PROFESSIONAL TRAINING REPORT

at

Sathyabama Institute of Science and Technology

(Deemed to be University)

Submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering Degree in Computer Science and Engineering

By

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

SCHOOL OF COMPUTING

SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY
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SATHYABAMA
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **Tagini Mythreye M (Reg.No:39111011)**who carried out the project entitled "**Online Bus Ticket Reservation System**" under my supervision from January 2022 to April 2022.

Internal Guide

Mrs. C. Kavitha,

Head of the Department

Dr. S. Vigneshwari, M.E., Ph.D.,

Dr. L. Lakshmanan, M.E., Ph.D.

Submitted for Viva voice Examination held on _____

InternalExaminer

ExternalExaminer

DECLARATION

I, **Tagini Mythreye M** hereby declare that the project report entitled **Online Bus Ticket reservation system** done by me under the guidance of **Mrs. C. Kavitha** is submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering Degree in Computer Science and Engineering.

DATE:

PLACE: **SIGNATURE OF THE CANDIDATE**

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to **Board of Management** of **SATHYABAMA** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. T. Sasikala M.E., Ph.D**, **Dean**, School of Computing, **Dr. S. Vigneshwari, M.E., Ph.D. and Dr. L. Lakshmanan, M.E., Ph.D., Heads of the Department** of **Computer Science and Engineering** for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **Mrs. c. Kavitha,** for her valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the **Department of Computer Science and Engineering** who were helpful in many ways for the completion of the project.

ABSTRACT

Online Bus Ticket Reservation System is a Web based application that works within a centralized network. This project presents a review on the software program “Online Bus Ticket Reservation System” as should be used in a bus transportation system, a facility which is used to reserve seats, cancellation of reservation and different types of route enquiries used on securing quick reservations. OBTRS is built for managing and computerizing the traditional database, ticket booking and tracking bus and travel made. It maintains all customer details, bus details, reservation details. To achieve the design, Imo Transport Company (ITC) was chosen as a case study because of its strategic importance to Imo State. Structured Systems Analysis and Design Methodology (SSADM) was adopted. In addition, PHP Hypertext Preprocessor (PHP) language was used for the front- end of the software while the back end was designed using MySQL. The software achieved can improve the customer hand and relationship management in ITC operations. It is recommended that despite the present functionality of the designed software, an additional functionality such as the use of E-mail to send tickets and notifications to the customer and an online payment using credit cards/debit cards should be implemented into the system. Furthermore, other operations carried by ITC such as the courier services should also be integrated to enhance the system.

TABLE OF CONTENTS

1. Introduction

The prevalent view in various global circles is that man is presently living in an age growth of information gathering, processing and dissemination, popularly called the information age. For this reason, managers, and other users of information especially in transport industries are demanding more kinds of information to support management and operations. They must therefore respond to the increasing requirement for information and data management. Electronic tickets, or e-tickets, gives evidence that their holders have the permission to enter a place of entertainment, use a means of transportation, or have access to some Internet services. The design of this online system will be beneficial to the company because it has not existed before. Therefore, Imo Transport Company, Owerri, a viable investment owned by the state government whose primary objectives are to spread comfort and hospitality to passengers away from their home, to make profit, will appreciate a system which can automate its manual operations in the area of bus ticket reservation in order to meet customers increasing demand during peak and off-peak seasons. The ultimate expectation is to inspire a feasibility study aimed at providing proper guidance and awareness to any future potential investors, particularly those in the bus industry, to consider utilizing the Imo transport, as a gateway to the fertile soil of unlimited opportunities in the south-east Nigeria. Currently, staff at the bus ticket counter is using an internal system to sell tickets at the counter and customers who are unable to buy bus ticket online at this moment would have to go to the counter to a buy bus ticket. Sometimes, customers' needs to queue up a long queue to buy bus ticket and ask for information and this brings a lot of inconveniences to customers. However, Online Bus Ticket Reservation System enables the customer to buy bus ticket, make payment, and ask for information online easily. Furthermore, staff can sell bus ticket using Bus Ticket Reservation System after checking the bus ticket availability for the customer and print the bus ticket to the customer.

1.1 Statement of Problem

Currently, the type of system being used at the counter is an internal system which is manually used in selling the bus tickets. The problems facing the company are that customers must go to the counter to buy bus ticket or ask for bus schedule, customers will also have to queue up for a long time in order to secure a bus ticket and will also need to pay cash when they buy the bus ticket.

1.2 Objective

The main purpose of this study is to automate the manual procedures of reserving a bus ticket for any journey made through Imo Transport Company (ITC).

This system is said to be an automatic system and customers can select seats by themselves. Specifically, objectives of this project will consist of:

i) Providing a web-based bus ticket reservation function where a customer can buy bus ticket through the online system without a need to queue up at the counter to purchase a bus ticket.
ii) Enabling customers to check the availability and types of busses online. Customer can check the time departure for every ITC bus through the system.
iii) Easing bus ticket payment by obtaining a bank pin after payments is made to the various designated banks.
iv) Ability of customers to cancel their reservation.
v) Admin user privileges in updating and canceling payment, route and vehicle records.

2. METHODOLOGY DEVELOPMENT MODEL

Research Methodology

The system of collecting data for research project is known as research methodology. The data may be collected for either theoretical or practical research for example management research may be strategically conceptualized along with operational planning method and change management. Information which was used for this study was carried out by oral interview.

Choice of Methodology

For any project to be completed, it must
go through stages called Development Life Cycles. System Development Life Cycle (SDLC) is the process of understanding how an Information System (IS) can support business needs, designing the system, building it, and delivering it to users. The SDLC composes of four phases: Planning, Analysis, Design, and Implementation. In order for this project to be developed, the methodology that will be used is the System Structured Analysis and Design Methodology. The SSADM is classified as a Waterfall Development. With Waterfall Development, analyst and users proceed sequentially from one phase to the next and each phase can be mapped out and evaluated (Hevner, 2004). Below, in figure 3.1 is a diagram on the waterfall methodology.

