

# Bus Ticket Reservation System Using C++

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## Abstract —

*This document deals with a simple method of providing an interface which can be used for ticket reservation by the admin or a tour bus operator. This project aims at digitizing the storage of information in binary and text files. This project will provide the administrator of the bus agency with various functionalities such as adding new bus, deleting a bus, show all buses, book a ticket for the customer and display all booked tickets.*

**Keywords** — Bus Reservation, Ticket System, Visual Studio, Object Oriented Programming, C++.

## I. INTRODUCTION

In this world Mobile Phones and the related technologies are becoming more and more prevalent. Various technical arenas in the field of Telecommunication and Embedded Systems are becoming omnipresent in the people. The use of cell phones has rapidly increased over the last decade. Along with this every business is having their own digitized system according to their business requirements. Hence this project is aimed at providing an interface for the Bus and travelling industry in general where people need to book their tickets in advance. This project helps in keeping track of the booked tickets as well as enables the administrator to delete and add bus routes. A customer can also book a ticket in advance by coming to the office of the bus agency or the travel agency. This project aims at discarding the manual method of reservation where you provide a paper ticket to the customer. Instead of this a digital ticket is provided which is easier and eco-friendly.

## II. LITERATURE REVIEW

1. Pasupuleti Rekha 3122160568, Software Requirement Specification- Railway Reservation System. The purpose of this source is to describe the railway reservation system which provides the Train timing details for knowing available trains between two stations. We need to provide source and destination names or codes and then we will be given the train names between those two stations, Reservation forms it has the easiest of the user interface making it user friendly and easy to use, for Cancellation one just needs the PNR number which is again easy, Reservation enquiry and Fare records which is a form used for the fare between two station with a specific class. User friendly interface to administrator and customer.

2. HARSH SHAH (120410116038) VISHWA SHINDE (120410116056) KAUSHAL SHAH (120410116060) JAYESH HOTCHANDANI (120410116066)

The purpose of this source is to describe the railway reservation system which provides the train timing details, reservation, billing, cancelation on various types of reservation namely. Confirm Reservation for confirm Seat. Reservation against Cancellation, Waiting list Reservation. Online Reservation, Tatkal Reservation.

3. Software Requirements Specification for Airline Ticket Reservation by Elchin Aghazada, Faig Jafarguliyev, Ilkin Aghayev, Vusala Shikhaliyeva. This document lists the requirement specifications for an Airline Ticket Reservation System (ATRS). The document is subject the change as the project progresses. The given version of the document is the initial one. Further changes of the project will be recorded to the document.

## III. METHODOLOGY/EXPERIMENTAL

### A. Components

Since this is a completely software based project, no hardware components were used. Instead of that I would like to state the IDE and the programming language that was used.

1. Visual Studio 2019- Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs, as well as websites, web apps, web services and mobile apps. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code. References [1].

2. C++ - C++ is a general-purpose programming language created by Bjarne Stroustrup as an extension of the C programming language, or "C with Classes". The language has expanded significantly over time, and modern C++ now has object-oriented, generic, and functional features in addition to facilities for low-level memory manipulation. It is also used for file handling purposes.

3. The file types that are used in this project are binary and text files. Binary files are file which store the data type as it is while all the data that is written in the text files is always converted and stored in string format

### B. Synthesis/Algorithm/Design/Method

1. At the beginning, we are given the option to login or register. The register option is given to add more admins if required. After registration, comes login. You cannot access the program functions unless you have logged in, hence protecting the system.

2. If the login is successful, the program enters a loop containing the switch statement. After logging in you are presented with the menu screen with the following cases –

"Press 1 - Add a New Tour Bus"

"Press 2 - Show Selected Bus"

"Press 3 - Display All Buses"

"Press 4 - Delete a Bus"

"Press 5 - Book a ticket"

"Press 6 - Display Booked Tickets"

"Press 7 - Exit"

"Enter your choice"

3. If you select '1' you can now add a new bus to the "tour.dat" file. It then calls the input() function from the TourBus class. With the help of this function you can now enter the bus id, the bus destination, time and fare. This way a new entry will be added to the database and it goes back to the beginning of the loop.

4. If you select '2' you can now see the status of a selected bus from the "tour.dat" file after entering the ID of the bus. It will invoke the show() function of the TourBus class and display the destination, the time of leaving and the no. of seats remaining in the bus. Then it goes back in the loop.

