

**KIET Group of Institutions, Ghaziabad**  
***Computer Science and Information Technology***



**Project Report**  
**on**  
**Bus Reservation System**

**SUBJECT: Data Structures using C**  
**(KCS-351)**

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## **ABSTRACT**

Bus Reservation System is a mini project in C++. It is done using classes and functions in C++. The record of the bus can be added, a list of available buses, make the reservation and show the details. It is a simple project made using the console application of C++. This means, no graphics component is added. The main target user of this project is the C++ beginners who want to make the project in C++ and especially those who are interested in learning the Class in C++ language. This project is a complete package to learn how to use a file as a database.

Features of this project are as below:-

1. Add the bus record
2. Make the Reservation
3. Show the bus details
4. Show all buses available

The bus reservation system is an extremely straightforward project that demonstrates the C++ language's class and object implementations. This project may be understood with very little effort, and it will teach you how to make a class and an object in your Bus Reservation System Project in C++.

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## **INTRODUCTION**

**Purpose:** This project is very simple to understand, and it will help you learn how to create class and object in your C++ project/mini project. Here, the user can perform tasks like install bus information, reserve bus seat, show reservation information and show information regarding the buses available.

**Problem Statement:** The project for the bus reservation system does not use files to store bus information. As a result, any previously saved information on the aforementioned features is lost after each run of the program.

You are urged to include file handling in this project to store all the bus information and make it more full and effective as a whole. This very straightforward project was created solely to demonstrate the C++ language's class and object implementation procedures and strategies.

## **REQUIREMENTS**

**Programming Tool:** Visual Studio Code

**Language used:** C++

**Data Structure used:** Array

## CODING AND IMPLEMENTATION

```
#include <conio.h>
#include <cstdio>
#include <iostream>
#include <string.h>
#include <stdlib.h>
using namespace std;
static int p = 0;
class a
{
    char busn[5], driver[10], arrival[5], depart[5], from[10], to[10], seat[8][4][10];
public:
    void install();
    void allotment();
    void empty();
    void show();
    void avail();
    void position(int i);
}
bus[10];
void vline(char ch)
{
    for (int i=80;i>0;i--)
        cout<<ch;
}
```

```
void a::install()
{
    cout<<"\n\n\n\t\t\tEnter bus no: ";
    cin>>bus[p].busn;
    cout<<"\n\t\t\t\tEnter Driver's name: ";
    cin>>bus[p].driver;
    cout<<"\n\t\t\t\tArrival time: ";
    cin>>bus[p].arrival;
    cout<<"\n\t\t\t\tDeparture: ";
    cin>>bus[p].depart;
    cout<<"\n\t\t\t\tFrom: ";
    cin>>bus[p].from;
    cout<<"\n\t\t\t\tTo: ";
    cin>>bus[p].to;
    bus[p].empty();
    p++;

    cout<<"\n\t\t\t\tBus added Sucessfully ";
}
void a::allotment()
{
    int seat;
    char number[5];
    top:
    cout<<"\n\n\n\t\t\tBus no: ";
    cin>>number;
    int n;
    for(n=0;n<=p;n++)
```

```

{
    if(strcmp(bus[n].busn, number)==0)
        break;
}
while(n<=p)
{
    cout<<"\n\t\t\tSeat Number: ";
    cin>>seat;
    if(seat>32)
    {
        cout<<"\n\t\t\tThere are only 32 seats available in this bus.";
    }
    else
    {
        if (strcmp(bus[n].seat[seat/4][(seat%4)-1], "Empty")==0)
        {
            cout<<"\t\t\tEnter passanger's name: ";
            cin>>bus[n].seat[seat/4][(seat%4)-1];

            cout<<"\t\t\tSeat Reserved Sucessfully ";
            break;
        }
        else
            cout<<"\t\t\tThe seat no. is already reserved.\n";
        }
    }
}

```

```

    if(n>p)
    {
        cout<<"\t\t\tEnter correct bus no.\n";
        goto top;
    }
}

void a::empty()
{
    for(int i=0; i<8;i++)
    {
        for(int j=0;j<4;j++)
        {
            strcpy(bus[p].seat[i][j], "Empty");
        }
    }
}

void a::show()
{
    int n;
    char number[5];
    cout<<"\t\t\tEnter bus no: ";
    cin>>number;
    for(n=0;n<=p;n++)
    {
        if(strcmp(bus[n].busn, number)==0)
            break;
    }
}