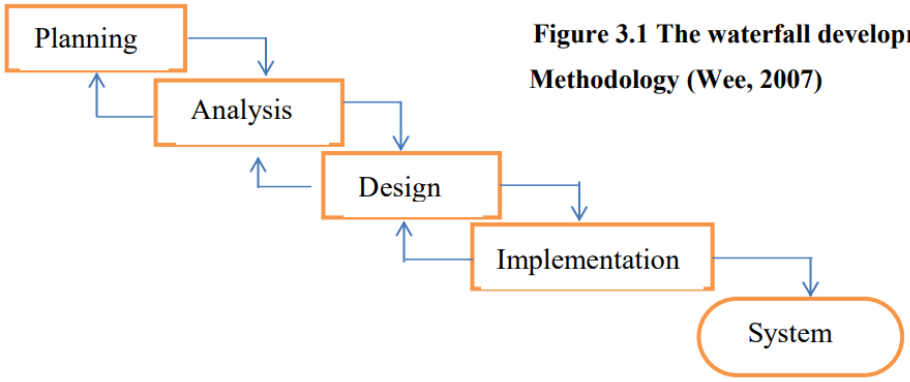


Figure 3.1 The waterfall development Methodology (Wee, 2007)

3. TOOLS AND TECHNIQUES

a. Php
b. Xampp
c. Mysql yog
d. HTML
e. Bootstrap
f. Java Script
g. Css

Xampp

XAMPP is a free and open source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP stands for Cross-Platform (X), Apache (A), MariaDB (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file. XAMPP is also cross-platform, which means it works well on Linux

Mysql yog

MySQL Workbench is a unified visual tool for database architects, developers, and DBAs. MySQL Workbench provides data modeling, SQL development, and comprehensive administration tools for server configuration, user administration, backup, and much more. MySQL Workbench is available on Windows, Linux and Mac OSX

HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web. [4] Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

Bootstrap

Bootstrap is a free and open-source front-end framework for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Unlike many web frameworks, it concerns itself with front-end development only.

Java Script

JavaScript often abbreviated as JS, is a high-level, interpreted programming language. It is a language which is also characterized as dynamic, weakly typed, prototype-based and multi-paradigm. Alongside HTML and CSS, JavaScript is one of the three core technologies of the World Wide Web.
JavaScript enables interactive web pages and thus is an essential part of web applications. The vast majority of websites use it, and all major web browsers have a dedicated JavaScript engineto execute it

Php

Hypertext Preprocessor (or simply **PHP**) is a server-side scripting language designed for Web development, but also used as a general-purpose programming language. It was originally created by Rasmus Lerdorf in 1994,] the PHP reference implementation is now produced *by* The PHP Group. PHP originally stood for Personal *Home Page*,] but it now stands for the recursive acronym *PHP: Hypertext Preprocessor*. PHP code may be embedded into HTML code, or it can be used in combination with various web template systems, web content management systems, and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical applications.

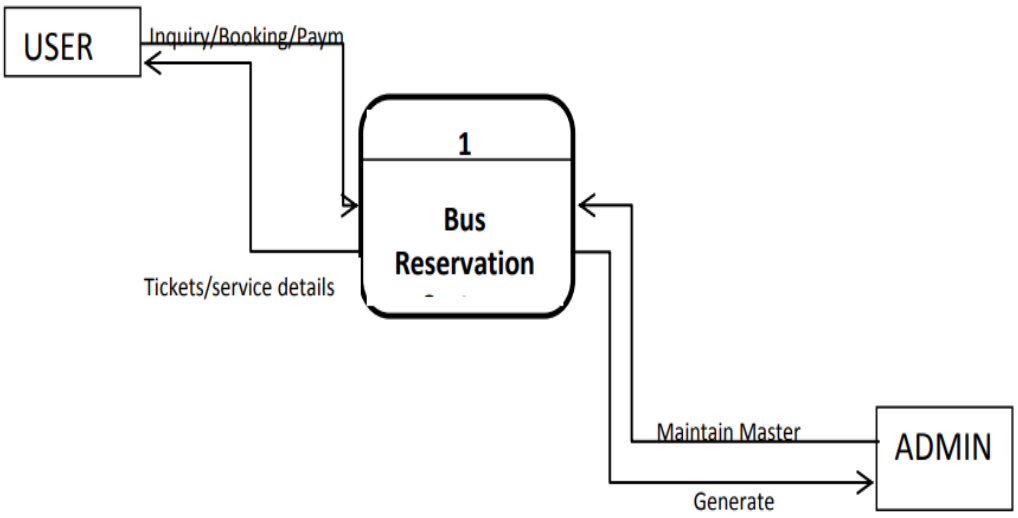
Css

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScrip

4. DATA FLOW DIAGRAM (DFD)

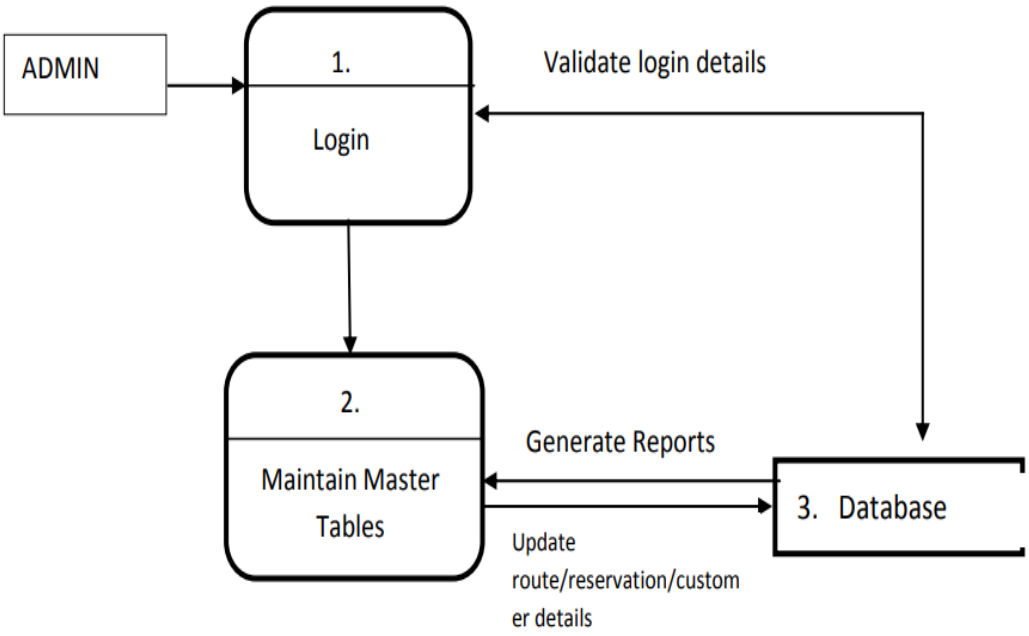
A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. The development of DFD'S is done in several levels. Each process in lower level diagrams can be broken down into a more detailed DFD in the next level. The Top-level diagram is often called context diagram. It consist a single process bit, which plays vital role in studying the current system. The process in the context level diagram is exploded into other process at the first level DFD. Figures bellow shows a data flow diagram about the system

