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**HIMALAYAN WHITEHOUSE INTERNATIONAL COLLEGE**

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**Project-II Report**

**On**

**“BUS TICKET BOOKING SYSTEM”**

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**Submitted to:**

**DEPARTMENT OF SCIENCE AND TECHNOLOGY**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS**

**FOR THE DEGREE OF**

**BACHELOR IN INFORMATION AND TECHNOLOGY**

**June, 2024**

# APPROVAL CERTIFICATE

The undersigned certify that they have read and recommended to the Department of Science and Technology for acceptance, a project report entitled “**Bus Ticket Booking System**” submitted by Umesh Raj Joshi, Yubaraj Karki & Pratham Aryal in partial fulfilment for the Degree of Bachelor in Information Technology.

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# ACKNOWLEDGEMENT

This project cannot be completed without support and dedication of many individual. For their help and support in our project we want to give special thank you for spending their valuable time in our project. We take this opportunity to express our gratitude to the people have been instrumental in the successful completion of this project.

First of all, we extend our sincere thanks to **Er. Diwakar Upadhya** for his guidance and support in our completion of this project on “Bus Ticket Booking System”. Without his support our project is tends to impossible to complete. He can help us in our coding, documentation and creating ideas so we want to give him special thanks for his support.

We express our deep sense of gratitude to our principal **Mr. Toya Narayan Poudel** and HOD **Er. Bimal Sharma** for giving us this wonderful opportunity and continuously motivating us, as well as extending their helping hand to us.

Lastly, a special thank you to our friends and all the individuals who offered their help and support throughout this project. Your encouragement and constructive feedback have been invaluable.

Thanking you

Umesh Raj Joshi

Yubaraj Karki

Pratham Aryal

# ABSTRACT

Bus Ticket Booking System designed in C++ programming language. Bus Ticket Booking System is a software which is used for the booking tickets of bus from digital methods and help to keeping records of tickets, vehicle and routes in a systematic way. This system aim is solving the issue of booking ticket for public and also solve the issue of management of tickets during the large amount of people are booking their ticket in same like festival periods and other occasion. This system aim to give function like book ticket, cancel ticket, select destination, select vehicle according the need of customer, manage ticket information, login system, sign up system etc. We are making this system for the collage project for 2nd semester. We are using a waterfall SDLC model for the making of this system because this is a small project made for the collage semester project we know already know the all requirement so, we are using a waterfall SDLC model. To keep data secure and confidential we will use a login system for both user and customer. After using a login system only authentic people can use this system which can make this system more secure and confidential. The methodology used in developing in the BusTicket Booking System includes researching in the topic, collecting the problem or requirement, system designing, coding, implementation, and testing. We are making this software totally feasible by the all accepts. The expected outcome of this project is a reliable Ticket Booking System that can solve the problem of customer and admin faces during the booking ticket among the huge number of mass.

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# LIST OF ABBREARITAION

|  |  |
| --- | --- |
| SDLC | Software Development Lifecycle |
| BTBS | Bus Ticket Booking System |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

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# CHAPTER1: INTRODUCTION

## **Background**

Few year ago, we had the hassle of staying in the queue to purchase tickets and too book vehicles. Especially during festival seasons, people wouldn’t the tickets even after staying in the queue. To solve this issue we are designing Bus Ticket Booking System which is designed in C++ programming language. Bus Ticket Booking System is a software application which allow the user for book their ticket for various events, travels etc. through digital method. In the today fast-pace world all most all the work are done through digital methods and by the help of bus ticket booking system we can easily book our ticket through digitally which can help to make our life easier and faster by saving our time and cost as per our need.

The main goal of this project is make paper based ticket booking system is changed in the digital ticket booking system. In this system we can add feature like book ticket, cancel ticket, see time of bus, saving data, and solve financial issue. After making this system this can help to solve the problem of paper work and financial issue which can directly help for the person who can book ticket offline. We are trying to make a complete computerized and online ticket booking system using a C++ programming language.

In the 2nd semester project we are decide to make an Bus ticket booking system for make people life easier and faster by saving their time and cost. Our project bus ticket booking system is made for a general public so it can perform the almost all activity which is generally need for a public like select location, book ticket, cancel ticket, select time, save data. In this system we save our data for a long time like customer data and financial data and other required data which may be used in future.

## **Problem statement**

There are the lots of problem in old type of Ticket Booking system which can affect customer and admin also. Due to the paper work used in the booking tickets many times information of booked ticket is lost. Also the present time ticket booking company and ticket counter book their ticket in paper which is more complicated to the customer. Without digital ticket booking system more time of customer is loss. Especially in festival time more people are travels one places to another place at that time there is more complicated to the admin to manage ticket and also complicated to book large number of ticket. To solve the above problem we making the digital Bus Ticket Booking System.

