ONLINE BUS TICKET BOOKING SYSTEM USING C++

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INFORMATION SCIENCE AND ENGINEERING

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CERTIFICATE

This is to certify that the Mini Project entitled "ONLINE BUS TICKET BOOKING SYSTEM USING C++" carried out by Ms. Preethi G (4VM18IS025) and Ms. Sonali S (4VM18IS035) in partial fulfilment of Mini Project on Object Oriented Concepts in Information Science and Engineering of the Visvesvaraya Technological University, Belagavi during the year 2019-2020. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the Report deposited in the departmental library. The Mini Project report has been approved as it satisfies the academic requirements in respect of Mini Project prescribed for the Object Oriented Concepts Project based Learning.

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Preethi G
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ABSTRACT

Travelling is a large growing business in India and other countries. Bus reservation system deals with maintenance of records of details of each passenger who had reserved a seat for a journey. It also includes maintenance of information like schedule and details of each bus.

We observed the working of the bus reservation system and after going through it, we get to know that there are many operations, which they have to do manually. It takes a lot of time and causes many errors. Due to this, sometimes a lot of problems occur and they were facing many disputes with customers. To solve the above problem and further maintaining records of items, seat availability for customers, price of per seat, bill generation and other things, they are offering this proposal of reservation system.

By using this software, we can reserve tickets from any part of the world, through telephones lines, via internet. This project provides and check all sorts of constraints so that user does give only useful data and thus validation is done in an effective way.

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INTRODUCTION

1.1 Overview

An electronic payment system is a way of making transactions or paying for goods and services electronically without using cash or checks. In order to accept funding and meet customer needs, companies like traveling companies are accepting payments in many more forms than cash or checks. The application is developed to make it easier for customers to reserve their ticket. The can simply book the ticket using the web page. In addition, customers can check the availability of the bus ticket before they reserve the ticket.

1.1.1 Problem statement

Currently, staffs at the ticket counter are using the manual system to sell tickets and manage the bus seat booking. company spends a large cost need to hire a developer to build a system for them. Many people find it hard to contact and go to the bus counter each time they want to find whether there is available ticket on the time they want to depart. It will take quite some time to do the process of finding the available ticket and often involved some cost to do so.

1.2 Objectives

- Manage reservations and seating effectively
- Safe and secure payment gateway module
- Detail reports for managing trips
- Save time spent by standing in queue for purchase of your
- Pay online using online payment facility
- Take a ticket printout
- Counter booking using online application
- Generate detailed report of sales details
- Manage various trips, rates and types
- Allow users to reserve seats online
- Allow user to pay for tickets online by Integrating system with EBS and benefiting of their services

- Build a secure system
- Participate in Reducing cash transaction to solve the traditional payment problems
- Provide the better work efficiency, security, accuracy, reliability, feasibility
- Reducing the error to almost nil
- Improving working conditions.

1.3 Existing System

The existing bus booking system is not completely computerized. The customer has to visit any booking branch if he wants to book a ticket or go to travel agents. This was actually a tedious process and was leading to wastage of time. It also had issues like incorrect names or other information used to book tickets. Bus scheduling, ticket booking, bill generation and many other operations are done manually.

1.4 Drawbacks of the Existing System

The main demerit of the present system is that:

- Slow response about refunding
- High registration and service charge
- Troll free is not available for customer enquires
- Low quality customer service

1.5 Proposed Technology

We can eliminate the drawbacks by developing an application which will allow customers to register themselves and book tickets, cancel tickets or postpone or prepone travel dates with feasibility. This actually is a welcome step for customers as they can access the application from anywhere and will also avoid wastage of time that was caused due to the drawbacks in the previous way of booking tickets manually.

There are numerous travel agencies which provides online bus ticket booking such as SRS Travels, VRL Travels, Kesineni Travels, Kallada Travels etc., Many concerns like Ticketgoose, Makemytrip, Redbus have the facility to book tickets online. You have to go through their site and select the operator or travel agency you want to go and book the ticket.

Objective to be fulfilled:

- Development of software in the given time.
- To create an effective and efficient application.

