRTS stands for Metro Rail Ticketing System. The app would demonstrate security, time savings, and high compatibility in addition to reducing the effort required for physical transaction processes. They choose a solution that allows ticket purchases via a Metro APP using a mobile device. Given all the issues with the multiple ticketing systems, a new authentication may be able to increase the effectiveness of the current ticketing system. By doing this, we can lessen the inconvenience of waiting in long lines. It offers numerous distinguishing benefits, such as allowing users to tour the entire city with spending less amount; all they need is a smart phone, which is already a commonplace item in this developed culture. This app will be accessible on all smart phones, starting with those running the most basic versions of Android, iOS, Blackberry so forth. Smart cards can be given out to anyone without any prior information, however this architecture may make it possible to obtain the customer's check-in and check-out information. When a new user tries to download the metro rail app, they are asked for their contact information, which is then confirmed and saved in the database. On back end, app starts creating a specific customer's QR code using encryption techniques and a random number generator and then collect other information when generate code. All data is stored on the main server, and copies of crucial data are kept on proxy servers that are located at each and every station. The customer can choose to log in with his old account by using his old user name and password. Then user brought to the main page when they open the app. It is made up of services, a QR code, and recharge accounts. Another QR-code alternative is also available that does not require internet connectivity. The unique parts of the data are now encrypted as soon as the requested information is obtained from the consumer, on backed service is developed to generate the QR-code. Every time a customer scans his QR code at the scanner, a proxy server checks to see if the account is active and to check the account's balance. The specific record is activated following verification, at which point it enters the waiting stage. When a customer

later presents his QR-Code at the destination, the signal at the proxy server is enabled, the distance traveled is computed, the appropriate amount is subtracted from the main server database, the customer's record is deactivated, and the proxy server is updated. The customer's mobile device receives a message at the end. Passengers must top off their metro accounts before using them. Scan the QR code at the recharge station to complete the process quickly. It confirms it at the station's proxy server, credits the money to the main server, and updates both servers. On the other hand, the net banking cloud stores the proxy server information, confirms it, and credits the money to the main server.

1.7 Modification and Implementation Over Existing Model

Present Site:

- Currently used website lacks human friendly interface.
- Time consumed in accessing the records of the database.
- User has to wait for a long time in the queue about tickets.
- Facilities of the software cannot be accessed online/other than department systems.
- Have to wait for the seat selection.

After implementation of our project:

- Human friendly user interface.
- Easy to use.
- New features as per requirements.
- User's seats will be generated as per availability, in future seat selection will be available.
- User will be able to pay their bill via card.

CHAPTER 2

BACKGROUND

2.1 Preliminaries/Terminologies

We use Bootstrap, HTML, CSS, Js, PHP, jQuery, XAMPP, MySQL for our web based online train or rail tickets booking application. This web application was made with the utmost care and it is responsive. So, it can be used on pc, laptops and also in smart phone. Our web application is user friendly, so anyone can use this for getting or purchasing their desire train tickets from their home.

2.2 Related Works

- eticket.railway.gov.bd
- irctc.co.in
- shohoz.com
- pakrail.gov.pk
- railway.gov.lk
- ebilet.tcddtasimacilik.gov.tr
- chinaticketonline.com

2.3 Comparative Analysis

The train ticket business of our country is mainly done by Bangladesh Railways. Our country is a very populous country, as trains are an important, hassle-free and comfortable means of communication, about 1 crore train tickets are sold every year. For a long time, they used to sell these huge numbers of tickets manually. Later they started selling some train tickets online.

Earlier when selling tickets manually there was ticket black market and corruption, but when they brought online ticket transaction it was seen that these ticket black market incidents could not be completely eradicated. We have tried to eliminate these ticket black market and corruption issues on our website.

2.4 Scope of The Problem

In our web-based project, we tried our level best to give all necessary function for an online ticket purchasing web application should have. Like user can open account in our web application easily, can search tickets, can book tickets easily, can print tickets and also can give their feedback to admin. On the other hand, admin can add train, route, schedules, print sales report etc. So, a user won't feel bored on using our online ticket purchasing system.

2.5 Challenges

- Front end design
- Back end design
- Requirements collection
- Requirement
- Ensure genuine tickets.
- Ensure user friendly interfaces

CHAPTER 3

REQUIREMENT SPECIFICATION

On this requirement specification chapter, we will discuss about our application system structure, functions and requirements, which structure and function we used in this system all through the process of this web application development we will discuss about this also.

3.1 System Structure

On this system we use three-layer data structure which is user interface, database and application service.

User Interface Layer: It is that layer which works on user's data, easily can say this layer shows the user the server's services that are available. After the user selects a service, this software makes a request to the server. This application displays the user's processed result after the server returns it. Figure show in below to describe this layer.

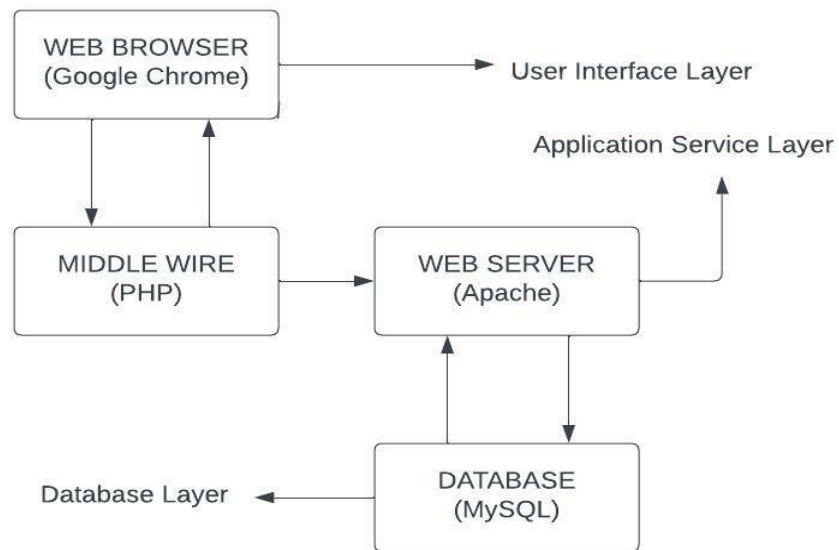


Fig 3.1: System Architecture.

Database Layer: This layer consists of technologies that gives our web and mobile applications the ability to store and retrieve data. It is used to gather information such as login credentials, user registration details, ticket purchase details, and all other necessary data. It will also collect data about The Administrator.

Application Service Layer: It is that system which handle business logic and system function. It is one of most important layers. In this layer, which also contains the system's business logic, in between function calls, interfaces are offered for both the system modules and the user interface layer. In response to a service request from the top layer, the application service layer updates database information.

3.2 System Function

The following system features or functions will available: user registration, searching tickets, booking tickets, tickets cancellation and as well also refunding. As indicated in Figure 2, the system's features building blocks.

User Register: After successfully logging into the system, users could order tickets using the user registration feature. Name, contact information like phone, email, address etc. and registration details are almost all included.

Searching: Users can use the rail route to the facility as a search function. Users can type information into the system, and the system will return the pertinent data, such as train, departure time, capacity, train departure location, and ticket prices.

Booking: After successfully logging in, users could utilize the booking function to buy tickets. Then they could choose train name, class, etc. as well as the station from and station to.

Cancellation: It is based on the user's cancellation requests, then the system could successfully cancel the ticket by using the user information.

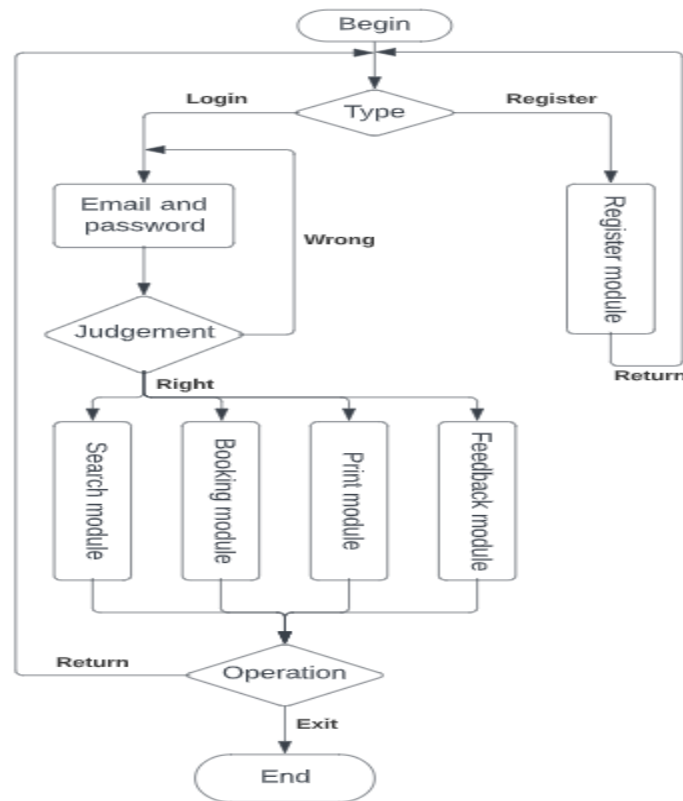


Figure 3.2: System Functions.

3.3 System Design

Database design and business process design are both included in the system design. The arrangement of distinct functions and the connections between diverse functions are implemented through business process design. Data tables and their relationships are mostly realized through database design.

Business Process Design: The following business process design is made after a detailed analysis of business functions about our booking system. Users can register with personal

information, so they can order tickets through our proposed system. Users can search train information through our system and can see whether having their travel locations tickets. Users order tickets after fill some information on the user interface then the system will return the result of ordering tickets information. Users can select cancelling operation so the tickets will be removed from the system. On the other hand, admin can add train, route, schedules and can modify or delete that and also disable users, print sales report etc. So, at the end our booking system business process design is shown in figure below:

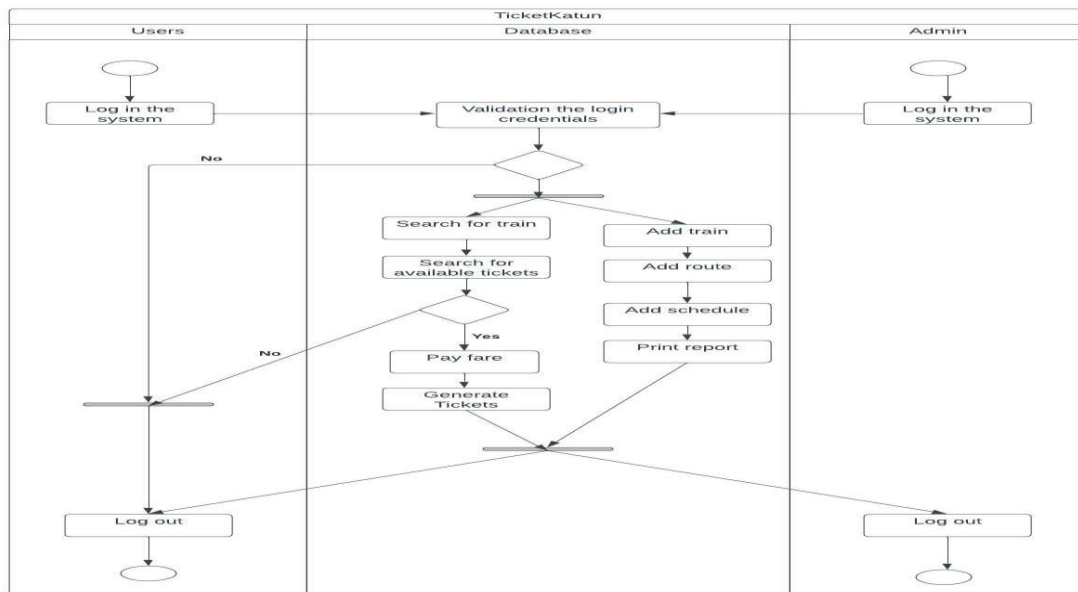


Figure 3.3: Business Process Design.