Level 0



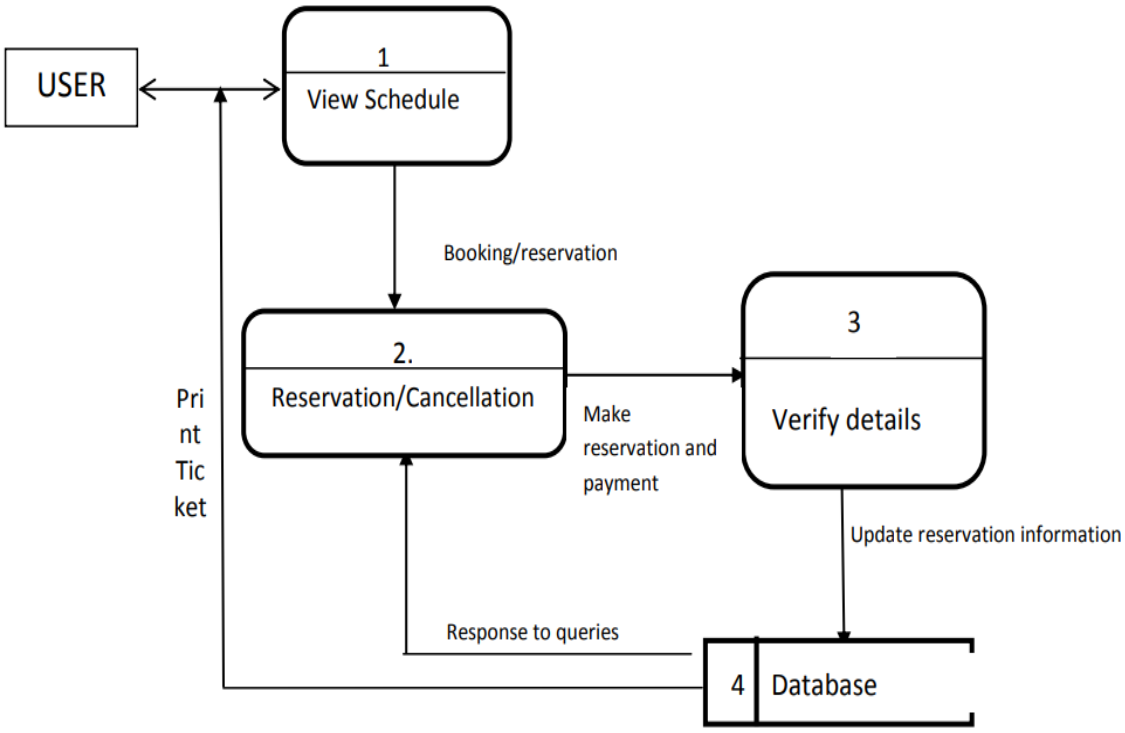
Context View of Online Bus Ticket Reservation System

Level 1



User view of Online Bus Ticket Reservation System

Level 2



Admin view of Online Bus Ticket Reservation System

4.1 USE CASE DIAGRAM FOR USERS AND ADMIN

A use case is a description of a system's behaviour as it responds to a request that originates from outside of that system (the user). In figure 3.3, a use case of the activities in a bus transport system is shown.