5. After selecting '3', we can see the details of all the buses in the "tour.dat" file. It calls the display() function in the TourBus class and displays the bus id, destination, time, max seats, booked seats and the fare, then it goes back to the loop.

6. For deleting a bus record we can select '4'. We enter the bus ID which is to be deleted. What happens here is that a temporary file is created to store all the buses' information except the one which has to be deleted. Then this temporary file is renamed as "tour.dat". We don't delete a record directly because it can cause errors while re-accessing the file. From here it goes back into the loop.

7. To book a ticket for the customer we select '5'. We access both the TourBus class and the Ticket class. We enter the destination where the customer has to go and it shows the bus information of the bus which is going to that place. Then we accept the name of the customer and store it in the "tickets.dat" file. Over here we also deduct the maximum seats and increase the booked seats number for that bus.

8. All the Booked tickets can be displayed using '6'. It access both the classes and displays the name of the customer along with the information of the bus which has been booked by them.

9. Finally, if we want to exit from the program we select '7'. With this the program gets terminated.

The following block diagram explains the flow of information

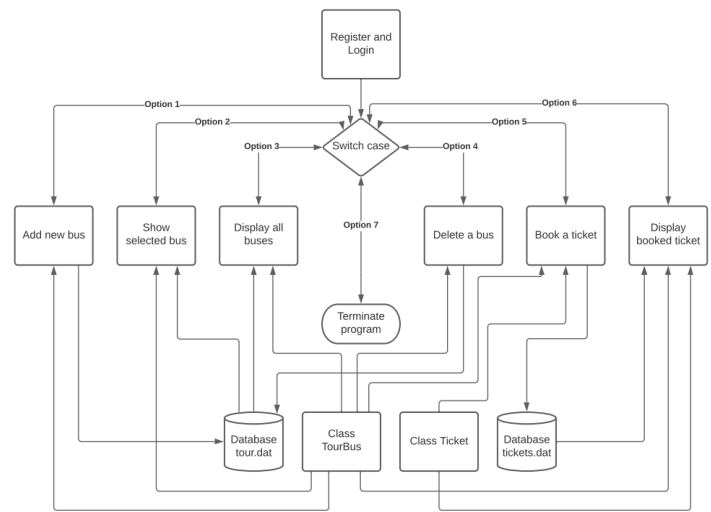


Fig 1. Block Diagram

### C. Testing

After running the program, every case function is running properly in the way it was expected. All the information is being stored in the files properly. During testing there were some problems in the function as show below –

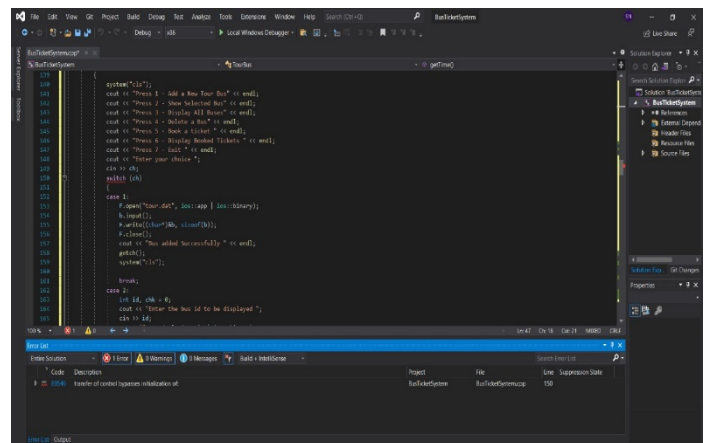


Fig 1. The error during testing

The error was "E405 transfer of control bypasses the initialization of:" But it was solved by a query that was already put on stack overflow. Reference [3].

### IV. RESULTS AND DISCUSSIONS

The Following are the results of the program. After running the program.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
***** LOGIN *****
1. Login
2. Register
Enter your choice
```

Fig 2. After running the program.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Enter your username : siddhu
Enter your password : 2580
```

Fig 3. After selecting Register.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Registration Sucessful
***** LOGIN *****
1. Login
2. Register
Enter your choice
```

Fig 4. After completion of registration.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Please enter the following details
USERNAME :siddhu
PASSWORD :2580
```