3.4 Database Design

Database Conceptual Design - The entity-relationship diagram can be used to create a data model that is independent of the machine and DBMS during the database conceptual design process. Entities (i.e., data objects), properties, and associated procedures are provided in ER diagrams in order to describe the conceptual model of the real world. Entities, attributes, and linkages make up the fundamental components of an ER diagram. The illustration looks like this: Entity type: A rectangle is used to represent it. In the rectangle is put the name of the entity. An oval represents the attribute, which is connected to the

appropriate entity by a line; multi-valued attributes are connected by two lines, and a line is appended beneath the name of the primary attribute. Contact: A diamond represents it, and a line connects it to the relevant entity. The diamond box has the contact information written on it. Near the line, the contact type is written. The ER diagram should make explicit the link between 1 to 1 and 1 to n, n to m. The two entities are related in the direction of writing 1 to 1 relationship, 1 to n relations in the one to writing 1 and multi-party write N, and n to m relationships in the direction of writing N, M.

3.5 ER Model

Entity Relationship also known as ER Diagram is a form of flowchart that shows the relationships between "entities" like people, things, or concepts within a system. ER Diagrams are most frequently used in the disciplines of education, business information systems, software engineering and research to build or troubleshoot relational databases. They are also known as ER Models or ERDs and they use a predetermined collection of symbols to represent inter-connectedness of relationships, entities and their qualities. These symbols include rectangles, connecting lines, diamonds, ovals etc. They have verbs for relationships and nouns for entities, mirroring grammatical structure.

ER diagrams are related to data structure diagrams (DSDs), which stress interactions between pieces within entities rather than relationships between things. Data flow diagrams (DFDs), which show the information flow for systems or processes, are typically paired with ER diagrams.

Data structure diagrams (DSDs), which stress interactions between parts within entities rather than relationships between things themselves, and ER diagrams have certain parallels. In conjunction with ER diagrams, data flow diagrams (DFDs), which show how information flows across systems or processes, are widely employed.

Entities, relationships, and attributes are the building blocks of ER diagrams. Additionally, they show cardinality, which describes relationships in numerical terms. Below is a glossary:

Entity: A specific entity, such as a person, thing, concept, or event, that can have information saved about it. Consider entities to be nouns. Examples include a customer, student, car, or good usually displayed as a rectangle.

Relationship: How objects relate to one another or interact with one another. You may think of relationships as verbs. The aforementioned student might enroll in a course, as an example. Enrollment, which creates this connection between the two entities, is represented as the relationship. They would act in a manner akin to that of a student and a course. Normally, diamonds or labels that are immediately on the connecting lines are used to illustrate relationships.

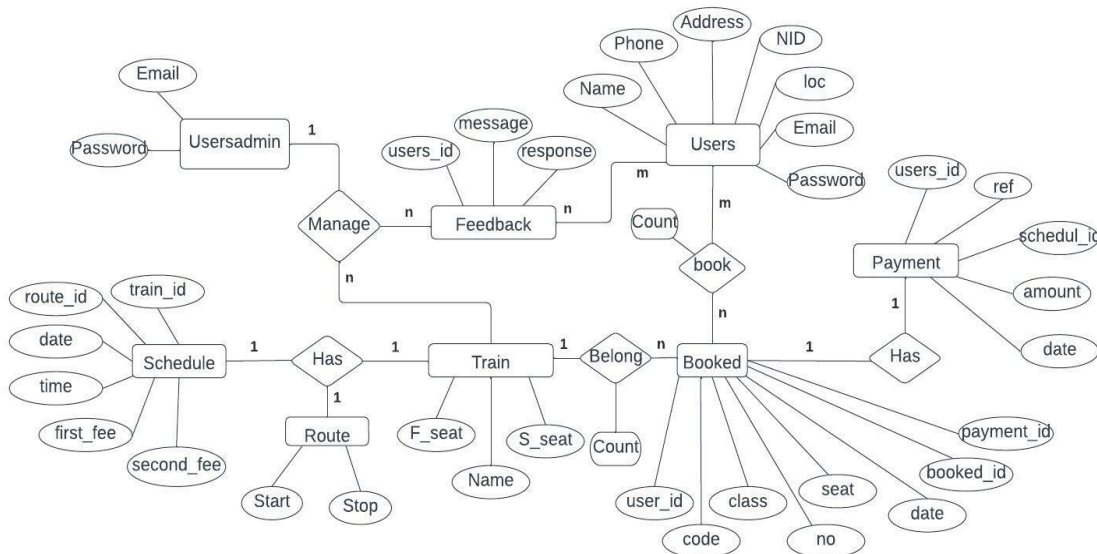


Figure 3.4: ER Diagram.

3.6 Use Case Diagram

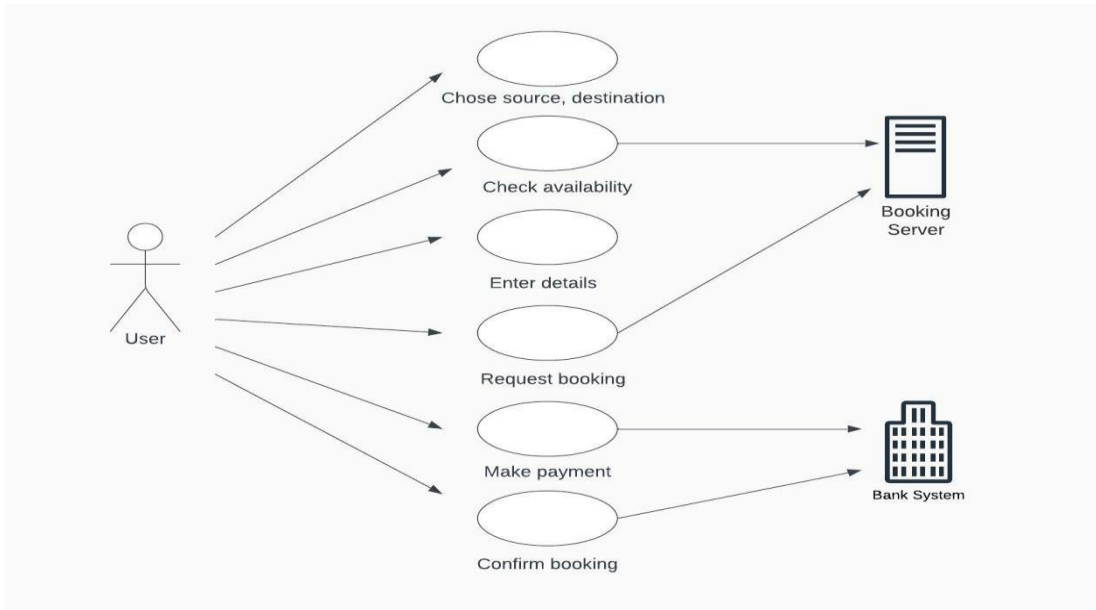


Figure 3.5: Use Case Diagram.

3.7 Activity Diagram

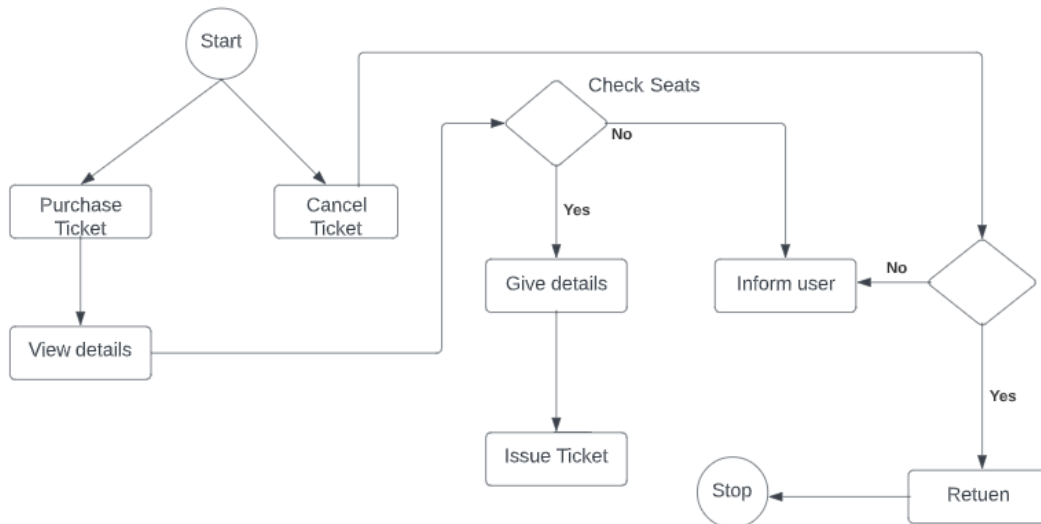


Figure 3.6: Activity Diagram.

3.8 System Requirements

For this web application, there are some system requirements. And they are PHP, Bootstrap, HTML, CSS, JavaScript, XAMPP, MySQL, VS Code, GitHub and Browser etc. By using all of this we build our proposed web based application. All of this will be explained in below.

3.8.1 PHP (Server-Side Language)

We know that PHP is an open source, interpreted, object-oriented scripting language that can be used on a server [8]. Web development works nicely with PHP. As a result, it is employed to create web applications and runs on the server to produce dynamic pages. In 1994 Rasmus Lerdorf developed PHP, but it didn't hit the market until 1995. The most recent version of PHP, which was made available on October 28, 2022, is version 8.1.12. PHP stands for Hypertext Preprocessor, as we all know. HTML supports embedding it. It is quicker than other scripting languages like ASP and JSP, for instance. PHP is an easy language to learn. PHP is currently most widely used server-side language on the internet. PHP is made to retrieve and manipulate data from databases. It's most frequently included in packages with SQL-written databases. Since it was created exclusively for the web, PHP has remained one of the most popular languages available. It's simple to install and deploy, keeps up with many contemporary frameworks, and serves as the basis for a variety of content-management systems. Websites that use PHP include Facebook, Wikipedia, Word Press, Tumblr, Yahoo, Spotify, and Canva etc.

3.8.2 Bootstrap

We know that Bootstrap is the most popular CSS framework for building responsive and mobile-first websites [9]. The recent Bootstrap version, Bootstrap 5, supports all of the main browsers, with the exception of Internet Explorer 11 and earlier. To create websites

and web applications, developers use the Bootstrap front end development framework, which is open source and free. Bootstrap was developed by Mark Otto and Jacob Thornton for Twitter in order to streamline maintenance and improve tool consistency. Developers merely need to insert the code into a pre-defined grid structure because Bootstrap is a framework that provides the necessities for building flexible websites. CSS, JavaScript, and HTML form the basis of the bootstrap framework. With Bootstrap, web designers may build websites much more quickly by reducing the need to spend time thinking about fundamental commands and capabilities. Because of Bootstrap, responsive site design is now a reality. It enables a website or app to automatically alter the display based on the size and orientation of the visitor's screen. According to the mobile-first strategy, staff members will largely use smartphones, tablets, and mobile apps for particular tasks to do their work. Bootstrap provides UI elements, layouts, JavaScript tools, and an implementation framework to suit the design requirements of diverse technologies. The program is accessible in both source code and precompiled form. Examples of websites using bootstrap include Forbes India, Lifebuoy, Fox News, Reuters, and Apple Map Connect.

3.8.3 HTML

Hyper Text Markup Language (HTML), It is a markup language utilized to create online apps and webpages [10]. Hypertext is simply text included in other text. A hypertext is a text with links in it. Markup language is used to make this material more interactive and dynamic and can transform text into visuals, tables, links, and other formats. We should have to be aware that HTML is a markup language and not a programming language. An URL can be used to locate usually authored in HTML and processed by a web browser, a web page is a document. Static and Dynamic are two types of web pages. HTML used to construct static web pages. This HTML developed in 1990 by Tim Berner Lee. It is employed to produce digital documents, often known as pages that are displayed on WWW, which is known as World Wide Web. Each page or document in an electronic format has a number of hyperlinks, which are connections to other pages. The HTML code

used to construct every web page you see on the Internet ensures that text and pictures are formatted correctly and appear how you want them to on your web browser. A browser would not be able to display text as an element or load images or other elements without HTML. Additionally, this HTML offers the page's fundamental framework, which CSS can be used to change the page's design. We can compare this with our body structure, HTML as the bones of a web page, and CSS as its skin. Currently, there are 5 version of HTML, 1.0, 2.0, 3.2, 4.01 and the latest one is HTML5.