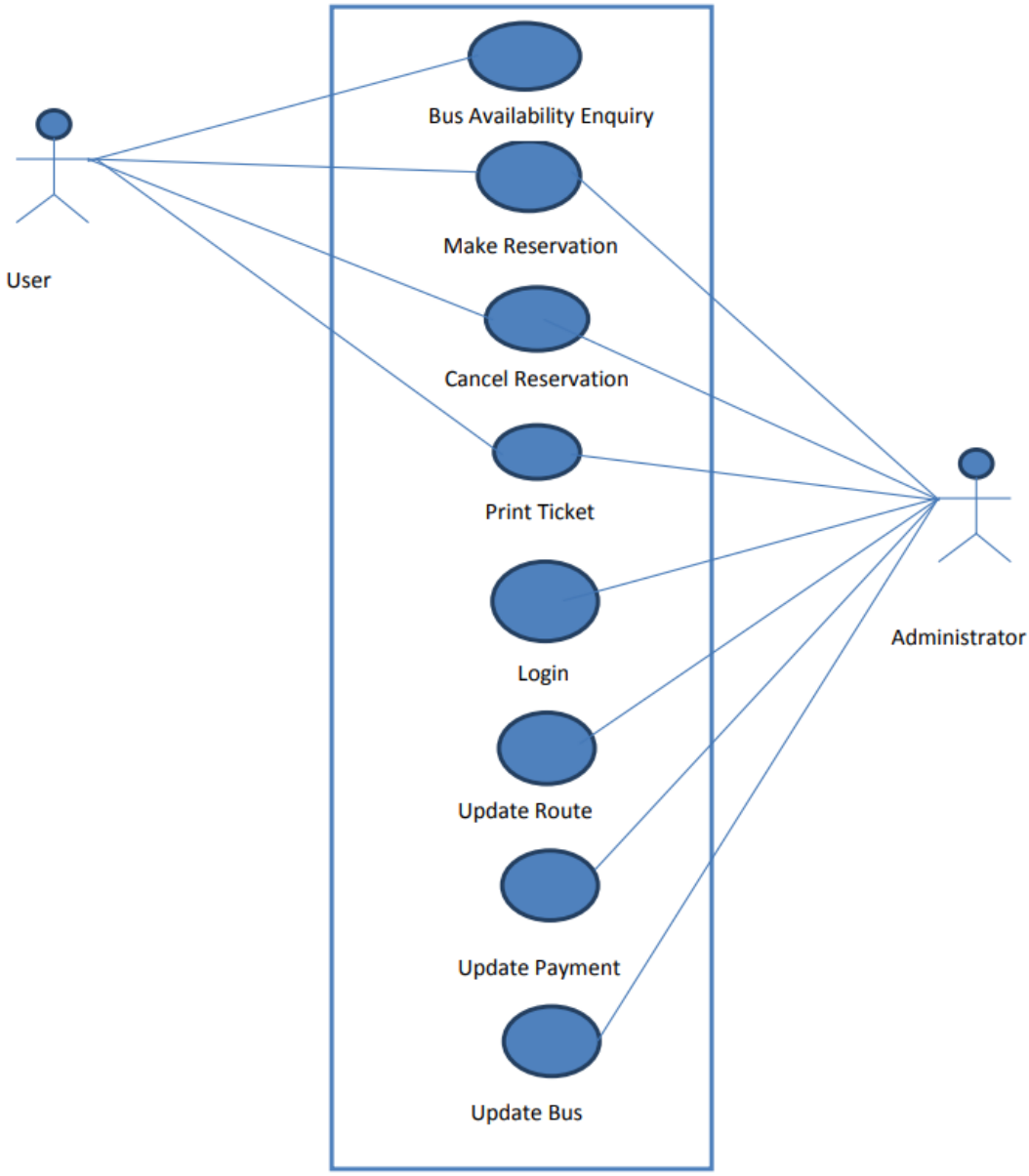


Figure 4.1, Use case diagram for users and admin

In other words a use case describes "who" can do "what" with the system in question. The use case technique is used to capture a system's behavioural requirements by detailing scenario-driven threads through the functional requirements.

5. INPUT AND OUTPUT DESIGN

The input design is the link between the information system and the user. It comprises of the developing specification and procedures for data preparation and those steps are necessary to put transaction data into a usable form for processing data entry while an output design is a process that involves designing necessary outputs in the form of reports that should be given to the users according to the requirements. Below are some screenshots which comprises of both input and output designs of the proposed system