## **Objectives**

The main aim of developing Bus Ticket Booking System are listed below:

* To minimize the paper work which is used during the ticket booking.
* To data secure and confidential and solve the current issue of ticket booking system.
* To create easy interface for customer for booking their tickets.

## **Scope of the project**

* This system is made for the solving the present issue of ticket counter and customer which is used in ticket booking company and ticket counter where people can easily book their ticket according to their need.
* This system is used to look for the available tickets, status of the booked ticket, and status of road.

## **Significance and limitation**

**Significance**

The significance of this project is this system help to solve the issue of ticket booking center and help to vehicle staff to manage vehicle. This system can help to the save time of customer and money of company with replacing a staff from the company which can save money of company. This system can also help to keep data safe and secure from other. This system also help to solve the data lost problem and reduce the paper work by making work from digital.

**Limitation**

We are making this project in C++ programming language so we cannot able to use high level graphic and we are using simple text based system which is little bit complicated to use for user. C++ program to complicate to maintain and update for the other developer so it’s complicated to make change in the system in future. Some guidance is needed for the new user.

# CHAPTER 2: LITERATURE REVIEW

After starting the making this project we are check the other existing system, books for concept and we found the many problems in these system and we decide the making our own project which is more effective and more comfort table and less paper work should be doing after the using this system. And at the present time there is booking ticket through offline and booked ticket in paper there is high chance to lost ticket. So there was the need to develop a system which could manage all these things and reduce the paperwork.

## **Study of existing system**

According to the Grish kumar online Railway ticketing system is a software which can help the people to book their ticket through online. This system is made in C++ language. This system is so similar to our online ticket booking system. They made a system only for a rail way in this system he give function like search train, search routes, see status of book ticket and ticket book trough the online but there is a unavailable the online payment system.[1]

By the author of Sasto ticket Nepal online ticket booking system is platform where user can easily book their tickets through online. We can visit the sastoticket.com for see the how they book their tickets which is made by the Sasto Ticket Nepal Company and this system is made by using the HMTL, CSS and other web based programming language. This the online ticket booking company which can book their ticket through online they contact their costumer by their website. We should search the place and choose the vehicle according to our choice and payment through online. [2]

According to the student of CMR institute of technology who named is Puynaslok Sarkar made an Online Ticket Booking System in web based technology by using HTML, CSS and JavaScript and other programming language. In this system people can book their travels tickets and movie ticket easily. In this system also unavailable of online payment and phone pay by. By using this system people can easily book their ticket, cancel ticket, selects route and select vehicle according to their choice. [3]

According to the Mensash Yaw online ticket booking system is a software which can help the user to book their ticket from online. In the time of researching about the online ticket booking system we found the article of this system written by the person named as Mensash Yaw who is a journalist of Asian journal of science and technology. In this article there is describe about the web based online ticket booking system for the all types of vehicle which

is made by Babcock university of Negirea. In this system user can easily book ticket, cancel ticket, select route, selects vehicle and view information etc. Admin can be able to publish news, view records, and do online payments and other necessary access. [4]

According to the Kamal Acharaya Online Vehicle Rental system is a software or platform where people can book their ticket easily with their interest which is more comfortable than the offline ticket booking system. He made this system for the make the ticket booking is offline and make everything digital. He can add a feature like book ticket, view seats and ticket, view customer details, login and signup system. He design a web based ticket booking system with using a HTML, CSS and other web based programming language. [5]

**CHAPTER 3: SYSTEM ANALYSIS**

## **Requirement Analysis:**

Requirement analysis is the process of gathering, documenting, and analyzing requirements for a system to be developed. It is a crucial step in the software development lifecycle, as it helps ensure that the final product meets the needs and expectations of its users. Bus Ticket booking system is a small project made for a collage project. It is used only for small places so we need VS code software for making this system. Mingw software is needed for change the code in binary form and operate this system. This software is only for small purpose so we don’t need large database we can store data in own computer storage device.

### **Functional requirement**

It describe the specific functions that the system must be performed:

* **User authentication:**

The system should allow to user to securely login after using a username and password.

* **Ticket management:**

The system should provide functionality for book ticket, cancel ticket, and view ticket details etc.

### **Non-functional requirements**

Outline the quality attributes and constraints that the system must adhere to. These could include performance, reliability, usability, security, etc.

* **Efficiency requirement:**

When a Bus ticket booking system will be implemented in digital system counter staff get help from this system in ticket booking and other work.