3.8.4 CSS

The use of cascading style sheets, or CSS, determines how HTML elements should appear on screens and in other media. [11]. In addition to saving a ton of time and allowing for the simultaneous CSS files contain external stylesheets that are used to govern the layout of numerous web pages. For our web pages, CSS defines the design, layout, and display alternatives for various devices and screen sizes. A language called CSS is used to describe how an HTML document should look. CSS outlines the presentation of HTML elements. Maintaining the appearance of a website is significantly simpler. The look and feel of a website can be readily changed if only one CSS file is used; by contrast, if HTML formatting elements were used, each file would need to be updated in order to change the appearance. Rich capability is provided by CSS, including the ability to specify how HTML pages should look when printed. Greater accessibility is made possible through the use of CSS, which enables users with special needs to modify a Web page's look to meet their demands. Additionally, CSS makes it simpler for specialized devices, like speaking browsers, to produce Web sites.

3.8.5 JavaScript

JavaScript is programming language and it used for the web [12]. In 1995, Brendan Eich developed JavaScript, which is capable of editing HTML and CSS as well as data calculation, manipulation, and validation. It is a fundamental component of the World Wide Web. Using this dynamic programming language, you may create or make many different things, including video games and websites. JavaScript is a scripting language that is often used by browsers to create dynamic internet content. When you observe features like a drop-down menu that you have to click to uncover, fresh material being published to a website, or element colors on a page that are changing dynamically, to mention a few, you can tell that JavaScript is at work. There are many benefits to using this JavaScript client-side technique instead of standard CGI server-side scripts. JavaScript, for instance, may be utilized to ascertain whether or not a user has provided an email address that can be used in forms. A user submits the form when they do, only after all of the entries are valid are they delivered to the web server after running this JavaScript code. It can also be used to capture events that are initiated by the user, either explicitly or implicitly, such as button clicks, link navigation, and other actions. This language's applications offer increased visitor involvement, fewer server interactions, richer user interfaces, and quick response. However, reading or writing files is not possible with this client-side JavaScript. Since there is no such support and it lacks multi-threading and multiprocessor capabilities, it has been retained for security reasons only and cannot be utilized for networking applications.

3.8.6 jQuery

jQuery is a cross-platform JavaScript library that is compact, lightweight, and quick and supports different types of browsers [13]. jQuery is platform independent, and the name jQuery means write less do more and it can simplify AJAX call and DOM manipulation. As a result, the jQuery open-source JavaScript library was developed to facilitate the

creation of client-side HTML. Under the terms of the MIT license, it is free open-source software. According to a web analysis, it is by far the most frequently used JavaScript library. jQuery helps to improve the performance of an application and it aids users in writing UI-related function code in the fewest lines possible. jQuery is very fast and extensible and it uses new features of new browsers most of the time. Google, Microsoft, Netflix and IBM use jQuery. jQuery was invented by John Resig in January 2006.

3.8.7 MySQL

MySQL is an open source Relational Database Management System (RDBMS) which use Structured Query Language (SQL), and it is publicly available [14]. It was developed by Oracle Corporation and released in May 1995. The most used language for adding, managing, and accessing content in a database is SQL. It is renowned for its speedy processing, established dependability, simplicity, and versatility of application. We know that systematic collection of data is called a database. It could be anything from a simple grocery list to a photo gallery or a place to save the vast volumes of data in a company network might be included. In particular, A relational database is an electronic archive that gathers data and organizes it according to the relational paradigm. Relationships between data objects in this paradigm all follow a strict logical structure, and tables are made up of rows and columns. An RDBMS is a collection of software tools used to set up, run, and query such a database. For building and maintaining anything from strong, B2B services that are data-driven and customer-facing web apps, MySQL is a crucial part of many of the most extensively used software stacks. MySQL was created with broad technology and architectural compatibility in mind. Instead of being stored in a single, all-inclusive repository or collections of semi- or unstructured documents, records in MySQL are organized into various, distinct, and highly codified tables. Thus, RDBMSs can operate more efficiently optimize activities like information updating, data retrieval, or more difficult ones like aggregations. A logical model is established over the entirety of the database's contents, describing things like the permitted values for specific columns, the features of tables and views, or the relationships between the indexes from different tables.

MySQL is used by a wide range of businesses, including Facebook, Twitter, Wikipedia, YouTube, Netflix, Linked In, GitHub, eBay, Uber, Cisco, Paypal, Shopify, Walmart, Flipkart, and Paytm.

3.8.8 XAMPP

Before releasing a website to the primary server, a local host or server can test it on computers and laptops using XAMPP, where X stands for cross-platform, A for Apache, M for MySQL, and PP for PHP and Perl [15]. It is an open-source collection of online solutions that also includes command-line executables for multiple servers includes the Apache server, MariaDB, PHP, and Perl modules. A local host or server can test using XAMPP and its website and clients using desktop and laptop PCs before releasing a website to the principal server. It is a solution that offers an appropriate setting for evaluating and confirming the execution of projects made using Apache, Perl, MySQL, and PHP through the host's system. It stands for solutions for various technologies are categorized. It provides a framework for testing applications created using a personal server and multiple technologies. The abbreviation for each letter that denotes one of its essential components is XAMPP. This set of applications includes the web server Apache, the database management system MariaDB, and programming languages including PHP and Perl. Cross-platform, or X, signifies that it can run on many operating systems, including Windows, Linux, and macOS.

3.8.9 GitHub

Developers can collaborate on open-source projects and share code files by storing and managing their code on GitHub, a website and cloud-based service that also enables users to track and manage revisions [16]. Developers can collaborate, connect, and publicly propose their work on GitHub, which also serves as a social networking site. Tom Preston-Werner, Chris Wanstrath, P. J. Hyett, and Scott Chacon founded GitHub in April 2008.

Users create programming projects, submit files, and register on GitHub. However, GitHub begins to perform its actual function once users begin collaborating. Despite the fact that anyone may write code alone, most development projects are created by groups of people. While they typically work asynchronously, these teams do occasionally work in unison. It might be challenging to create collaborative projects with teams that are located remotely. GitHub considerably simplifies this procedure in a number of ways. All of the code and documentation are in one location on GitHub. Access issues for everyone desiring to provide something to a project are thereby reduced. Additionally, every repository contains instructions and other details that aid in defining the goals and rules of the project. Git, an open source version control system for organizing and tracking file revisions, is the foundation of GitHub. On the other hand, version control functions similarly to the Google Workspace version history tool, which allows us to view changes to the document over time. Software developers and engineers can use GitHub to create remote, publicly accessible cloud repositories for no cost. A repository, or repo for short, contains the files for a coding project and each file's modification history. Once a GitHub repository is established, we may download it to our device, add and modify files there, and then "push" bringing modifications back to the repository makes them publicly available..

3.8.10 VS Code

One of the well-liked text editors that is used by experts and suggested to beginning programmers is called Visual Studio Code, or VS Code [17]. VS Code, a well-known piece of Microsoft software, is open-source, free to use, and can works with Windows, Linux, and macOS. It is simple to install and won't take up much space. This platform's lightweight nature cannot be viewed as a drawback because it is loaded with reliable and modern functionality. C++, Java, Python, and many other programming languages are supported by Visual Studio Code. It enables us to include necessary editor extensions, such cloud-based debuggers and web development tools, etc. In addition to the aforementioned benefits, their user-friendly interface is a plus. Programmers find it easier to write understandable codes and troubleshoot issues because to the editor's tidy division into

distinct sections. Programmers can add extensions to VS Code to improve the quality, usefulness, and presentation of the code. Through VS extensions, programmers can also add additional languages, debuggers, and tools. VS Code was introduced by Microsoft in April 2015.

3.8.11 Browser

Using an application program known as a browser, anyone may view and interact with all of the content on the World Wide Web. This includes all web pages, movies, videos, and images. Client/server models are how web browsers operate. The client is the web running on the user's computer or device and interacts with the Web server; the server-side the website server interacts directly with the browser. The information is subsequently interpreted and shown by the browser on the user's device. Web browsers typically consist of a number of cooperating components. The user interface (UI), which is the point at which the user interacts with the browser, is included in this. The rendering engine responds to requests from the browser engine and renders the requested web page by deciphering the HTML or XML data. Security and communication on the internet are handled through networking. The JavaScript code on a website is interpreted and executed by a JavaScript interpreter. Widgets like windows are created using the UI backend. A persistence layer that manages data like cookies, caches, and bookmarks is known as data persistence or storage. Data like bookmarks, caches, and cookies are managed by the persistence layer, sometimes referred to as data persistence or storage. Currently, one of the most popular browsers is Google Chrome. Microsoft Edge, Firefox, Opera, Internet Explorer and Safari are additional browsers.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-End Design

Front-end is very important for this type of shopping platform, to attract more users. So, that's why we have given great importance to the front-end. We have tried to make the entire project responsive so that our project can be used on any device so that we can get more users. We used the bootstrap framework. It's a very popular front-end framework utilized in the development of contemporary websites and web apps. It is a free front-end framework made to accelerate and make web development easier. It includes HTML and CSS-based design templates for forms, typography, buttons, navigation, tables, modals, photos, and many more elements in addition to extra optional JavaScript and jQuery plugins.

4.2 Back-End Design

We used the PHP for the backend programming language in our project. It is an open-source, free program which is very popular for back end web development. From small projects to very large projects can be done with the PHP. It contains a variety of strong features and development tools that make web application development quick and easy. PHP offers clean, reusable code that adheres to the MVC framework, which aids website developers in streamlining the development process. In PHP there is a framework, called Laravel, it is helpful. Since it is a very mature web development language and has a large community of developers. So, the solution to any problem can be found very easily that's why we used this development language.

4.3 Interaction Design and User Experience (UX)

Our web application interaction design and user experience (UX) shown in below with required figures.

4.3.1 Registration

In our web application, users can register with name, email address, phone number, NID or Birth number, address and strong password etc.

Create Account

Your Name

Enter your name

Please enter name as per NID.

<p>Email Address</p> <p>Enter your email</p> <p>Please enter your email.</p>	<p>Phone Number</p> <p>Enter your phone number</p> <p>Please enter your active phone number.</p>
---	---

Insert Picture

No file chosen

<p>Address</p> <p>Enter your address</p> <p>Please enter current address.</p>	<p>NID Number</p> <p>Enter your nid</p> <p>Please enter valid NID or Birth Reg.</p>
--	--

<p>Password</p> <p>Enter your phone password</p> <p>Please enter strong password.</p>	<p>Confirm Password</p> <p>Reenter password</p> <p>Please reenter password.</p>
--	--

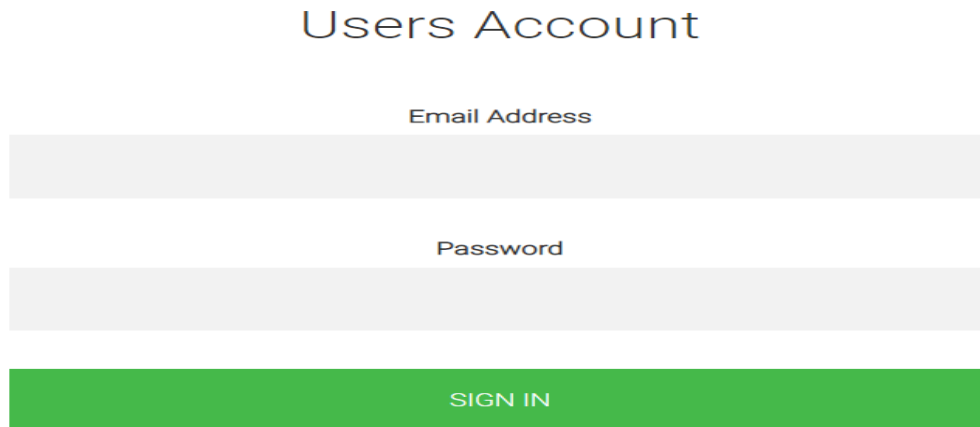
SUBMIT

Before submit please ensure your data is correct.

Figure 4.1: Registration Page.

4.3.2 Login

In our web application, users can login with the valid email address and password.