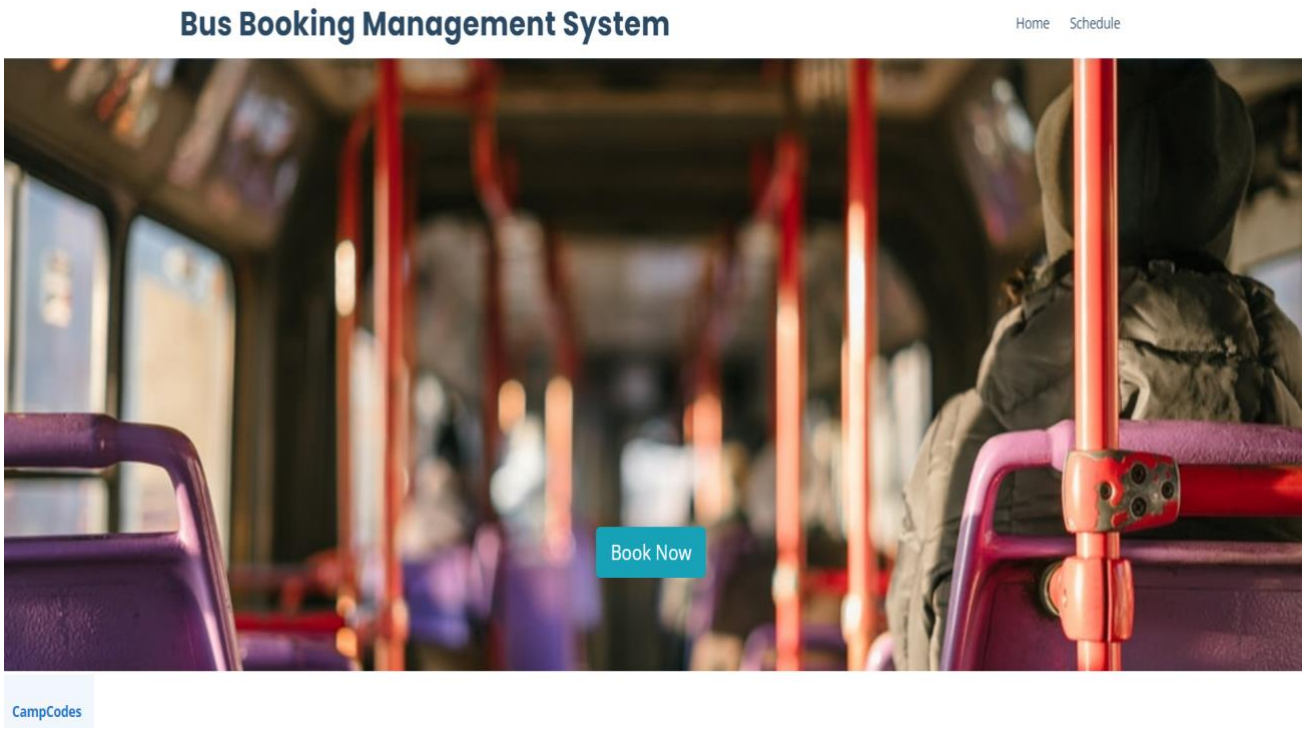


Figure 5.1, User's Booking page

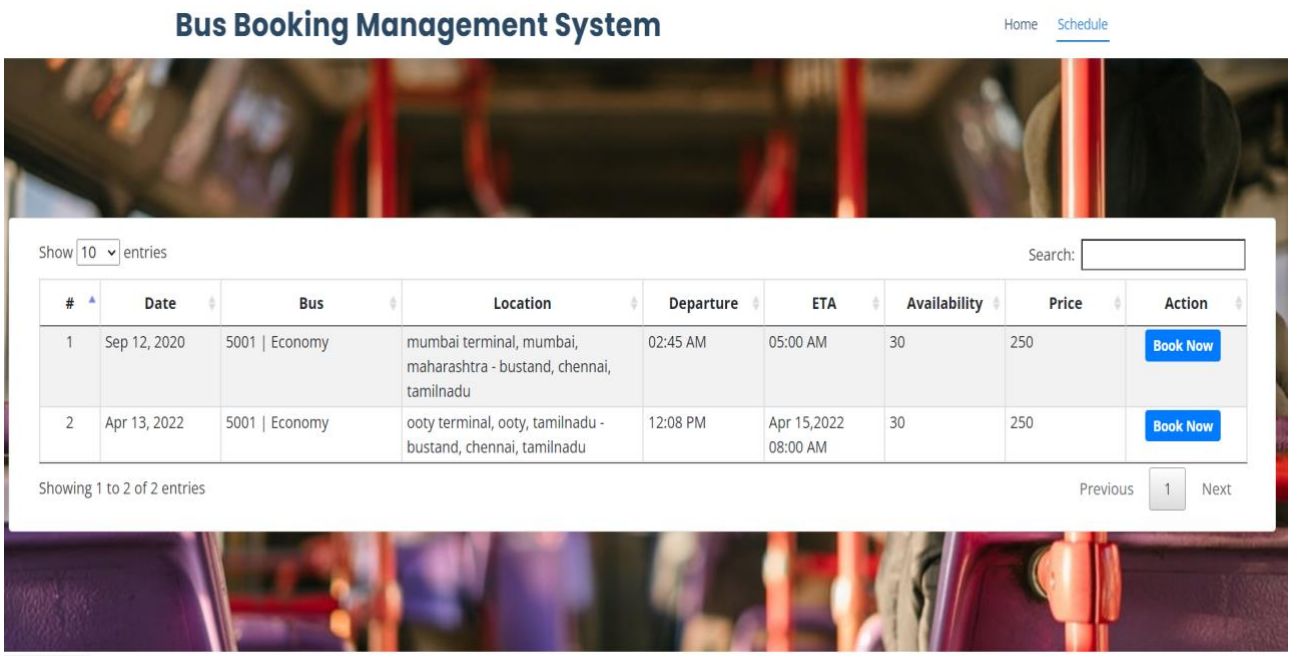


Figure 5.2, User's Bus schedule module

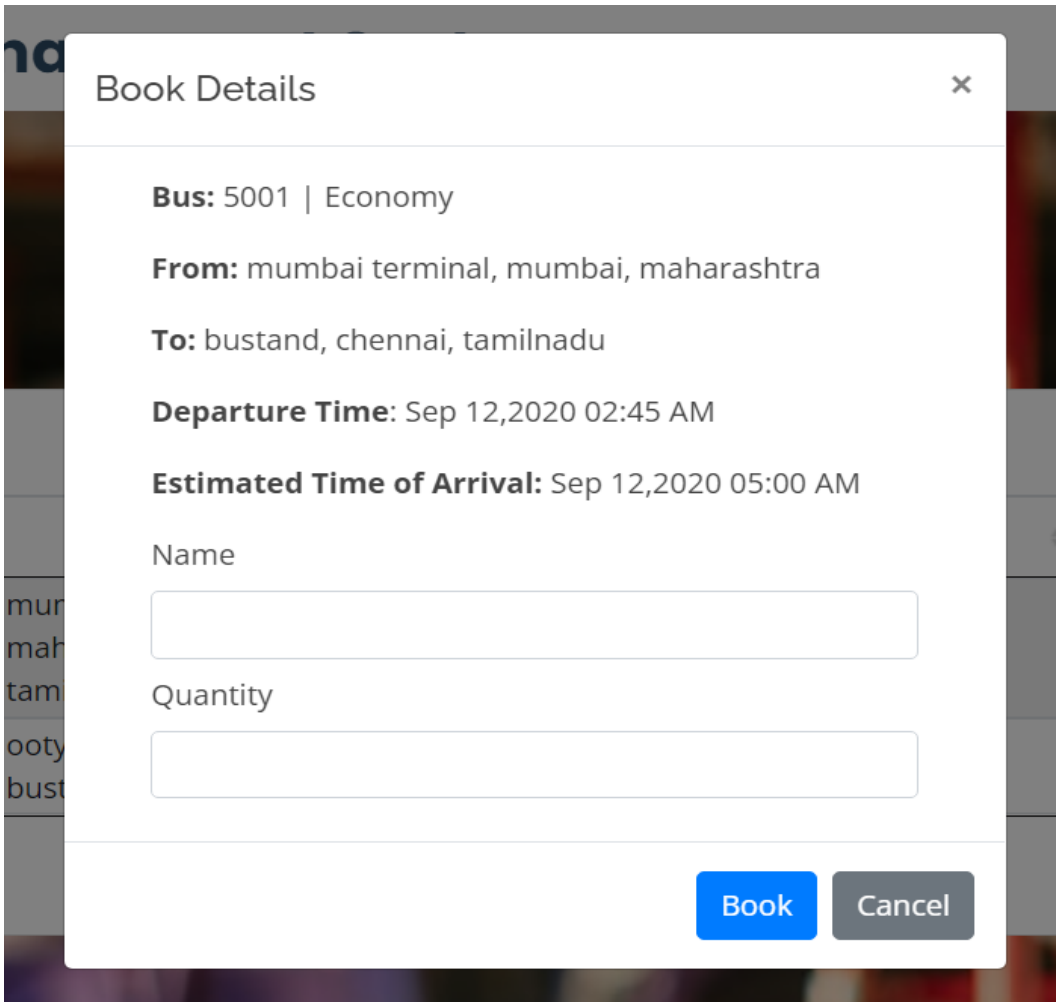


Figure 5.3, User's booking details

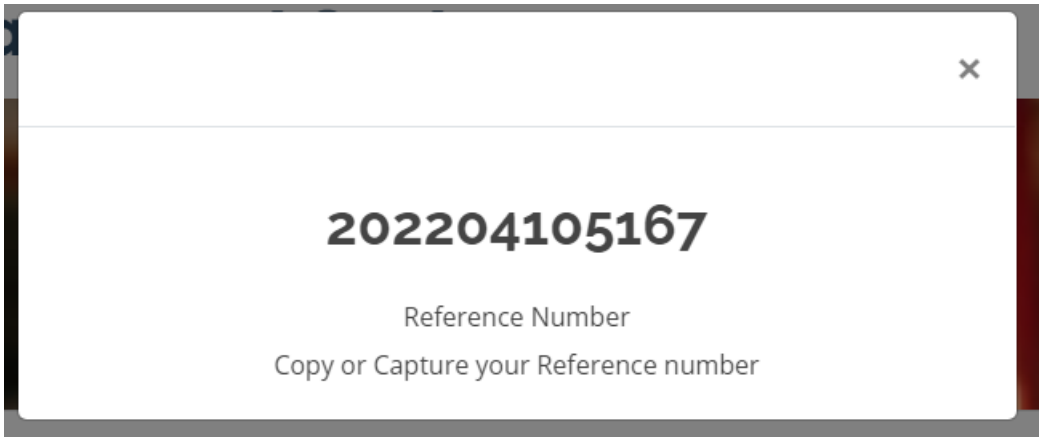


Figure 5.4, Reference number for the user after booking

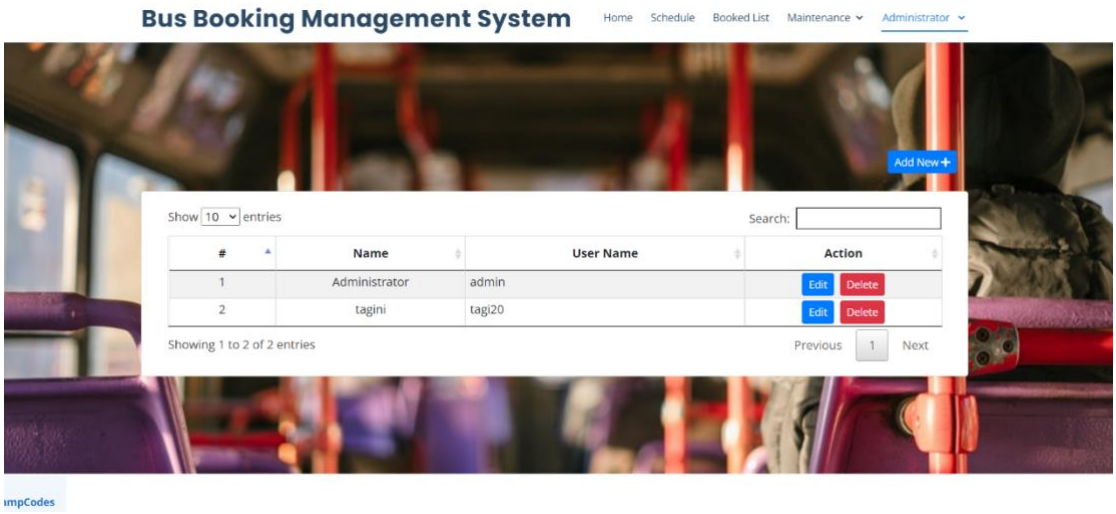


Figure 5.5, Administration module

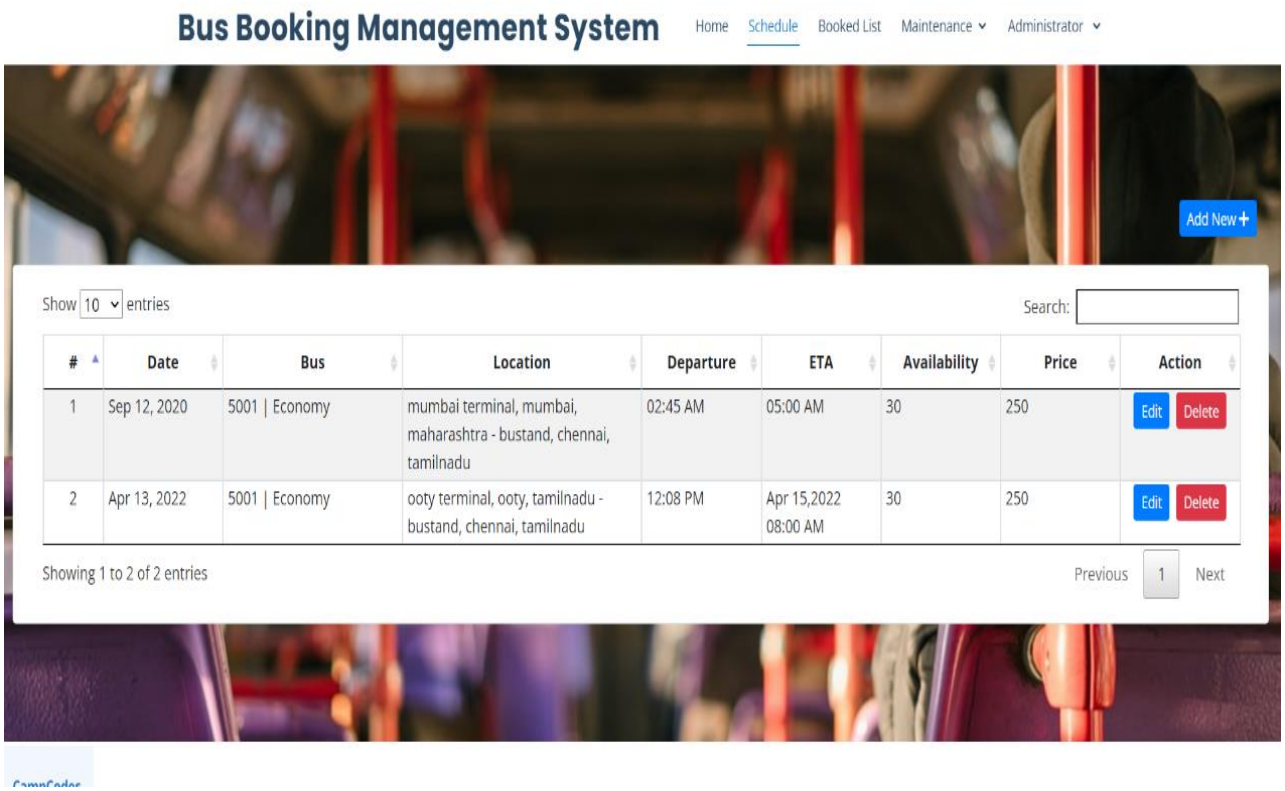


Figure 5.6, Updated route , payment and bus

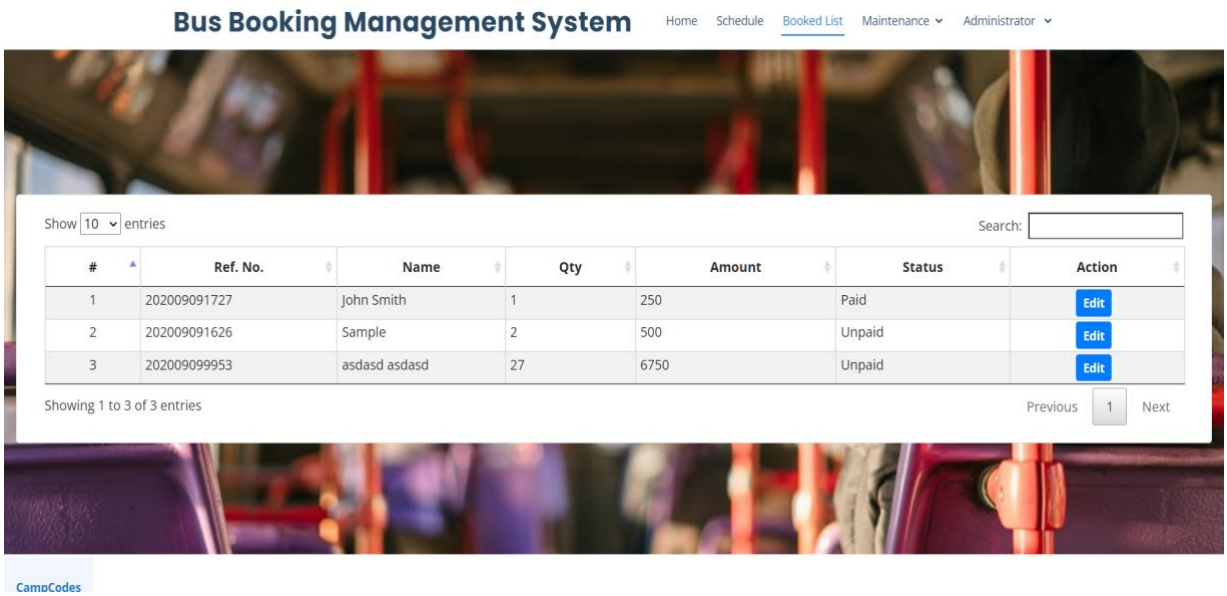


Figure 5.7, Admin dashboard

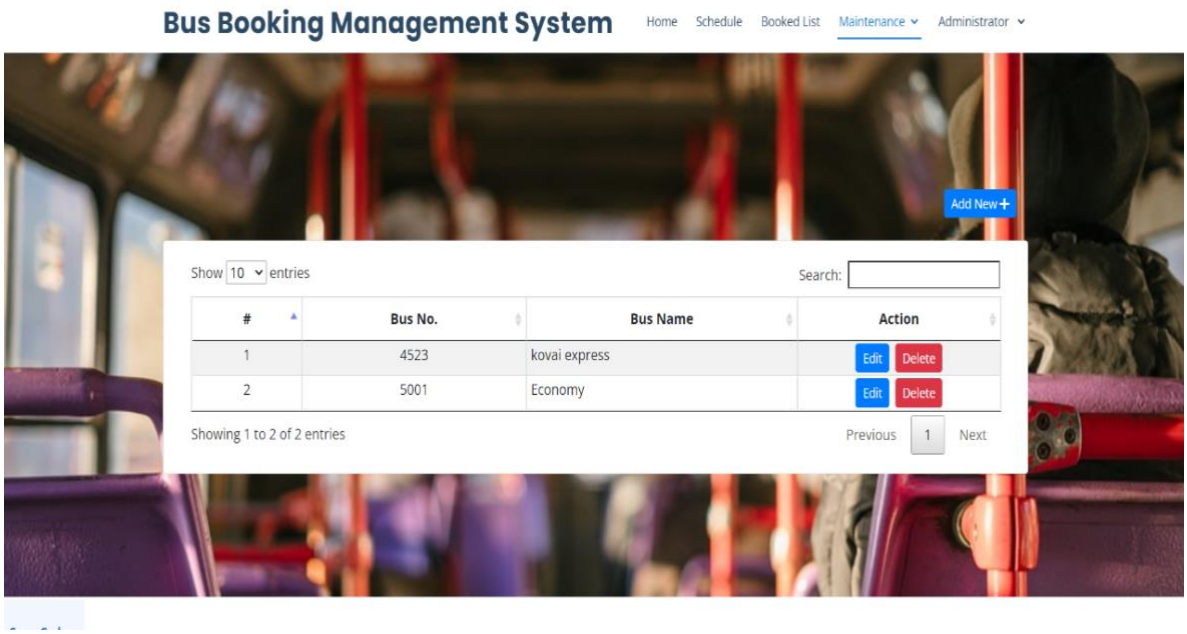


Figure 5.8, Admin Maintenance module

6. Sample source code

MySQL returned an empty result set (i.e. zero rows). (Query took 0.9430 seconds.)

```