* **Performance:**

The system should respond to user inputs within 2 seconds under normal load conditions.

* **Security:**

Confidential information’s are operated only by an admin. So, data are secured and confidential.

* **Usability:**

Usability is the main non-functional requirement for online ticket booking system. The UI should be simple enough for everyone to understand and get the relevant information without any special training.

* **Accuracy:**

Accuracy is another important non-functional requirement for the online ticket booking system. This system can store exact data if we can store right data, transaction process is accurate every time.

* **Availability:**

The System should be available for the duration when the ticket counter operates and must be recovered within an hour or less if it fails. The system should respond to the requests within two seconds or less.

* **Maintainability:**

The software should be easily maintainable and adding new features and making changes to the software must be as simple as possible. In addition to this, the software must also be portable.

## **3.2 Feasibility study**

### **Technical feasibility**

We can strongly say that it is technically feasible, since there will not be much difficulty in getting required resources for the development and maintaining the system as well. All the resources needed for the development of the software are easily available. So we can say our upcoming project is fully technically feasible.

### **Operational feasibility**

Operational feasibility studies also examine how a [project plan](https://www.simplilearn.com/project-management-plans-in-project-environment-rar79-article) satisfies the requirements identified in the requirements analysis phase of system development and also determine the methodology that fulfil your objectives or not. BTBS is an operational feasible. This system is made in a Middle-level programming language (C++ programming).

## **Legal feasibility**

This software is fully legal feasible by all aspect. Bus ticket booking system software follow the whole rule and regulation of cyber law and social media law. It can protect data confidential. In this software we keep our simple data like name, address, phone no, roll no, etc.

### **Economic feasibility**

For the development of this application is highly economically feasible. Organization not needed to spend much money for developing this software. We are making this project for the educational purpose so no money needed in the making of the project.

1. **Time Feasibility:**

Time feasibility refers to the assessment of whether a proposed project can be completed within a reasonable timeframe. After the study of the tasks involved in completing the project including requirement gathering, frontend development, backend development, coding, testing and others, we concluded that the project timeline appears feasible. The project timeline was structured over a 15-week period. By carefully analysis tasks, resource availability & potential risks or delays, we can assess the feasibility of meeting the projects deadlines and make adjustments to the schedule as needed to ensure timely completion.

# CHAPTER 4: SYSTEM DESIGN & METHODOLOGY

## **Software development life cycle**

The Software Development Life Cycle (SDLC) is a structured process used in software development projects to ensure high-quality software is produced within the constraints of time and budget. This proposal outlines the implementation of a C++ programming project using the SDLC model.

The Software Development Life Cycle (SDLC) is a framework that defines tasks performed at each step in the software development process. It consists of several phases including planning, requirements gathering, design, implementation, testing, deployment, and maintenance. Each phase has its own set of activities and deliverables, ensuring the systematic progression of the project from inception to completion.

**Figure 1: SDLC Model**

## **Selected Model**

For this C++ programming project, we have chosen the Waterfall Model. The Waterfall Model is particularly suitable for projects where requirements are well-defined and unlikely to change significantly throughout the development process. Here are the reasons behind selecting the Waterfall Model:

1. **Stability of Requirements:**

The Waterfall Model assumes that requirements are stable and can be fully defined at the beginning of the project. This model is suitable for projects where there is a clear understanding of what needs to be developed, and changes to requirements are minimal.

1. **Sequential Progression:**

The Waterfall Model follows a sequential progression of phases, with each phase building upon the deliverables of the previous one. This approach provides a clear structure and roadmap for the project, making it easier to plan and manage.

1. **Well-Defined Deliverables:**

The Waterfall Model defines specific deliverables for each phase, making it easier to track progress and ensure that all requirements are met. This model emphasizes documentation, ensuring that requirements, designs, and test cases are well-documented throughout the development process.

**Figure 2: Waterfall SDLC Model**

## **Algorithm**

Start the software

* These options are displaying i.e. login, signup and exit.
* In signup you can signup as admin and user. If signup as admin it can only see the data and manage the software. If signup as a user he/she can use every function of software. Only signup account are available for login.
* In login if username and password are correct then the user can enter the menu. If username and password are not matched the re-enter option is given.

**If login as admin**

If admin login in the software it can allow to watch the details of booked ticket.

(Admin main menu)

* Enter 1: see booked ticket.
* Enter 2: exit.

**If login as user**

(Display main menu)

* Enter 1: for book ticket.
* Enter 2: for cancel ticket.
* Enter 3: for exit.
  + **If enter 1**
    - Enter the needed requirement and personal information. If your entered data is authenticated then you can book your ticket successfully otherwise you cannot book your ticket.
  + **If enter 2**
    - User should be enter the required data for the cancel the ticket then only you can cancel the ticket.
  + **If enter 3** 
    - Program be terminated.
* If choose the third option then program be terminated.