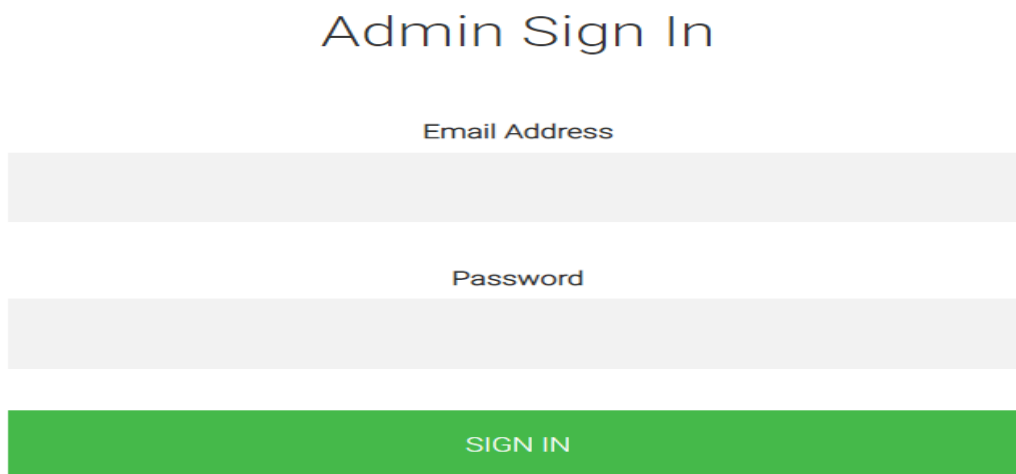


The form is titled "Users Account" and contains three main elements: a text input field for "Email Address", a text input field for "Password", and a green button labeled "SIGN IN".

Figure 4.2: Login Page.

4.3.3 Admin Login

In our web application, Admin can login with valid email address and password.



The form is titled "Admin Sign In" and contains three main elements: a text input field for "Email Address", a text input field for "Password", and a green button labeled "SIGN IN".

Figure 4.3: Admin Login Page.

4.3.4 Home Page

In our web application, this is the home page. There are others options also available, by using those users can go to others pages. By clicking on about option, users can go to about page, clicking on admin option admin can to admin log in option, by clicking on users portal user can to login option and those who don't have any account on our web application they can register and purchase tickets.

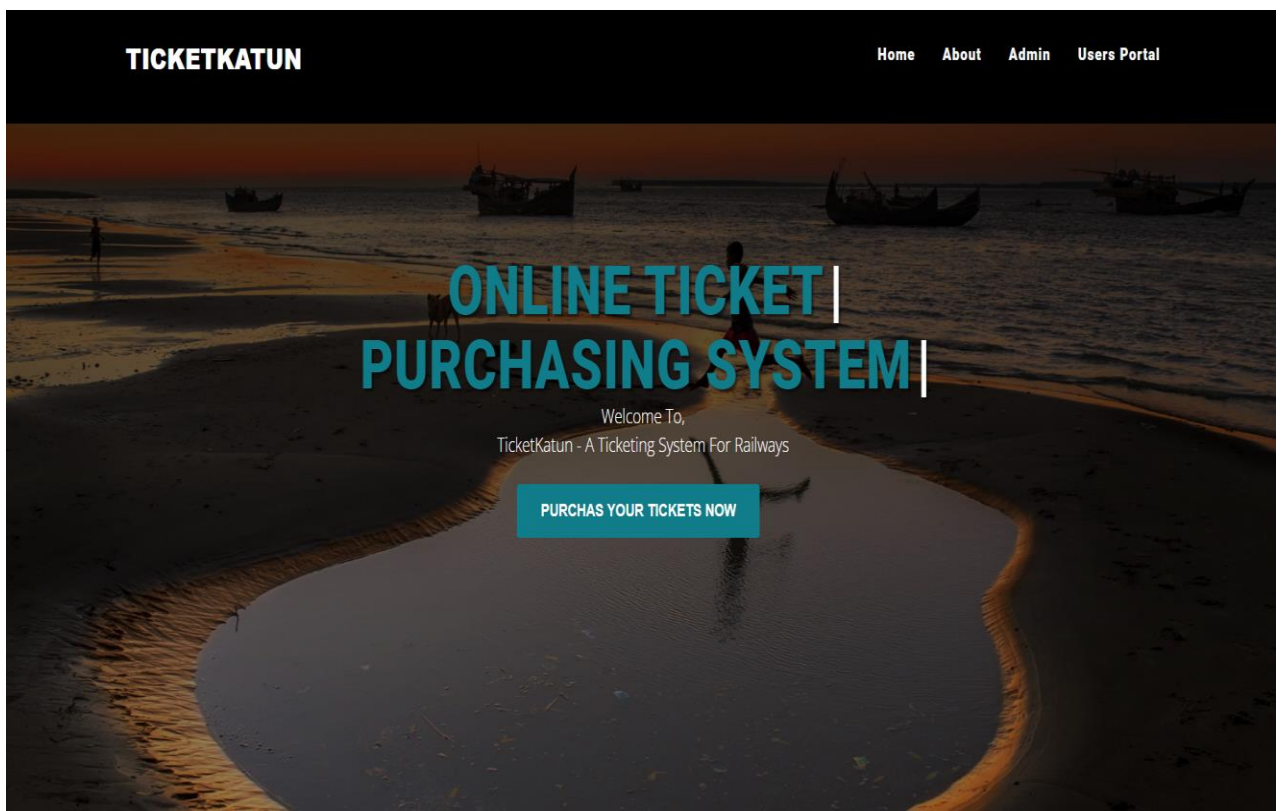


Figure 4.4: Home Page.

4.3.5 About Page

In our web application, this is the about page. In this about page some important messages are given and footer part are also in about page, which is in bottom part. In footer there are privacy policy and terms and conditions, currently there are no privacy policies and terms and conditions available, but in future it will be available. In footer Facebook, YouTube and Twitter helpful links are available.

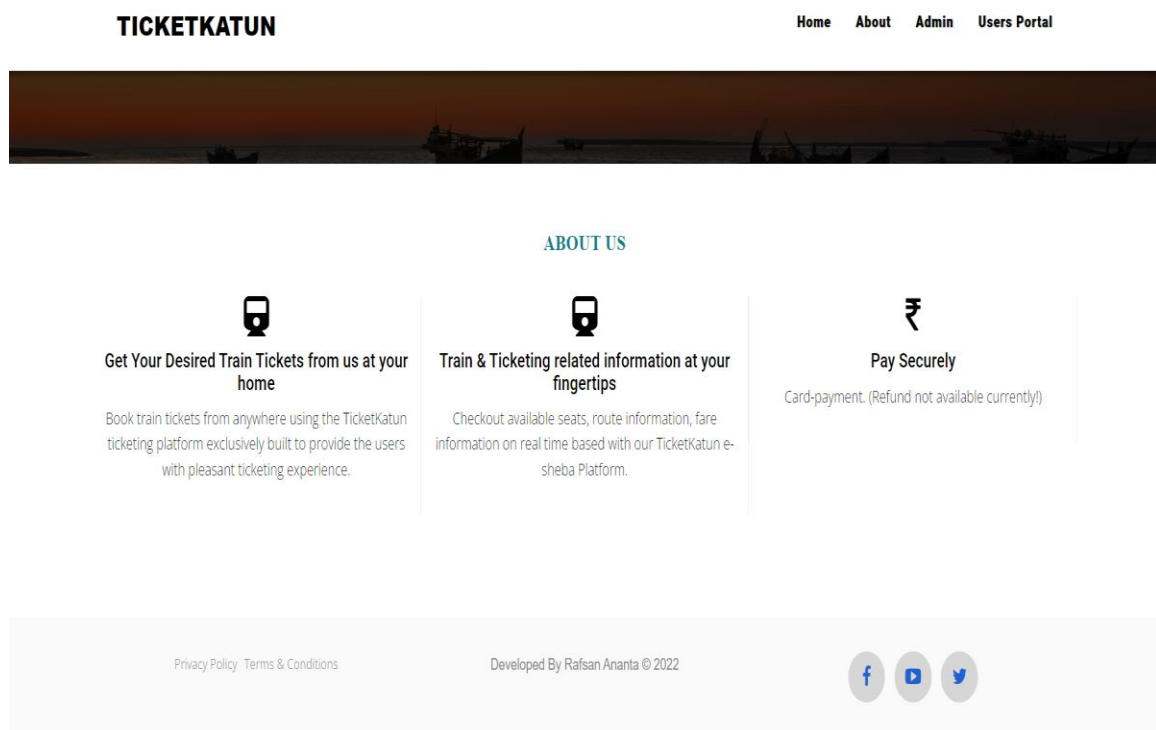


Figure 4.5: About Page.

4.3.6 User Dashboard Page

In our web application, this is the user dashboard page. In this user dashboard page some important notes are there. In left side we can see there are users name, date information, search tickets option, view booking option, feedback sending option and at the last logout also available, by clicking last one user can log out from his/her account instantly.

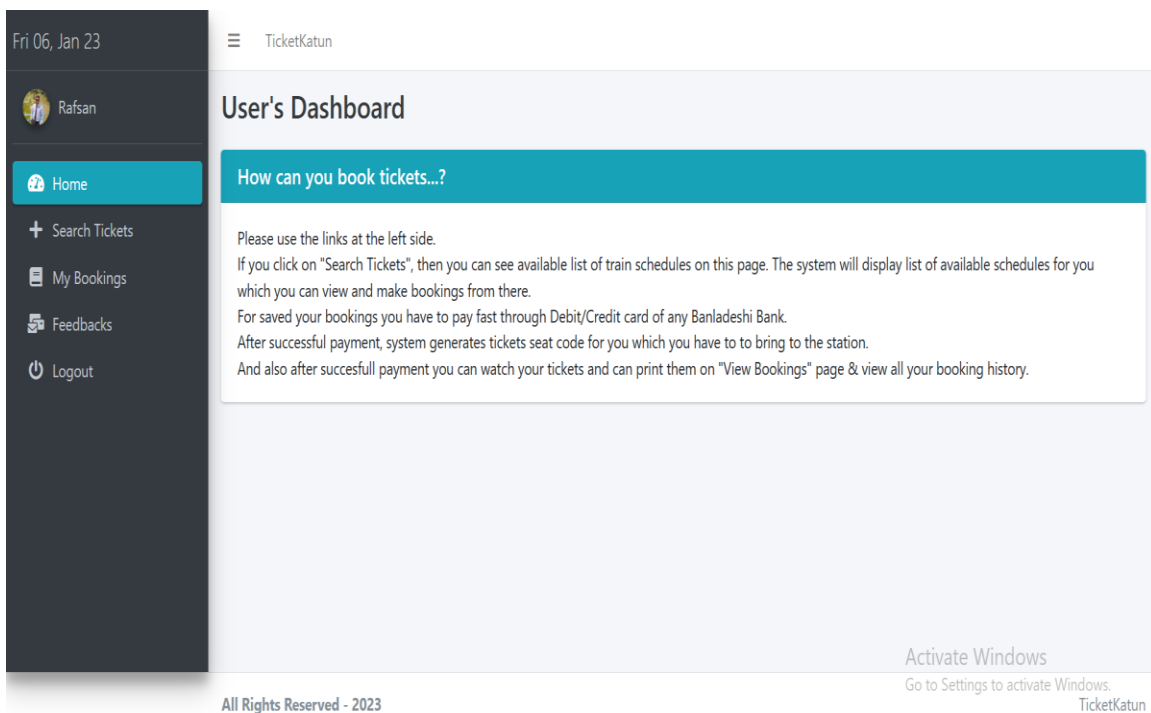


Figure 4.6: User Dashboard Page.

4.3.7 Search Tickets Page

In our web application, this is the search tickets page. In this search tickets page users can see available train routes, available seats and fare. By clicking book button users can purchase tickets with some required information.