Fig 5. After selecting login.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Press 1 - Add a New Tour Bus
Press 2 - Show Selected Bus
Press 3 - Display All Buses
Press 4 - Delete a Bus
Press 5 - Book a ticket
Press 6 - Display Booked Tickets
Press 7 - Exit
Enter your choice
```

Fig 6. After Logging in.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Press 1 - Add a New Tour Bus
Press 2 - Show Selected Bus
Press 3 - Display All Buses
Press 4 - Delete a Bus
Press 5 - Book a ticket
Press 6 - Display Booked Tickets
Press 7 - Exit
Enter your choice 1
Enter bus id 4
Enter bus destination kanpur
Enter time of bus 10am
Enter fare of the bus 50
Bus added Successfully
```

Fig 7. After selecting '1' and adding a new tour bus.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Press 1 - Add a New Tour Bus
Press 2 - Show Selected Bus
Press 3 - Display All Buses
Press 4 - Delete a Bus
Press 5 - Book a ticket
Press 6 - Display Booked Tickets
Press 7 - Exit
Enter your choice 2
Enter the bus id to be displayed 4
Bus Id 4
Desination kanpur
Time 10am
No. of seats remaining 50
```

Fig 8. After selecting '2' to view a specific bus.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Press 1 - Add a New Tour Bus
Press 2 - Show Selected Bus
Press 3 - Display All Buses
Press 4 - Delete a Bus
Press 5 - Book a ticket
Press 6 - Display Booked Tickets
Press 7 - Exit
Enter your choice 3
1    jaipur  9am    50    1    100
2    assam   10am   50    0    120
3    mumbai  7am    50    2    50
4    kanpur  10am   50    0    50
Press a key to continue
```

Fig 9. After selecting '3' to view all buses.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Press 1 - Add a New Tour Bus
Press 2 - Show Selected Bus
Press 3 - Display All Buses
Press 4 - Delete a Bus
Press 5 - Book a ticket
Press 6 - Display Booked Tickets
Press 7 - Exit
Enter your choice 4
Enter the bus id to be deleted 4
Bus Id 4
Desination kanpur
Time 10am
No. of seats remaining 50

Bus Deleted
```

Fig 10. After selecting '4' to delete a bus.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Press 1 - Add a New Tour Bus
Press 2 - Show Selected Bus
Press 3 - Display All Buses
Press 4 - Delete a Bus
Press 5 - Book a ticket
Press 6 - Display Booked Tickets
Press 7 - Exit
Enter your choice 5
Enter the destination mumbai
Bus Id 3
Desination mumbai
Time 7am
No. of seats remaining 48

Enter the customer name kavita
Ticket booked
```

Fig 11. After selecting '5' for booking a ticket.

```
C:\Users\siddh\source\repos\BusTicketSystem\Debug\BusTicketSystem.exe
Press 7 - Exit
Enter your choice 6
Booked Tickets
Customer Name siddharth
Details of Bus
Bus Id 3
Desination mumbai
Time 7am
No. of seats remaining 49

Customer Name anjali
Details of Bus
Bus Id 3
Desination mumbai
Time 7am
No. of seats remaining 48

Customer Name ritika
Details of Bus
Bus Id 1
Desination jaipur
Time 9am
No. of seats remaining 49

Customer Name kavita
Details of Bus
Bus Id 3
Desination mumbai
Time 7am
No. of seats remaining 47
```

Fig 12. After selecting '6' to view all the booked tickets.

## V. LIMITATIONS

Since this was a beginner project for me to get a good understanding of C++, the program has a few limitations. The first one being that it is just an administrator interface and the customer cannot operate it. The register part is a certain loophole since anybody can register themselves without the knowledge of the main administrator. I have added an option to delete a bus but not cancel the reservation of a customer which is a drawback.

## VI. FUTURE SCOPE

In the future, functions such as the customer interface to book tickets can be added along with the option to cancel a booking. Also, this is just a console application. We can add a graphical user interface to make it look attractive. I have an idea on how solve the registration loophole and will surely implement it. Features such as date of leaving can also be added. A way to print the ticket for the customer can also be added.

## VII. CONCLUSION

This was all about the bus ticket reservation system that I have implemented. It does the basic work of booking a ticket very well.

This proposed system has many upcoming applications in educational institutions and organizations, banking, railways, advertisements etc. Being user friendly and faster means of booking a ticket are major bolsters for this application.

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We would like to take this opportunity to express our profound sense of gratitude and respect to all those who helped us throughout the duration of this project.

#### REFERENCES

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