## **Flowchart**

No

1. Signup
2. Login
3. Exit
4. Exit

Option = 1

1. Signup as admin
2. Signup as user
3. Exit

Signup as admin

Option = 1

Option = 2

Signup as user

Option = 3

1. Login as admin.
2. Login as user.
3. Exit.

Yes

No

Option = 2

Option = 3

Yes

No

Yes

Yes

No

Option = 1

Option = 2

Option = 3

Book ticket.

Cancel ticket.

See ticket status.

Option = 4

No

No

No

No

Option = 3

Option = 2

1. Book Ticket.
2. Cancel Ticket.
3. See details
4. Exit.

No

Option = 1

See details of booked ticket.

Yes

Yes

Yes

Yes

Yes

**Figure 3: Flowchart**

## **Use case diagram**

User

Admin

**Figure 4: Use case diagram**

## **CLASS DIAGRAM**

Ticket

-tickets\_num: Number

-vehicle\_name: string

+tickets Info ()

+vehicle Info ()

Customer

-No\_of\_ticket:number

Cust-name:string

+bookTicket()

+cancelTicket()

Admin

-notice:string

Cust-data:string

+veiwData()

+managesetting()

User

-Addvehicle:string

-bookticket:string

+addVehicle()

+Bookticket()

Vehicle

-select\_vechicle:number

-No\_of \_seats:Number

+addVehicle()

+seeStatus()

Route

-route\_details: string

-select\_route: string

+searchRoute()

+routeInfo()

1

1...\*

1

1

1

**Figure 5: Class Diagram**

# CHAPTER 4

# IMPLEMENTATION & TESTING

## **Software and hardware requirements**

To successfully develop and run Bus Ticket Booking System using C++ programming language you need to meet specific software and hardware requirements. The software and hardware requirements for the completion of our project are listed below

1. **Software requirements**
2. **Operating system** (windows 7/8/10/11 (32-bit or 64-bit))
3. **Vs code:** There are the many software where we can do code for a c program but we can use a **Vs code** for the coding of C++ programming language.
4. **MINGW:** Mingw is the software with compile the C++ programming based program and give the output and finding the error in the program.
5. **Notepad:** In a Bus Ticket Booking system we a store data in a file. Notepad is the software which can help to read data from text file.
6. **Hardware requirements**
7. **Processor:** Intel Core i3 or higher
8. **Memory:** 4 GB or more
9. **Storage:** 256 GB HDD or SDD

### **Language used**

The language used for the development of our system is listed in the table below:

* **C++-program:** The C++ programming language is a procedural and general-purposed language that provides low-level access to system. A program written in C++ must be run through a C++ compiler to convert it into an executable that a computer can run.

## **Testing**

Software testing is a process of analyzing an application's functionality as per the requirements. If we 5 of various types of software testing methods we used:

1. **Functional Testing:** In functional testing, all the components are tested by giving the value, defining the output, and validating the actual output with the expected value.
2. **Unit Testing:** Unit testing is the first level of functional testing. Using this test, we tested the module of our system independently, verifying that individual components of the BTBS works correctly.
3. **Integration Testing:** Once we successfully implemented the unit testing, we went for integration testing. It is the second level of functional testing, where we tested the data flow between dependent modules or interface ensuring that different modules or services used by BTBS works together. The integration between user interfaces, file handling services were tested.
4. **System Testing:** After successful integration, we moved further with the system testing. In system testing, the test environment is parallel to the production environment. The main objective of system testing was to validate the complete and integrated BTBS system against the requirements. Here, we went through each attribute of the software and tested if the end feature works according to our projects requirements.
5. **Non-Functional Testing:** Non-functional testing is a type of software testing that focuses on the attributes of a system that do not relate to specific behaviour’s or functions. Instead, it assesses qualities such as performance, reliability, scalability, usability, security, and compatibility. Non-functional test was also conducted to ensure it meets the quality standards. It involved evaluating the system’s performance, security, usability and compatibility.