Some of these advantages are:

- Bus availability, bus number and bus drivers name will be displayed to the customers.
- Arrival and departure time will be displayed to the booked customers.
- This system also provides whether the seats are reserved, if not the user can book it.
- Saves time.

CHAPTER 2

LITERATURE SURVEY

2.1 Definition

A payment system is any system used to settle financial transactions through the transfer of monetary value, and includes the institutions, instruments, people, rules, procedures, standards, and technologies that make such an exchange possible. A common type of payment system is the operational network that links bank accounts and provides for monetary exchange using bank deposits.

2.2 Forms of Payment

2.2.1 Cash Payment

There are many problems with the traditional payment systems that are leading to its fade out

 Lack of Convenience: Traditional payment systems require the consumer to either send paper cheques by snail-mail or require them to physically come over and sign papers before performing a transaction. This may lead to annoying circumstances sometimes.

 Lack of Security: This is because the consumer has to send all confidential data on a paper, which is not encrypted, that too by post where it may be read by anyone.

 Lack of Coverage: When we talk in terms of current businesses, they span many countries or states. These business houses need faster transactions everywhere. This is not possible without the bank having branch near all of the company's offices. This statement is self-explanatory.

 Lack of Eligibility: Not all potential buyers may have a bank account.

 Lack of support for micro-transactions: Many transactions done on the Internet are of very low cost though they involve data flow between two entities in two countries.

The same if done on paper may not be feasible at all.

Advantages of cash:

 Easy to transport and transfer.

 No transaction costs (no third party is involved directly).

 No audit trail is left behind (that's why criminals like it).

2.2.2 Electronic Payment

Electronic Payment is a financial exchange that takes place online between buyers and sellers. The content of this exchange is usually some form of digital financial instrument (such as encrypted credit card numbers, electronic cheques or digital cash) that is backed by a bank or an intermediary, or by a legal tender.

There are four main types of electronic payment: namely, the online credit card payment system, the electronic-cash payment system, the electronic-check payment system, and the smart-card based electronic-cash payment system.

The characteristics of the payment device can have an important bearing on how easy the system is to use. The payment device could be a Contactless Smart Card. Another technology development involves the use of near field communication (NFC). NFC enables use phone to make payments just like a smart card. Make it easier and more convenient for consumers by making it simpler to make transactions, exchange digital content, and connect electronic devices with a touch.

These days you can pay for calls, for transit, and for parking using a transponder or tag, a smart card, or a smartphone. The latest in smart card technologies allows the card to be held close to the reader or to a reading plate, with no contact required. The card does not need to be inserted into a slot. Short-range communication technologies allow data to be transferred from the smart card to the reader and vice versa. This avoids customer issues related to difficulties in inserting a card in a slot and makes the system mechanically more reliable. Needless to say, the wireless messages communicated are required to be secured through the use of encryption.

CHAPTER 3

SYSTEM REQUIREMENTS

3.1 Functional Requirements

Functional requirements define the specific functions that the system performs, along with the data operated on by the functions. The functional requirements are presented in scenarios that depict an operational system from the perspective of its end users. Included are one or more examples of all system features and an enumeration of all the specific requirements associated with these features:

- The system shall incorporate mechanism to authenticate its users.
- The system shall verify and validate all user input and should notify in case of error detection and should help the user in error correction.
- The system shall allow sharing of files in the system.
- The system shall allow quick messages to be exchanged without face to face interaction

3.2 Non-Functional Requirements

Non-functional requirements address aspects of the system other than the specific functions it performs. These aspects include system performance, costs, and such general system characteristics as reliability, security, and portability. The non-functional requirements also address aspects of the system development process and operational personnel. It includes the following:

- The system shall be user friendly and consistent.
- The system shall provide attractive graphical interface for the user.
- The system shall allow developer access to installed environment.
- The system shall target customer base.