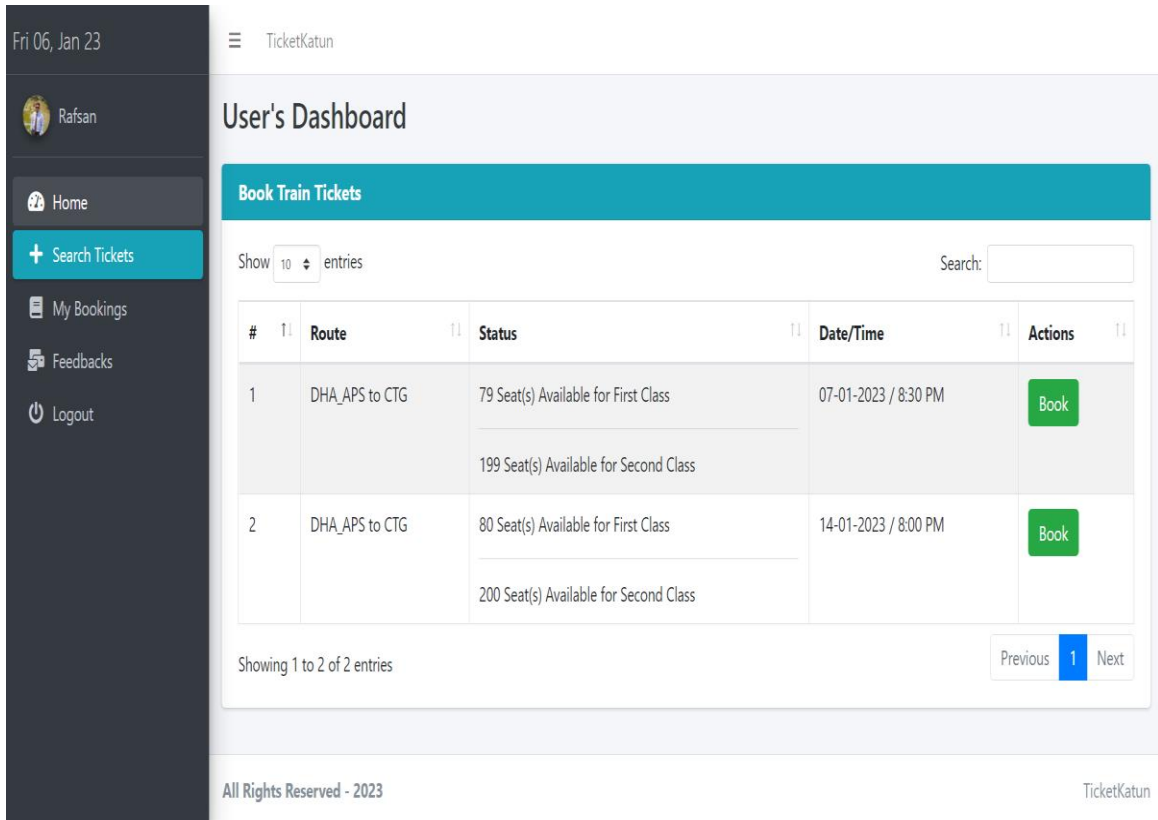


Figure 4.7: Search Tickets Page.

4.3.8 My Booking Page

In our web application, this is the booking page. In this my booking page users can see tickets number, trip date, tickets status and action option. By clicking book button users can purchase tickets with some required information like tickets class and fare price with V.A.T and Tax.

On the other hand, by clicking cancel button user can cancel their tickets but before this they have to collect their payments transaction reference id and have to send this to admin for getting refund.

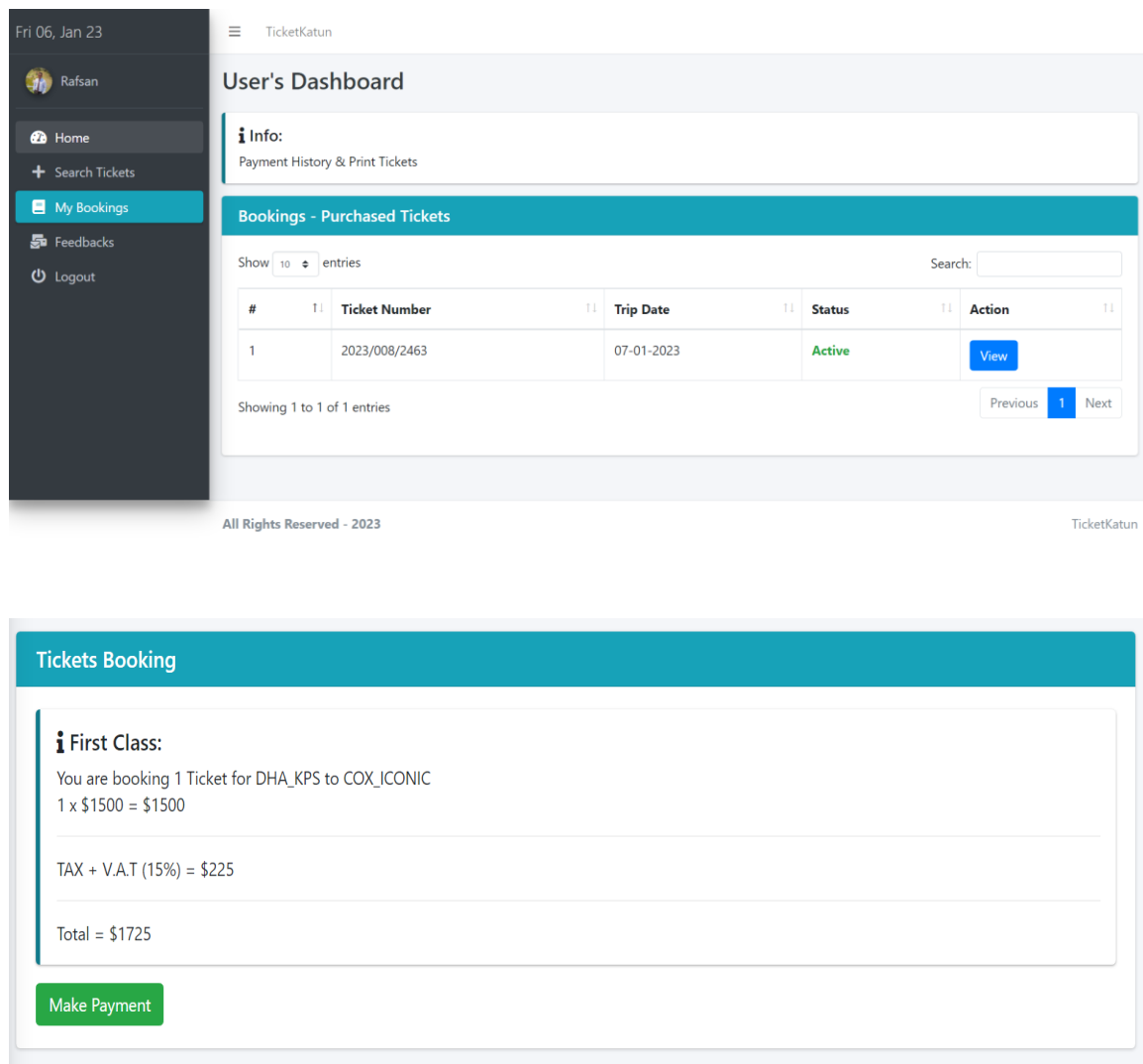


Figure 4.8: My Booking Page.

4.3.9 Tickets View and Print Page

In our web application, this is the tickets view and tickets print page. After clicking view button users can see their tickets details with seat number, train name, payment amount, payment date, payment transaction reference. On the bottom there is a print ticket button, by clicking this button user can print their tickets.

Details For - DHA_KPS to COX_ICONIC

Seat Number : S001 - S002

Train Name : Cox's Express

Payment Date : Wed, 28-Dec-2022 09:37:13 PM

Amount Paid : \$ 2070

Payment Ref : J7S4WFU4ET

[Print Ticket](#)

TicketKatun Train Tickets

Ticket No: 2022/007/2474

Personal Data	
Name:	demo1
Email:	demo1@mail.com
Contact:	1300000000
NID:	2147483647
Trip Details	
Route:	DHA_KPS to COX_ICONIC
Train:	Cox's Express
Seat Number:	S001 - S002
Date:	Fri 30, Dec 2022
Time:	08:00 AM
Payment Details	
Amount:	\$ 2070
Payment Date:	Wed, 28-Dec-2022 09:37:13 PM

CAUTION: After successful payment there e no option for tickets cancelation and refund.

NOTE: Please try to be check in an hour early for all neccessary proceedings!

Figure 4.9: Tickets View and Print Page.

4.3.10 Feedback Page

In our web application, this is the feedback page. After clicking feedback page users can see their feedbacks, can contact with admin, send them refund request with payment transaction reference, can send them any complain and have to wait for admin response. After this admin can also see users messages and can response them.

The screenshot displays the 'User's Dashboard' for a user named 'Rafsan'. The 'Feedback' section is active, showing an information box that reads: 'We always wants feedbacks from you! Get replied to within working hours.' Below this is a teal header for 'All Feedbacks' with a 'Send New Feedback' button. A search bar and a 'Show 10 entries' dropdown are present. A table lists feedback entries with columns for '#', 'Your Comment', and 'Response'. The table contains one entry with the comment 'Hello admin, please refund my payment...my payment ref. LDAOL1RWN4' and the response 'Okey'. Navigation buttons for 'Previous', '1', and 'Next' are at the bottom of the table. The footer includes 'All Rights Reserved - 2023' and 'TicketKatun'.

#	Your Comment	Response
1	Hello admin, please refund my payment...my payment ref. LDAOL1RWN4	Okey

Figure 4.10: Feedback Page.

4.3.11 Admin Dashboard

In our web application, this is the admin dashboard page. After successfully entering with email and password admin will redirect in this page. In this page admin can see users, trains, schedules, overall payment collection, total routes, feedback's and can control all of these sections.

At the end there is a logout option, after clicking on this admin can easily logout.

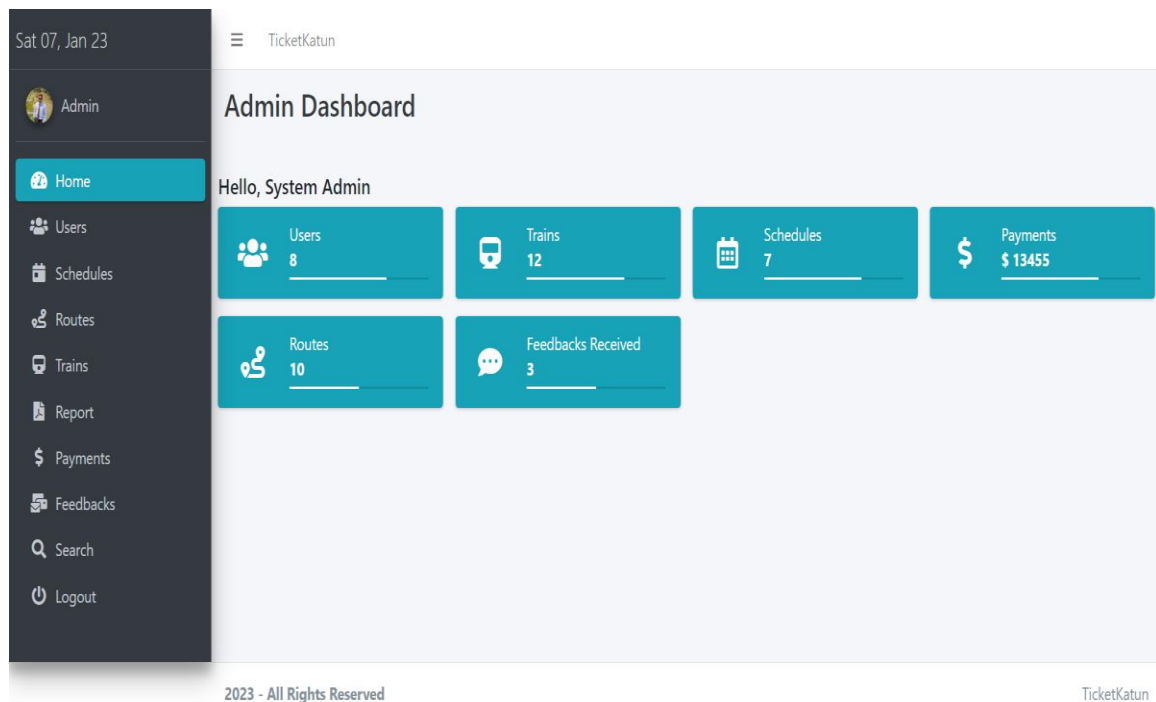


Figure 4.11: Admin Dashboard Page.