-- -- AUTO_INCREMENT for dumped tables -- -- -- AUTO_INCREMENT for table `booked` -- ALTER TABLE `booked` MODIFY `id` int(30) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=4
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 1.0441 seconds.)

```
-- -- AUTO_INCREMENT for table `bus` -- ALTER TABLE `bus` MODIFY `id` int(30) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=4
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 1.3954 seconds.)

```
-- -- AUTO_INCREMENT for table `location` -- ALTER TABLE `location` MODIFY `id` int(30) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.7602 seconds.)

```
-- -- AUTO_INCREMENT for table `schedule_list` -- ALTER TABLE `schedule_list` MODIFY `id` int(30) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.8057 seconds.)

```
-- -- AUTO_INCREMENT for table `users` -- ALTER TABLE `users` MODIFY `id` int(30) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.9543 seconds.)

```
-- -- Indexes for dumped tables -- -- -- Indexes for table `booked` -- ALTER TABLE `booked` ADD PRIMARY KEY (`id`)
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.5626 seconds.)

```
-- -- Indexes for table `bus` -- ALTER TABLE `bus` ADD PRIMARY KEY (`id`)
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.9045 seconds.)

```
-- -- Indexes for table `location` -- ALTER TABLE `location` ADD PRIMARY KEY (`id`)
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.6462 seconds.)

```
-- -- Indexes for table `schedule_list` -- ALTER TABLE `schedule_list` ADD PRIMARY KEY (`id`)
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.6050 seconds.)