3.3 Software Requirements

- Operating System : Windows XP (or) Higher
- Coding Language : C++
- Tool : Code Blocks, Visual Studio, Turbo C++, Cxxdroid

3.3.1 C++ in Visual Studio

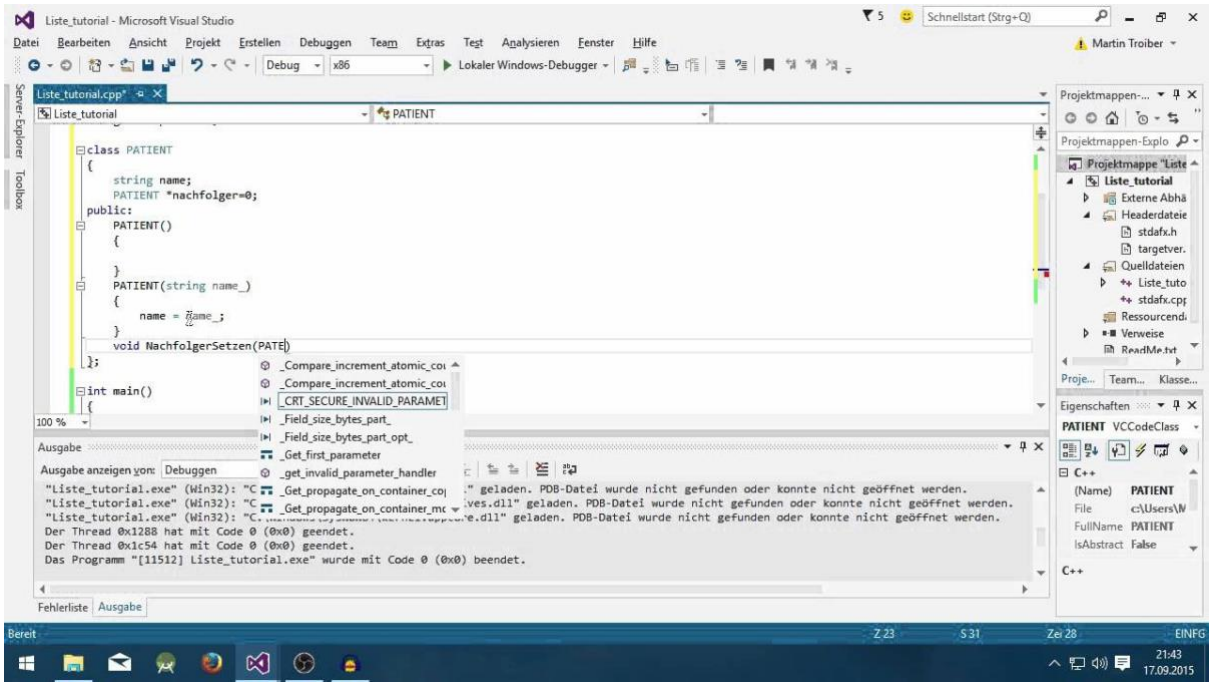


Figure 3.3.1 C++ Screen in Visual Studio

C++ is a middle-level programming language developed by Bjarne Stroustrup starting in 1979 at Bell Labs. **C++** runs on a variety of platforms, such as Windows, Mac OS, and the various versions of UNIX. This **C++** tutorial adopts a simple and practical approach to describe the concepts of **C++** for beginners to advanced software engineers.

Object storage

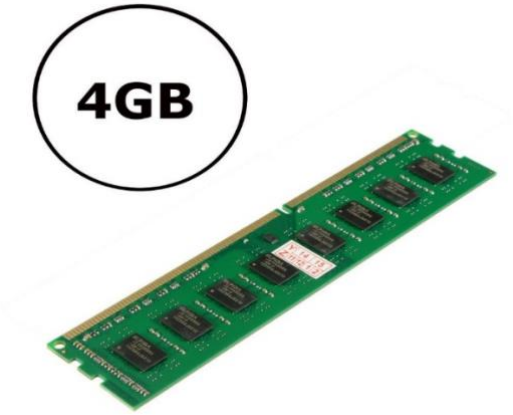
As in C, C++ supports four types of memory management: static storage duration objects, thread storage duration objects, automatic storage duration objects, and dynamic storage duration objects.