4.3.12 Admin Add Train Page

In our web application, this is the admin add train page. After clicking on add new train button on right side, after this admin can add new trains with inserting train name, seat capacity of AC-B and S-CHAIR class. And admin can also watch others trains and seat capacity of those trains. Admin also can edit that information and also can delete any information.

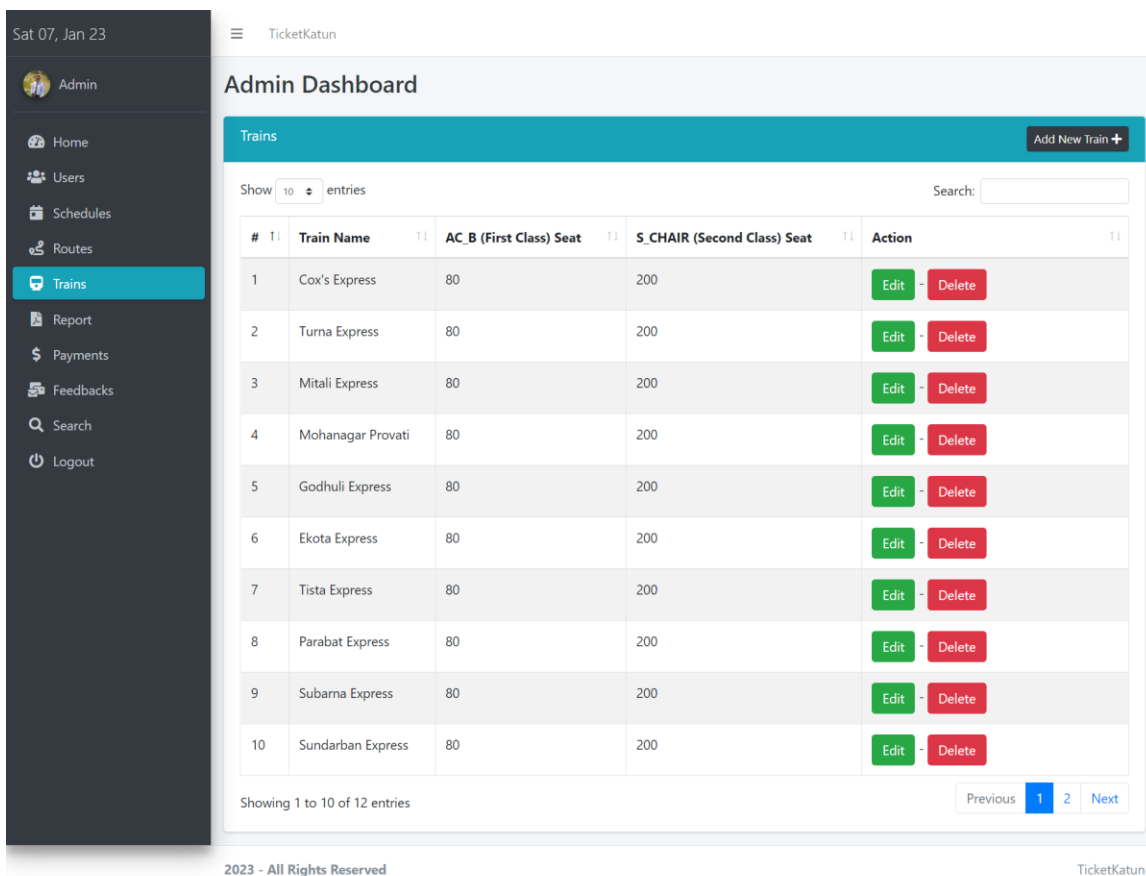


Figure 4.12: Admin Add Train Page.

4.3.13 Admin Add Routes Page

In our web application, this is the admin add train page. After clicking on add new route button on right side, after this admin can add new routes with inserting from starting station name and to ending station name. And admin can also watch others routes. Admin also can edit that information and also can delete any information.

The screenshot shows the Admin Dashboard for TicketKatun. The left sidebar contains navigation options: Home, Users, Schedules, Routes (highlighted), Trains, Report, Payments, Feedbacks, Search, and Logout. The main content area is titled 'Admin Dashboard' and features a 'Routes' section with a 'New Route +' button. Below this is a table with 10 entries, each with an 'Edit' and 'Delete' button. The table columns are '#', 'From', 'To', and 'Action'. The footer of the dashboard includes '2023 - All Rights Reserved' and 'TicketKatun'.

#	From	To	Action
1	DHA_KPS	COX_ICONIC	Edit - Delete
2	COX_ICONIC	DHA_KPS	Edit - Delete
3	DHA_APS	CTG	Edit - Delete
4	CTG	DHA_APS	Edit - Delete
5	DHA_KPS	RJS	Edit - Delete
6	RJS	DHA_KPS	Edit - Delete
7	DHA_APS	KHL	Edit - Delete
8	KHL	DHA_APS	Edit - Delete
9	DHA_APS	SYL	Edit - Delete
10	SYL	DHA_APS	Edit - Delete

Figure 4.13: Admin Add Routes Page.

4.3.14 Admin Add Schedules Page

In our web application, this is the admin add schedules page. After clicking on add new one-time schedules button on right side, after this admin can add new one-time schedules with inserting train name, route, prices of two classes seats, date and time. On the other hand, after clicking on add new range schedules button on right side, after this admin can add new range schedules with inserting train name, route, prices of two classes seats, starting date, ending date, time and can chose days. And admin can also watch others schedules which are available and related information. Admin also can edit that information and also can delete any information.

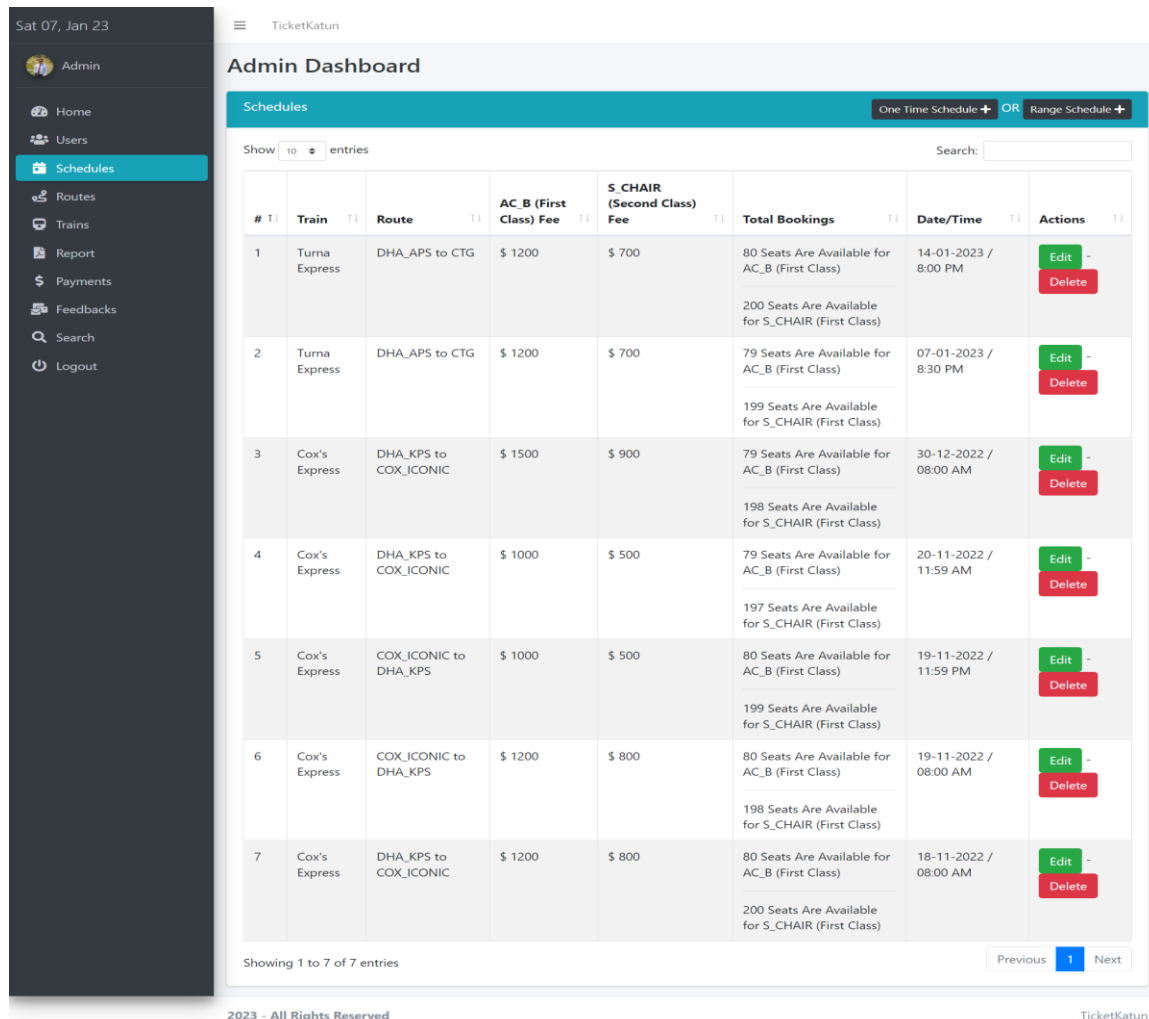


Figure 4.14: Admin Add Schedules Page.

4.3.15 Admin Users Information Page

In our web application, this is the admin user’s information page. After clicking on user’s information page admin can watch all user’s information and can disable any user if they notice suspicious activity of any user. And admin can also enable user account.

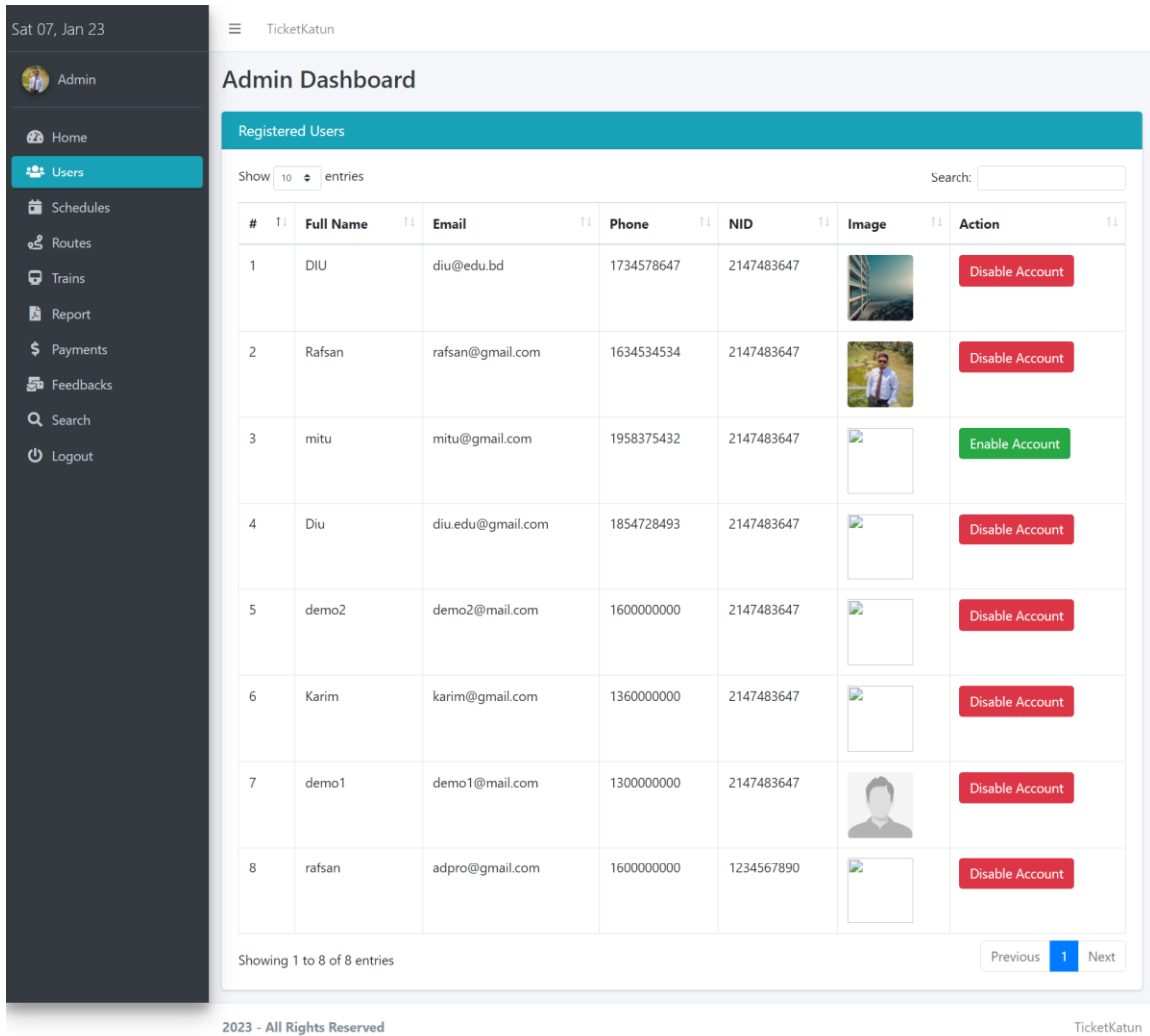


Figure 4.15: Admin Users Information Page.