```
-- -- Indexes for table `users` -- ALTER TABLE `users` ADD PRIMARY KEY (`id`)
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.2992 seconds.)

```
-- -------------------------------------------------------- -- -- Table structure for table `schedule_list` -- CREATE TABLE `schedule_list` ( `id` int(30) NOT NULL, `bus_id` int(30) NOT NULL, `from_location` int(30) NOT NULL, `to_location` int(30) NOT NULL, `departure_time` datetime NOT NULL, `eta` datetime NOT NULL, `status` tinyint(4) NOT NULL DEFAULT 1, `availability` int(11) NOT NULL, `price` text NOT NULL, `date_updated` timestamp NOT NULL DEFAULT current_timestamp() ON UPDATE current_timestamp() ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
```

[Edit inline] [Edit] [Create PHP code]

2 rows inserted. (Query took 0.2127 seconds.)

```
-- -- Dumping data for table `schedule_list` -- INSERT INTO `schedule_list` (`id`, `bus_id`, `from_location`, `to_location`, `departure_time`, `eta`, `status`, `availability`, `price`, `date_updated`) VALUES (1, 3, 1, 1, '2020-09-11 16:00:00', '2020-09-12 02:00:00', 1, 30, '250', '2020-09-08 07:49:57'), (2, 3, 2, 1, '2020-09-12 02:45:00', '2020-09-12 05:00:00', 1, 30, '250', '2020-09-08 07:37:52')
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.2601 seconds.)

```
-- -------------------------------------------------------- -- -- Table structure for table `users` -- CREATE TABLE `users` ( `id` int(30) NOT NULL, `name` varchar(150) NOT NULL, `user_type` tinyint(1) NOT NULL DEFAULT 1 COMMENT '1 = admin, 2= faculty , 3 = student', `username` varchar(25) NOT NULL, `password` varchar(25) NOT NULL, `status` tinyint(1) NOT NULL DEFAULT 1 COMMENT ' 0 = incative , 1 = active', `date_updated` datetime NOT NULL DEFAULT current_timestamp() ON UPDATE current_timestamp() ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
```

[Edit inline] [Edit] [Create PHP code]

2 rows inserted. (Query took 0.0737 seconds.)

```
-- -- Dumping data for table `users` -- INSERT INTO `users` (`id`, `name`, `user_type`, `username`, `password`, `status`, `date_updated`) VALUES (1, 'Administrator', 1, 'admin', 'admin123', 1, '2020-09-08 16:42:28'), (2, 'John Smith', 1, 'jsmth', 'admin123', 1, '2020-09-08 16:13:53')
```

[Edit inline] [Edit] [Create PHP code]

Console

MySQL returned an empty result set (i.e. zero rows). (Query took 0.2492 seconds.)

```
-- -------------------------------------------------------- -- -- Table structure for table `bus` -- CREATE TABLE `bus` ( `id` int(30) NOT NULL, `name` varchar(250) NOT NULL, `bus_number` varchar(50) NOT NULL, `status` tinyint(1) NOT NULL DEFAULT 1 COMMENT '0 = inactive, 1 = active', `date_updated` datetime NOT NULL DEFAULT current_timestamp() ON UPDATE current_timestamp() ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
```

[Edit inline] [Edit] [Create PHP code]

1 row inserted. (Query took 0.0304 seconds.)

```
-- -- Dumping data for table `bus` -- INSERT INTO `bus` (`id`, `name`, `bus_number`, `status`, `date_updated`) VALUES (3, 'Economy', '5001', 1, '2020-09-08 13:54:42')
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.1888 seconds.)

```
-- -------------------------------------------------------- -- -- Table structure for table `location` -- CREATE TABLE `location` ( `id` int(30) NOT NULL, `terminal_name` text NOT NULL, `city` varchar(250) NOT NULL, `state` varchar(250) NOT NULL, `status` tinyint(1) NOT NULL DEFAULT 1 COMMENT '0= inactive , 1= active', `date_updated` datetime NOT NULL DEFAULT current_timestamp() ON UPDATE current_timestamp() ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
```

[Edit inline] [Edit] [Create PHP code]

2 rows inserted. (Query took 0.0301 seconds.)

```
-- -- Dumping data for table `location` -- INSERT INTO `location` (`id`, `terminal_name`, `city`, `state`, `status`, `date_updated`) VALUES (1, 'Sample Terminal Name', 'Sample City', 'Sample', 1, '2020-09-08 14:23:36'), (2, 'South Sample Terminal', 'South City', 'Sample', 1, '2020-09-08 14:33:04')
```

[Edit inline] [Edit] [Create PHP code]

7. Summary

In 1974, American airlines were the first to use an automated booking system, which was still almost manual. Technology grew, and a computer reservation system was developed. In this present era, online booking or reservation system has

improved the operations of various sectors of a nation's economy deploying this system. Online Bus Ticket Reservation System being a web based system that ensures that the company would be able to transform most of the processes carried out manually into automated, error-free and easy to use operations in the organization especially in the area of transportation; also it would be able to generate report for the management decision purpose.

This system will be developed using a waterfall methodology for research and design purposes, PHP as the programming language because of its server-side processing capabilities that makes data process less on the client personal computer, an implementation strategy as well as testing and maintenance strategies suitable for efficient deployment of the system.

7.1 Recommendations

Research and development are continuous processes; this is the same in computer and software development. However, this work is recommended for Imo Transport Company Limited, Owerri, since their operation are still carried out manually and it can also be useful to other Bus Transportation industries whose processes are still manually done.

The system can contribute more on those bus representatives handling the account if it can generate reports by trip so that they will no longer go to a certain module to check the reservation and its details. Also, it will be more beneficial to both clients and bus representatives if clients can create an account just like in airlines websites. With that, the system can record the modifications made. Other functionalities such as E-Mail facility for sending Ticket to passenger, Online Payment with Credit Card / Debit Card etc. could also be integrated into the system in order to enhance user friendliness and interactions

7.2 Conclusion

It can be observed that computer applications are very important in every field of human endeavor. Here all the information about customer that made reservation can be gotten just by clicking a button with this new system, some of the difficulties encountered with the manual system are overcome. It will also reduce the workload of the staff, reduce the time used for making reservation at the bus terminal and also increase efficiency. The application also has the ability to update records in various files automatically thereby relieving the company's staff the stress of working from file security of data.

This project, as a whole, will give a new way in bus reservations and ticketing processes. The automation and management of seats and reservations will be done online. However, this project does not limit the walk-in passengers that is passengers

who visit the company's counter because it also caters for them. This also lessens the use of papers like in the traditional way of ticketing.