3.4 Hardware Requirements

- Processor : i3 (or) above
- RAM : minimum 512MB
- Hard Disk : 50GB
- Speed : 2.4 GHz+
- Android mobile

3.4.1 Processor:

3.4.2 RAM:



3.4.3 Hard Disk:

CHAPTER 4

SYSTEM DESIGN

4.1 Architectural Design

For any project to be completed, it has to 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. Below, in figure 4.1 is a diagram on the waterfall methodology.

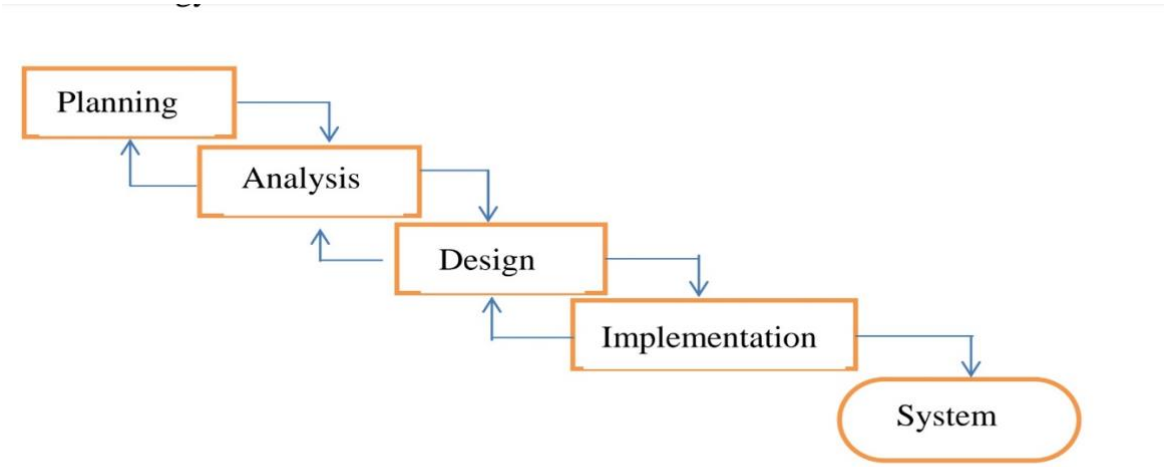


Fig. 4.1. Block Diagram of the system

4.2 Flow Chart of the System

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 consists 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 4.2 to 4.4 shows a data flow diagram about the system.