```



```

while(n<=p)
{
    vline('*');
    cout<<"\t\t\tBus no: \t"<<bus[n].busn
    <<"\n\t\t\tDriver: \t"<<bus[n].driver<<"\t\tArrival time: \t"
    <<bus[n].arrival<<"\t\t\tDeparture time:"<<bus[n].depart
    <<"\n\t\t\tFrom: \t\t"<<bus[n].from<<"\t\tTo: \t\t"<<
    bus[n].to<<"\n";
    vline('*');
    bus[0].position(n);
    int a=1;
    for (int i=0; i<8; i++)
    {
        for(int j=0;j<4;j++)
        {
            a++;
            if(strcmp(bus[n].seat[i][j],"Empty")!=0)
                cout<<"\n\t\t\tThe seat no "<<(a-1)<<" is reserved for "<<bus[n].seat[i][j]<<". ";
        }
    }
    break;
}
if(n>p)
    cout<<"\t\t\tEnter correct bus no: ";
}

```

```

void a::position(int l)
{
    int s=0;p=0;
    for (int i =0; i<8;i++)
    {
        cout<<"\n";
        for (int j = 0;j<4; j++)
        {
            s++;
            if(strcmp(bus[l].seat[i][j], "Empty")==0)
            {
                cout.width(5);
                cout.fill(' ');
                cout<<s<<". ";
                cout.width(10);
                cout.fill(' ');
                cout<<bus[l].seat[i][j];
                p++;
            }
            else
            {
                cout.width(5);
                cout.fill(' ');
                cout<<s<<". ";
                cout.width(10);
                cout.fill(' ');
                cout<<bus[l].seat[i][j];
            }
        }
    }
}

```

```

    }
}
cout<<"\n\n\t\t\tThere are "<<p<<" seats empty in Bus No: "<<bus[1].busn;
}
void a::avail()
{
    for(int n=0;n<p;n++)
    {
        vline('*');
        cout<<"\t\t\tBus no: \t"<<bus[n].busn<<"\n\t\t\tDriver: \t"<<bus[n].driver
        <<"\t\t\tArrival time: \t"<<bus[n].arrival<<"\t\t\tDeparture Time: \t"
        <<bus[n].depart<<"\n\t\t\t\tFrom: \t\t"<<bus[n].from<<"\t\t\tTo: \t\t\t"
        <<bus[n].to<<"\n";
        vline('*');
        vline('_');
    }
}
int main()
{
    system("cls");
    int w;
    while(1)
    {
        cout<<"\n\n\n\n\n";

```

```

        cout<<"\t\t\tBus Reservation System Project in C++\n\n";

        cout<<"\t\t\t1.Add Bus\n\t\t\t\t"
        <<"2.Bus Reservation\n\t\t\t\t"
        <<"3.Show\n\t\t\t\t"
        <<"4.Buses Available. \n\t\t\t\t"
        <<"5.Exit";
        cout<<"\n\t\t\t\tEnter your choice:-> ";
        cin>>w;
        switch(w)
        {
            case 1: bus[p].install();
                    break;
            case 2: bus[p].allotment();
                    break;
            case 3: bus[0].show();
                    break;
            case 4: bus[0].avail();
                    break;
            case 5: exit(0);
        }
    }
    return 0;
}

```

## SAMPLE OUTPUT

```
Bus Reservation System Project in C++
```

```
By Learnprogramo
```

```
1.Add Bus  
2.Bus Reservation  
3.Show  
4.Buses Available.  
5.Exit  
Enter your choice:-> 1
```

```
Enter bus no: 757
```

```
Enter Driver's name: Jaydeep
```

```
Arrival time: 11:30
```

```
Departure: 10:30
```

```
From: Pune
```

```
To: Mumbai
```

```
Bus added Sucessfully
```

```
Bus Reservation System Project in C++
```

```
1.Add Bus  
2.Bus Reservation  
3.Show  
4.Buses Available.  
5.Exit  
Enter your choice:-> 2
```

```
Bus no: 757
```

```
Seat Number: 5
```

```
Enter passanger's name: Jaydeep
```

```
Seat Reserved Sucessfully
```

```
Bus Reservation System Project in C++

1.Add Bus
2.Bus Reservation
3.Show
4.Buses Available.
5.Exit
Enter your choice:-> 3
Enter bus no: 757
*****
Driver: Jaydeep Arrival time: 11:3010:30Pune Bus no: 757
From: Pune To: Mumbai Departure time:10:30Pune
*****
1. Vivek 2. Empty 3. Empty 4. Empty
5. Jaydeep 6. Empty 7. Empty 8. Empty
9. Empty 10. Empty 11. Empty 12. Empty
13. Empty 14. Empty 15. Empty 16. Empty
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. Empty 32. Empty

There are 30 seats empty in Bus No: 757
The seat no 1 is reserved for Vivek.
The seat no 5 is reserved for Jaydeep.
```

## REFERENCE:

1. <https://learnprogramo.com/bus-reservation-system-project-in-c-download-with-source-code/>