4.3.16 Admin Report Page

In our web application, this is the admin report page. After clicking on report page admin can watch all train schedules information and print schedules information after clicking on view button.

The screenshot shows the Admin Dashboard for TicketKatun. The sidebar on the left contains navigation options: Home, Users, Schedules, Routes, Trains, Report (highlighted), Payments, Feedbacks, Search, and Logout. The main content area is titled 'Admin Dashboard' and features a 'Schedules' section. This section includes a search bar and a table with 7 entries. Each entry has a 'View' button. The footer of the dashboard displays '2023 - All Rights Reserved' and 'TicketKatun'.

#	Train	Route	Date/Time	Actions
1	Turna Express	DHA_APS to CTG	14-01-2023 / 8:00 PM	View
2	Turna Express	DHA_APS to CTG	07-01-2023 / 8:30 PM	View
3	Cox's Express	DHA_KPS to COX_ICONIC	30-12-2022 / 08:00 AM	View
4	Cox's Express	DHA_KPS to COX_ICONIC	20-11-2022 / 11:59 AM	View
5	Cox's Express	COX_ICONIC to DHA_KPS	19-11-2022 / 11:59 PM	View
6	Cox's Express	COX_ICONIC to DHA_KPS	19-11-2022 / 08:00 AM	View
7	Cox's Express	DHA_KPS to COX_ICONIC	18-11-2022 / 08:00 AM	View

TicketKatun
LIST OF BOOKINGS FOR 30-12-2022 (08:00 AM)

Train Cox's Express (2 Passengers) : DHA_KPS to COX_ICONIC

SN	Full Name	Code/Class	Seat No
1	Demo1	2022/007/1146 (First)	F01
2	Demo1	2022/007/2474 (Second)	S001 - S002

Figure 4.16: Admin Report Page.

4.3.17 Admin Payment Page

In our web application, this is the admin payment report page. After clicking on payment page admin can watch all train schedules and payment collection information and also can watch tickets sold and available information's.

The screenshot shows the 'Admin Dashboard' with a 'Payments' section. The table displays the following data:

Route	Date	AC, B (First Class)	S, CHAIR (Second Class)	Capacity
COX_ICONIC to DHA_KPS	19-11-2022 - 08:00 AM	\$ 0	\$ 1840	80 Seat(s) Available for First Class 198 Seat(s) Available for Second Class
COX_ICONIC to DHA_KPS	19-11-2022 - 08:00 AM	\$ 0	\$ 1840	80 Seat(s) Available for First Class 198 Seat(s) Available for Second Class
COX_ICONIC to DHA_KPS	19-11-2022 - 11:59 PM	\$ 0	\$ 575	80 Seat(s) Available for First Class 199 Seat(s) Available for Second Class
DHA_APS to CTG	07-01-2023 - 8:30 PM	\$ 1380	\$ 805	79 Seat(s) Available for First Class 199 Seat(s) Available for Second Class
DHA_APS to CTG	07-01-2023 - 8:30 PM	\$ 1380	\$ 805	79 Seat(s) Available for First Class 199 Seat(s) Available for Second Class
DHA_APS to CTG	07-01-2023 - 8:30 PM	\$ 1380	\$ 805	79 Seat(s) Available for First Class 199 Seat(s) Available for Second Class
DHA_APS to CTG	07-01-2023 - 8:30 PM	\$ 1380	\$ 805	79 Seat(s) Available for First Class 199 Seat(s) Available for Second Class
DHA_KPS to COX_ICONIC	20-11-2022 - 11:59 AM	\$ 1150	\$ 1725	79 Seat(s) Available for First Class 197 Seat(s) Available for Second Class
DHA_KPS to COX_ICONIC	20-11-2022 - 11:59 AM	\$ 1150	\$ 1725	79 Seat(s) Available for First Class 197 Seat(s) Available for Second Class
DHA_KPS to COX_ICONIC	20-11-2022 - 11:59 AM	\$ 1150	\$ 1725	79 Seat(s) Available for First Class 197 Seat(s) Available for Second Class

Showing 1 to 10 of 12 entries

Navigation: Previous | 1 | 2 | Next

Footer: 2023 - All Rights Reserved | TicketKatun

Figure 4.17: Admin Payment Page.

4.3.18 Admin Feedbacks Page

In our web application, this is the admin feedbacks page. After clicking on feedbacks page admin can watch all messages, refund payment request and complains sends by users. Admin can reply those messages by clicking on reply button.

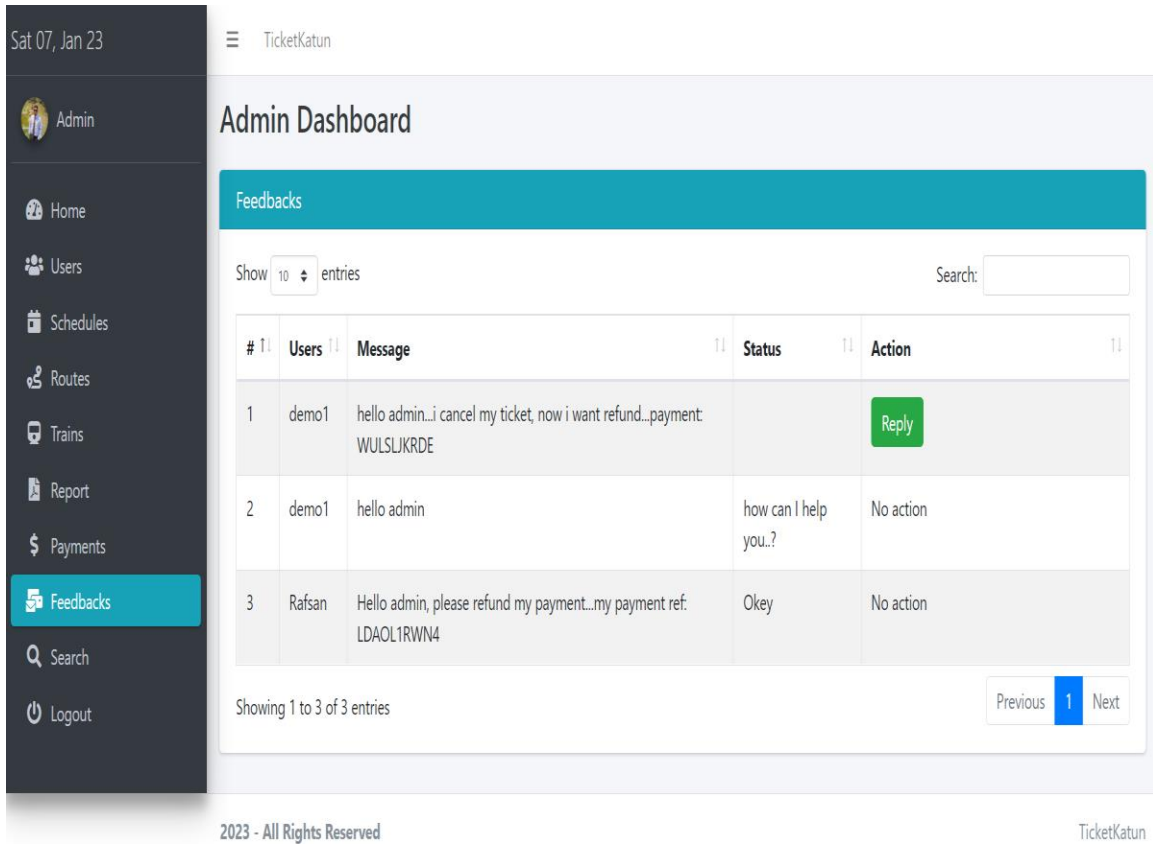


Figure 4.18: Admin Feedbacks Page.

4.3.19 Admin Search Page

In our web application, this is the search tickets page. After clicking on search option page, there is search tickets button. After inserting tickets number admin can see details of tickets and users related information.

At the last there is a log out option, after clicking logout option admin can logout.

Sat 07, Jan 23 TicketKatun

Admin Dashboard

Search Search Tickets

Full Name	Rafsan
Email	rafsan@gmail.com
Phone	1634534534
NID	2147483647
Ticket Code	2023/008/2463
Class	first
Seat	F01
Trip Date/Time	Sat 07, Jan 2023 / 20:30
Amount Paid	\$ 1380
Payment Date	Fri, 06-Jan-2023 08:57:59 PM
Payment Ref	LDAOL1RWN4
Route	DHA_APS to CTG
Train	Turna Express

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Figure 4.19: Admin Search Page.

CHAPTER 5

Database Management

5.1 Database Design

My database name is “ticketkatun”. Designing a database is the process of developing a thorough data model for a database. Data model contains all of the physical storage configurations, logical design choices, and physical requirements required to create a design in a language for data definition, which may subsequently be applied to build a database.

5.2 Database Tables

In relational and flat file databases, a table is a collection of data objects (values) that follows a paradigm of named vertical columns and horizontal rows, with a cell acting as the location where a row and a column cross. Any number of rows may be present in a table, but only a predetermined number of columns. There are four tables in all. It is they-

- Users.
- Usersadmin.
- Train.
- Route.
- Schedule.
- Booked.
- Payment.
- Feedback.

5.3 Tables List

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> booked	★ Browse Structure Search Insert Empty Drop	8	InnoDB	utf8mb4_general_ci	64.0 KiB	-
<input type="checkbox"/> feedback	★ Browse Structure Search Insert Empty Drop	2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> payment	★ Browse Structure Search Insert Empty Drop	8	InnoDB	utf8mb4_general_ci	80.0 KiB	-
<input type="checkbox"/> route	★ Browse Structure Search Insert Empty Drop	10	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> schedule	★ Browse Structure Search Insert Empty Drop	5	InnoDB	utf8mb4_general_ci	48.0 KiB	-
<input type="checkbox"/> train	★ Browse Structure Search Insert Empty Drop	12	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/> users	★ Browse Structure Search Insert Empty Drop	6	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> usersadmin	★ Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
8 tables	Sum	52	InnoDB	utf8mb4_general_ci	288.0 KiB	0 B

Figure 5.1: Tables Lists.

5.3.1 Users Tables

	id	name	email	phn	loc	address	nid	password	status
<input type="checkbox"/> Edit Copy Delete	1	rafsan	adpro@gmail.com	1600000000		dhaka	1234567890	1234	1
<input type="checkbox"/> Edit Copy Delete	2	demo1	demo1@mail.com	1300000000	f3fc8566140434	dhaka	2147483647	81dc9bdb52d04dc	1
<input type="checkbox"/> Edit Copy Delete	3	Karim	karim@gmail.com	1360000000	file	dhaka	2147483647	81dc9bdb52d04dc	1
<input type="checkbox"/> Edit Copy Delete	4	demo2	demo2@mail.com	1600000000	file	dhaka	2147483647	81dc9bdb52d04dc	1
<input type="checkbox"/> Edit Copy Delete	5	Diu	diu.edu@gmail.com	1854728493	file	dhaka	2147483647	81dc9bdb52d04dc	1
<input type="checkbox"/> Edit Copy Delete	6	mitu	mitu@gmail.com	1958375432	file	dhaka	2147483647	81dc9bdb52d04dc	0
<input type="checkbox"/> Edit Copy Delete	7	Rafsan	rafsan@gmail.com	1634534534	rafsan.jpg	83, Uttarkhan Dhaka- 1230	2147483647	81dc9bdb52d04dc	1
<input type="checkbox"/> Edit Copy Delete	9	DIU	diu@edu.bd	1734578647	2c9a11c193b9fc	Ashulia	2147483647	81dc9bdb52d04dc	1

Check all With selected: Edit Copy Delete Export

Figure 5.2: Users Tables.