Level 0

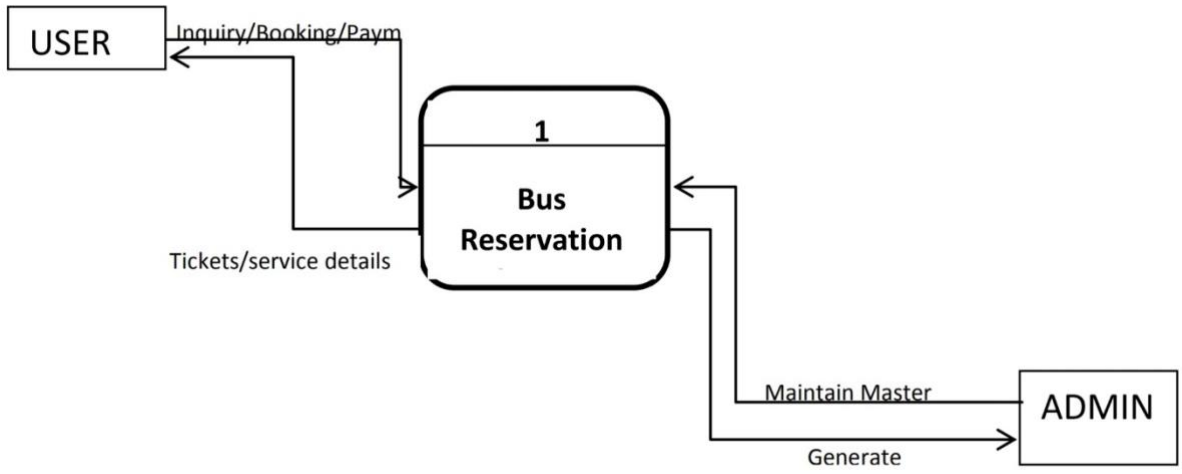


Figure 4.2 Context View of Online Bus Ticket Reservation System

Level 1

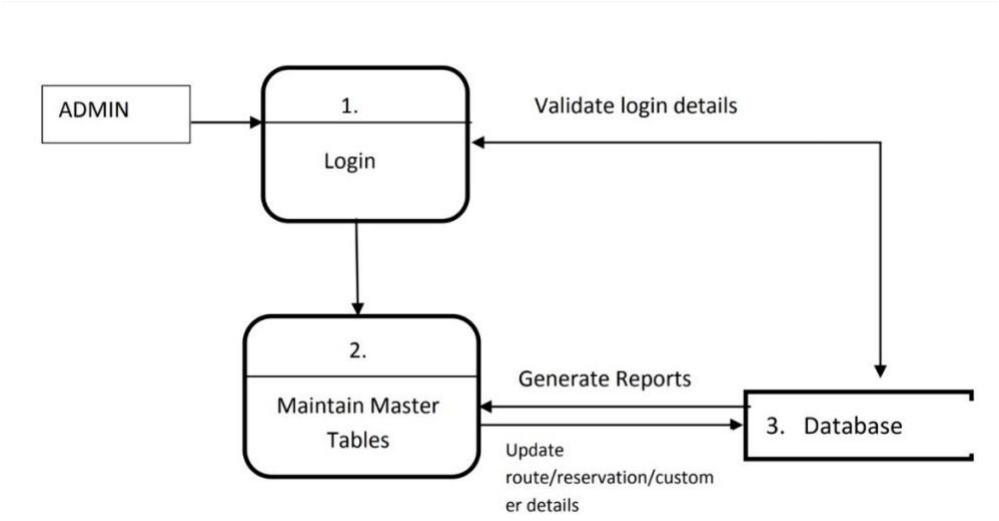


Figure 4.3 User view of Online Bus Ticket Reservation System

Level 2

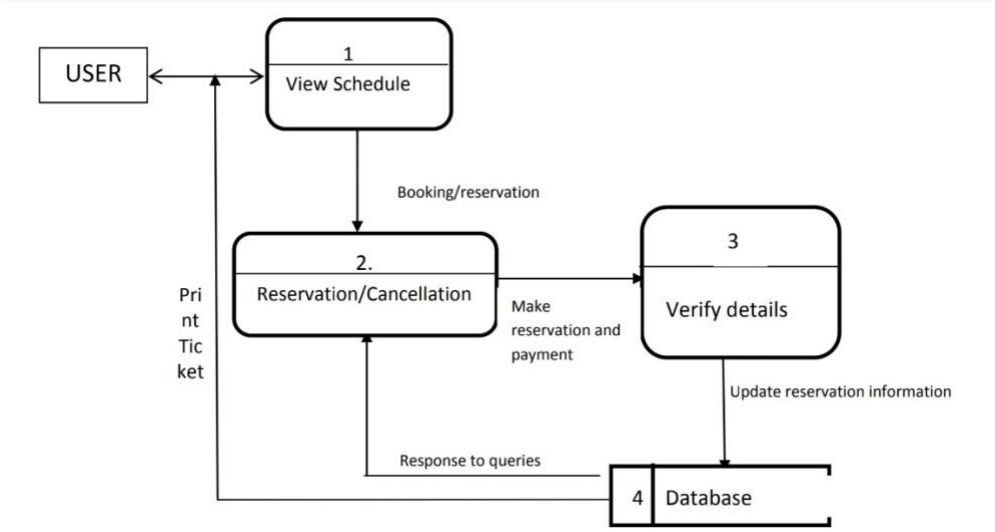
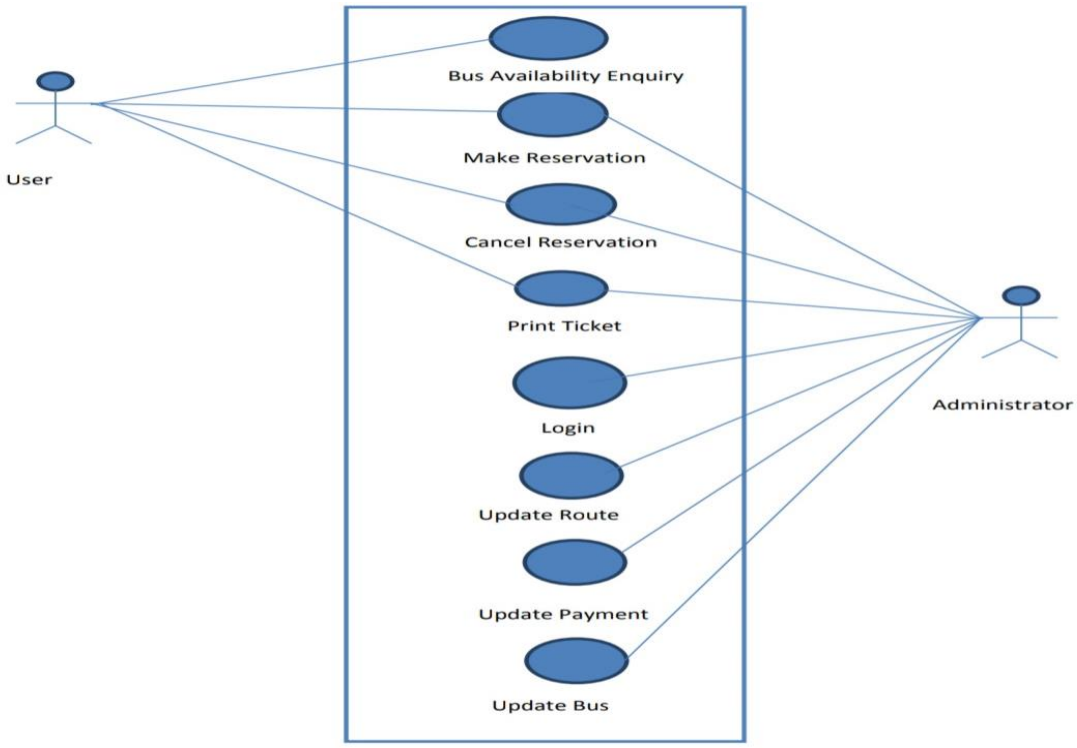


Figure 4.4 Admin view of Online Bus Ticket Reservation System

4.3 Use case Diagram for Admin and Users

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 3.4, a use case of the activities in a bus transport system is shown.



CHAPTER 5

IMPLEMENTATION

5.1 ALGORITHMS

In this work, a user defined algorithm has been implemented, and the flow has been represented here. The methodology used to design this automated system includes add bus, reserve bus, show bus, is bus available and exit.

Step 1: Initialize the System

In this step, taking a class named as **a**.

Step 2: Declaring the variables and arrays

Declaring the variables and arrays as **busn[5], driver[10], arrival[5], depart[5], from[10], to[10], seat[8][4][10].**

Step 3: Member functions

And in public of the class we are giving member functions as-

1. Void **add_bus();**
2. Void **reserve_seat();**
3. Void **empty();**
4. Void **show_bus();**
5. Void **is_bus_available();**
6. Void **position(int i);**

Step 4: Initialize the Maximum number of seats in each bus

And giving that maximum buses available are **10.**

Step 5: Add bus function

This operation is performed when new data needs to be added to the system. And now with respect to add bus function, we gave few options to enter in the run time which gives to enter the bus details from back end of the system like bus no, Driver's name, Arrival time, Departure time, from and to.

Step 6: Reserve seat function

In this operation, we can reserve seats for customers according to their preferable seat numbers.

Step 7: Empty function

This operation shows that the seats are empty in the bus or not.

Step 8: Show bus function

This operation displays how many seats available in the given bus. And which seats are already reserved in the bus.