# CHAPTER 5

# ANALYSIS & EVALUATION

## **Analysis of output obtained**

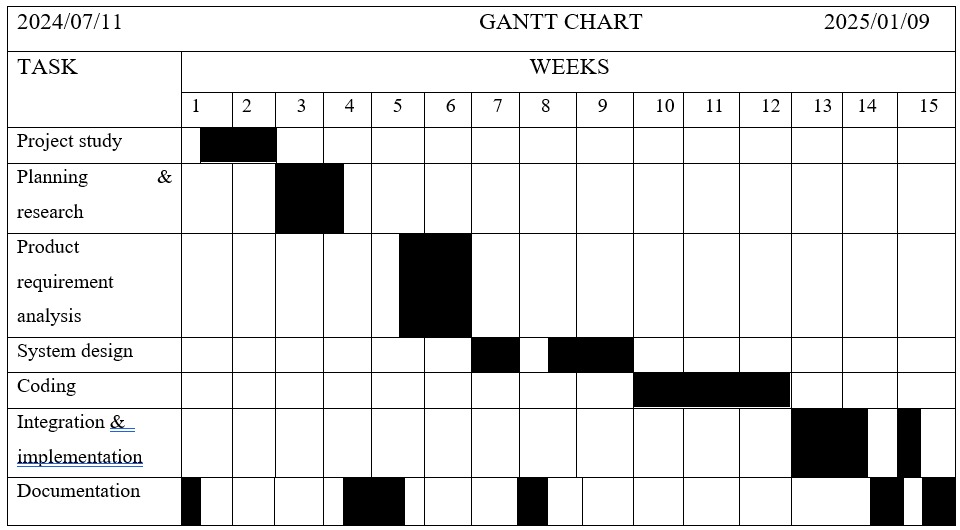
The general objective of this project was to develop a user-friendly platform for efficient booking of tickets and management of the ticket counter data while ensuring a secure environment for storing and managing sensitive information. The specific objective of this project is people can book their tickets efficiently manage a ticket counter with the system function like book ticket, cancel ticket, search routes, select vehicle and view data and details, login page and store data permanently.

By the end of this project we created a Bus Ticket Booking system (BTBS) with features such as book tickets, cancel tickets, select routes and store information implemented in C++ program of our proposed system objective. We achieved the objectives of the Bus Tickets Booking System through a series of strategic implementations and features. We implemented a text file to ensure data accuracy and accessibility. Authorized administrators can view booked ticket records through streamlined operations with built-in validation and user permissions, achieving our projects objectives efficiently.

Furthermore, the project incorporates robust security measures to protect sensitive books data. Additionally, the user interface has been designed with simplicity, making it easy for administrators to navigate and perform tasks efficiently. Overall, the BTBS not only meets but also exceeds the initial objectives by providing a secure, efficient, and user-friendly platform for comprehensive booking ticket, setting a solid foundation for future enhancement and scalability.

## **Schedule analysis**

We have outlined the timeline for the implementation of the LMS below using a Gantt chart. This chart illustrates the major tasks, their dependencies and the duration for the completion of each task.



***Figure 4: Gantt chart***

# CHAPTER 6

# CONCLUSION & FUTURE RECOMMENDATION

## **Problem faced and their implementation**

During the development and implementation of the Bus Ticket Booking System, several challenges were encountered. These issues were addressed systematically to ensure the project's successful completion. The problems and their respective implementations are briefly described below:

1. **File handling:**

**Problem:** we face the problem during the file creating for save the history data permanently.

**Implementation:** We can take a reference from the Google and other website to fix this problem and we are able to save available book in library and issues book from library.

1. **User Authentication and Security:**

**Problem:** Designing a robust authentication mechanism to secure sensitive data.

**Implementation:** To address this issue, a login frame was implemented, requiring users to authenticate themselves using a username and password. This information was securely stored in the file.

## **Conclusion**

In conclusion, the Bus Ticket Booking System developed using C++ language efficiently addresses the essential needs of booking bus ticket with functionalities such as see available ticket, view book ticket, select time and routes and save data permanently. It ensures secure access through user authentication, safeguarding sensitive information. It also provides a register password and username before first time signing in into the system. The system's intuitive interface and platform independence make it a practical and versatile solution for streamlining administrative tasks, improving data accuracy, and enhancing productivity.

## **Future recommendation**

Looking into the future, here are some forward-thinking recommendations and enhancements that can be made for Bus Ticket Booking System:

1. **Biometric authentication:** Integrate biometric authentication methods, such as fingerprint scanning or facial recognition, to enhance the security of library access to sensitive data and systems with using other programming language.
2. **Online ticket booking:** In future we can update the Bus ticket booking system to online ticket booking system which can book ticket in large scale by using other high level programming language.
3. **Graphical user interface:** In future we can add a high level graphic for making a Bus ticket booking system more attractive and make easy interface for the user by using other high level programming language.

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# ANNEX

Fig: first page

Fig: signup as customer

Fig: Ticket booking page

Fig: signup as admin

Fig: Ticket cancel page

Fig: signup view page