5.3.2 Train Tables

← T →				id	name	first_seat	second_seat
<input type="checkbox"/>	Edit	Copy	Delete	1	Cox's Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	2	Turna Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	3	Mitali Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	4	Mohanagar Provati	80	200
<input type="checkbox"/>	Edit	Copy	Delete	5	Godhuli Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	6	Ekota Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	7	Tista Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	8	Parabat Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	9	Subarna Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	10	Sundarban Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	11	Tungipara Express	80	200
<input type="checkbox"/>	Edit	Copy	Delete	12	Chitra Express	80	200

Check all *With selected:* Edit Copy Delete Export

Figure 5.3: Train Tables.

5.3.3 Usersadmin Tables

← T →				id	email	password
<input type="checkbox"/>	Edit	Copy	Delete	1	admin2@gmail.com	81dc9bdb52d04dc20036dbd8313ed055

Check all *With selected:* Edit Copy Delete Export

Show all | Number of rows: Filter rows:

Figure 5.4: Usersadmin Tables.

5.3.4 Schedule Tables

		id	train_id	route_id	date	time	first_fee	second_fee
<input type="checkbox"/>	Edit Copy Delete	2	1	1	18-11-2022	08:00	1200	800
<input type="checkbox"/>	Edit Copy Delete	3	1	3	19-11-2022	08:00	1200	800
<input type="checkbox"/>	Edit Copy Delete	5	1	3	19-11-2022	23:59	1000	500
<input type="checkbox"/>	Edit Copy Delete	6	1	1	20-11-2022	11:59	1000	500
<input type="checkbox"/>	Edit Copy Delete	7	1	1	30-12-2022	08:00	1500	900

Check all *With selected:* Edit Copy Delete Export

Figure 5.5: Schedule Tables.

5.3.5 Route Tables

		id	start	stop
<input type="checkbox"/>	Edit Copy Delete	1	DHA_KPS	COX_ICONIC
<input type="checkbox"/>	Edit Copy Delete	3	COX_ICONIC	DHA_KPS
<input type="checkbox"/>	Edit Copy Delete	4	DHA_APS	CTG
<input type="checkbox"/>	Edit Copy Delete	5	CTG	DHA_APS
<input type="checkbox"/>	Edit Copy Delete	6	DHA_KPS	RJS
<input type="checkbox"/>	Edit Copy Delete	7	RJS	DHA_KPS
<input type="checkbox"/>	Edit Copy Delete	8	DHA_APS	KHL
<input type="checkbox"/>	Edit Copy Delete	9	KHL	DHA_APS
<input type="checkbox"/>	Edit Copy Delete	10	DHA_APS	SYL
<input type="checkbox"/>	Edit Copy Delete	11	SYL	DHA_APS

Check all *With selected:* Edit Copy Delete

Figure 5.6: Route Tables.

5.3.6 Booked Tables

	id	schedule_id	payment_id	user_id	code	class	no	seat	date
<input type="checkbox"/> Edit Copy Delete	1	3	1	2	2022/003/1530	second	1	S001	Sat, 19-Nov-2022 12:23:02 AM
<input type="checkbox"/> Edit Copy Delete	2	3	2	2	2022/003/2548	second	1	S002	Sat, 19-Nov-2022 12:27:56 AM
<input type="checkbox"/> Edit Copy Delete	3	5	3	2	2022/005/1650	second	1	S001	Sat, 19-Nov-2022 09:34:11 PM
<input type="checkbox"/> Edit Copy Delete	4	6	4	2	2022/006/1367	first	1	F01	Sun, 20-Nov-2022 12:04:02 AM
<input type="checkbox"/> Edit Copy Delete	5	6	5	2	2022/006/257	second	2	S001 - S002	Sun, 20-Nov-2022 12:46:00 AM
<input type="checkbox"/> Edit Copy Delete	6	6	6	2	2022/006/4568	second	1	S003	Sun, 20-Nov-2022 09:59:00 AM
<input type="checkbox"/> Edit Copy Delete	7	7	7	2	2022/007/1146	first	1	F01	Wed, 28-Dec-2022 09:31:07 PM
<input type="checkbox"/> Edit Copy Delete	8	7	8	2	2022/007/2474	second	2	S001 - S002	Wed, 28-Dec-2022 09:37:13 PM

Check all With selected: Edit Copy Delete Export

Figure 5.7: Booked Tables.

5.3.7 Payment Tables

	id	users_id	schedule_id	amount	ref	date
<input type="checkbox"/> Edit Copy Delete	1	2	3	920	4UMSGBNSD8	Sat, 19-Nov-2022 12:23:02 AM
<input type="checkbox"/> Edit Copy Delete	2	2	3	920	AVC0WN6GK4	Sat, 19-Nov-2022 12:27:56 AM
<input type="checkbox"/> Edit Copy Delete	3	2	5	575	O8YFH3HN2G	Sat, 19-Nov-2022 09:34:11 PM
<input type="checkbox"/> Edit Copy Delete	4	2	6	1150	RLFZICXL93	Sun, 20-Nov-2022 12:04:02 AM
<input type="checkbox"/> Edit Copy Delete	5	2	6	1150	JQ2U88VQSU	Sun, 20-Nov-2022 12:46:00 AM
<input type="checkbox"/> Edit Copy Delete	6	2	6	575	Z536YQ29U5	Sun, 20-Nov-2022 09:59:00 AM
<input type="checkbox"/> Edit Copy Delete	7	2	7	1725	WULSLJKRDE	Wed, 28-Dec-2022 09:31:07 PM
<input type="checkbox"/> Edit Copy Delete	8	2	7	2070	J7S4WFU4ET	Wed, 28-Dec-2022 09:37:13 PM

Check all With selected: Edit Copy Delete Export

Figure 5.8: Payment Tables.

5.3.8 Feedback Tables

	id	user_id	message	response
<input type="checkbox"/> Edit Copy Delete	1	2	hello admin	how can I help you..?
<input type="checkbox"/> Edit Copy Delete	2	2	hello admin...i cancel my ticket, now i want refun...	NULL

Check all With selected: Edit Copy Delete Export

Figure 5.9: Feedback Tables.

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact of Society

Our web based online train ticket booking system is very impactful for our society. Because by using our web application they can get their desire train tickets from home without any hassle. So, now they don't have to go rail station to get train tickets and information about train. This will be very impactful for our society.

6.2 Impact on Environment

Our projects are impactful for the environment. Because by using our web best application they no longer need to go to the train station to buy tickets. As they no longer need to go to the train station to book their tickets, they do not have to use vehicles. We all know about greenhouse gases. This gas is emitted more in our country especially due to the use of cars. As they no longer need to go to the station to book tickets and print train tickets and get train information, vehicle usage will be reduced. It will reduce people's suffering, save money, reduce suffering and reduce road congestion to some extent. We believe it will help reduce our country's carbon emissions.

6.3 Ethical Aspects

Users can purchase train tickets from our web application, which tickets are available by admin. That is, there is no system of fake tickets that can harm users or cheat them in any way. We have put feedback option on our website so that users can share any kind of experience and complaints with admin.

6.4 Sustainability Plan

We have planned sustainability for both users and admin on our website. For example, users can easily enter our website and open an account. Still using that account they can search for tickets, book tickets to their desired destination, pay for tickets and print them. On the other hand, admin can add train, add route, add schedule and print ticket sales report.

CHAPTER 7

CONCLUSION AND FUTURE WORKS

7.1 Future Works

- Desire seats selection will be added in future.
- The mobile and email verification will be added.
- The Location Tracking process will be added.
- We could work to improve the user interface.
- By developing a domain host for the web, this project might be put to use professionally.
- Depending on user demand and emerging technologies, the terms and conditions feature may be changed.
- Online payment system will be more upgraded with more options.
- An app will be built for ticket checkers.
- Android and iOS version will be released in future.

7.2 Discussion and Conclusion

The train is still the most cheap and reliable way for travelling in Bangladesh. People can easily travel cities by avoiding any kinds of traffic jams. Beside these, train journey is comfortable due to the availabilities of sanitation, freedom of moving around and enjoying the nature in our country. Let alone this advantage; In our country, we cannot even get the ticket in a proper way. In existing online ticket buying system has some drawbacks such as: Non-friendly User interface; Seat selection is not available right away, we have to come back again to select the seats, ticket black marketing, fake tickets booking through third party authority etc. However, in our website, we tried to overcome these drawbacks. By using our web application, people can purchase tickets trustily. We have also added the card payment system and a Handsome looking user-friendly interface which is very easy to use and understand.

References

- [1] Abhishek Nair M, Smit Taunk, Panyam Gangadhar Reddy, Parveen Sultana H, “Smart Metro Rail Ticketing System,” INTERNATIONAL CONFERENCE ON RECENT TRENDS IN ADVANCED COMPUTING, vol. 165, pp. 435–441, November 2019.
- [2] Zannatul Ferdous, Fawziyah Faiza Islam, Farabi N A Rahman, Maruf Hasan Rumi, “Customer Satisfaction of Bangladesh Railway E-Ticketing System: A Gender Perspective,” Bangladesh Journal of Public Administration, vol. 29(3), pp. 31-44, 2021.
- [3] Wang Zongjiang, “Railway Online Booking System Design and Implementation,” International Conference on Medical Physics and Biomedical Engineering, pp. 1217 – 1223, 2012.
- [4] Yunli Cheng, “Based on netease train ticket booking system design and implementation,” Journal of Physics: Conference Series, vol. 1446, 022006, April 2020.
- [5] Amit Kumar Gupta, Priyanka Ahlawat Mann, “Railway Train Ticket Generation through ATM Machine: A Business Application for Indian Railways,” International Journal of Computer Applications, vol. 22- No. 7, pp. 46-50, May 2011.
- [6] Venugopal Prasanth, K.P.Soman, “Ticketing Solutions for Indian Railways using RFID Technology,” International Conference on Advances in Computing, Control, and Telecommunication Technologies, pp. 217-219, December 2009.
- [7] Azmathulla Shaik, Kishor Kumar Reddy C, Anisha P R, Ravi Shankar Reddy A, “MRTS: A Robust and Scalable Architecture for Metro Rail Ticketing System,” Sixth International Conference on Computational Intelligence and Communication Networks, Control, pp. 1204-1208, December 2014.
- [8] PHP, available at <<<https://www.php.net/>>>, last accessed on 03-01-2023 at 12:00 PM.
- [9] Bootstrap, available at <<<https://getbootstrap.com/>>>, last accessed on 03-01-2023 at 12:05 PM.
- [10] HTML, available at <<<https://html.com/>>>, last accessed on 03-01-2023 at 12:10 PM.
- [11] CSS, available at <<<https://en.wikipedia.org/wiki/CSS>>>, last accessed on 03-01-2023 at 12:15 PM.
- [12] JavaScript, available at <<<https://en.wikipedia.org/wiki/JavaScript>>>, last accessed on 03-01-2023 at 12:20 PM.
- [13] jQuery, available at <<<https://jquery.com/>>>, last accessed on 03-01-2023 at 12:25 PM.
- [14] MySQL, available at <<<https://www.mysql.com/>>>, last accessed on 03-01-2023 at 12:30 PM.
- [15] XAMPP, available at <<<https://www.apachefriends.org/>>>, last accessed on 03-01-2023 at 12:35 PM.
- [16] GitHub, available at <<<https://github.com/>>>, last accessed on 03-01-2023 at 12:45 PM.
- [17] VS Code, available at <<<https://code.visualstudio.com/>>>, last accessed on 03-01-2023 at 12:50 PM.

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An Automatic Web Phishing Detection
System", 2022 IEEE India Council International
Subsections Conference (INDISCON), 2022

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