Step 9: exit

This makes user out of the application.

CHAPTER 6

SYSTEM TESTING

Computer system validation (sometimes called computer validation or CSV) is the process of documenting that a computer system meets a set of defined system requirements. Validation of computer systems to ensure accuracy, reliability, consistent intended performance, and the ability to discern invalid or altered records is a critical requirement of electronic record compliance. [14]

The following types of test were performed on the system:

 Unit Testing: Testing that each component works very well separately; Each module has been tested separately and passed the test.

 Acceptance (Validation) Testing: make Sure that system really does the imposed requirements. Provides final assurance that software meets all functional, behavioural, and performance requirements.

 Stress testing: put greater emphasis on robustness, availability, and error handling under a heavy load, rather than on what would be considered correct behaviour under normal circumstances. to determine the stability of the system.

 Recovery testing: the failure which is forced into an application to check how well the recover process is performed

CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENT

The system enables customer to check availability bus ticket, buy bus tickets, and pay bus tickets online. It makes the customers easy to get bus tickets online instead queue up to buy the bus tickets.

It can be observed that computer applications are very important in every field of human era. 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.

CHAPTER 8

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SNAPSHOTS

Snapshot 1

```
                ***SIMPLE BUS TICKET BOOKING SYSTEM***

                        1.Add bus
                        2.Reservation
                        3.Show bus
                        4.Buses Available
                        5.Exit
                        Enter your choice:- 1
Enter bus no: 1
Enter Driver's name: Rahul
Arrival time: 3
Departure: 4
From:                   Bangalore
To:                     Mysore
                ***SIMPLE BUS TICKET BOOKING SYSTEM***
                        1.Add bus
                        2.Reservation
                        3.Show bus
                        4.Buses Available
                        5.Exit
                        Enter your choice:- 2
Bus no: 1

Seat Number: 16
Enter passanger's name: Dhanu


                ***SIMPLE BUS TICKET BOOKING SYSTEM***

                        1.Add bus
                        2.Reservation
                        3.Show bus
                        4.Buses Available
                        5.Exit
                        Enter your choice:- 2
Bus no: 1

Seat Number: 72

There are only 32 seats available in this bus.
Seat Number: 31
Enter passanger's name: Yash
```

Snapshot 2

```
                    Enter your choice:- 3
Enter bus no: 1
********************************************************************************Bus no:     1
Driver:         Rahul           Arrival time:   3       Departure time:4
From:           Bangalore               To:             Mysore
********************************************************************************
    1.      Empty    2.      Empty    3.      Empty    4.      Empty
    5.      Empty    6.      Empty    7.      Empty    8.      Empty
    9.      Empty   10.      Empty   11.      Empty   12.      Empty
   13.      Empty   14.      Empty   15.      Empty   16.      Dhanu
   17.      Empty   18.      Empty   19.      Empty   20.      Empty
   21.      Empty   22.      Empty   23.      Empty   24.      Empty
   25.      Empty   26.      Empty   27.      Empty   28.      Empty
   29.      Empty   30.      Empty   31.       Yash   32.      Empty

There are 30 seats empty in Bus No: 1
The seat no 16 is reserved for Dhanu.
The seat no 31 is reserved for Yash.

               ***SIMPLE BUS TICKET BOOKING SYSTEM***
```

Snapshot 3

```
              ***SIMPLE BUS TICKET BOOKING SYSTEM***

                      1.Add bus
                      2.Reservation
                      3.Show bus
                      4.Buses Available
                      5.Exit
                      Enter your choice:- 4
********************************************************************************Bus no:     1
Driver:         Rahul           Arrival time:   3       Departure Time:     4
From:           Bangalore               To:               Mysore
********************************************************************************
__________________________________________**********************************************************************
**********Bus no:
Driver:                         Arrival time:           Departure Time:
From:                           To:
********************************************************************************
__________________________________________**********************************************************************
**********Bus no:
Driver:                         Arrival time:           Departure Time:
From:                           To:
********************************************************************************
__________________________________________**********************************************************************
```