Mini Project Report

BUS RESERVATION SYSTEM USING C PROGRAMMING

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Declaration

I hereby declare that the project entitled-"Bus Reservation System Using C Programming", which is being submitted as Mini Project of 3rd Semester in Computer Science and Engineering to PSIT COLLEGE OF ENGINEERING, KANPUR is an authentic record of my genuine work done under the guidance of Dr. Sumit Kumar, Dept. of Computer Science and Engineering, PSIT COLLEGE OF ENGINEERING, KANPUR.

- Yash Chaturvedi

Acknowledgement

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals. I would like to extend my sincere thanks to all of them.

I am highly indebted to Dr. Sumit Kumar for his guidance and constant supervision as well as for providing necessary information regarding the project & also for his support in completing the project.

I would like to express my gratitude towards my parents for their kind co-operation and encouragement which helped me in completion of this project.

I would also like to thank to our HOD Mr. Pradeep Rai, Dept. of Computer Science and Engineering, PSIT College of Engineering, for his expert advice and counseling time to time.

My thanks and appreciations also go to my friends in developing the project and people who have willingly helped me out with their abilities.

- Yash Chaturvedi

Certificate

This is to certify that the mini project report entitled “Bus Reservation System Using C Programming” submitted by **Yash Chaturvedi** has been carried out under the guidance of Dr. Sumit Kumar, Dept. of Computer Science and Engineering, PSIT COLLEGE OF ENGINEERING, KANPUR. The project report is approved for submission requirement for Mini Project in 3rd semester in Computer Science and Engineering from, PSIT COLLEGE OF ENGINEERING, KANPUR.

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Abstract

Bus Reservation System is a simple console application without graphics that is developed in C platform. The system is to reserve the bus from the bus information and it includes the bus no, seat number with the passenger's name. The seat number of the particular bus is reserved under the passenger's name.

The whole project is developed in 'C' Programming language, different variables and strings have been used for the development of this project. It's easy to operate and understand by users.

Login system is also available in this system to make it more secure. There's no chance of data misuse or loss & it's not time-consuming.

Contents

INTRODUCTION

The project titled **"TravelPro Bus Agency"** is a simple console application without graphics that is developed in C platform. The system is to reserve the bus from the bus information and it includes the bus no, seat number with the passenger's name. This system is based on a concept to reserve bus tickets. From this system, the user can view bus list, book tickets, cancel bookings and check bus status board. While booking tickets, the user has to enter bus number then the system displays total bus seat numbers with passengers name and the user has to enter the number of tickets, seat number, and name of the person. Here, cancel booking also features refunding. Login system is also available in this system to make it more secure. There's no chance of data misuse or loss & it's not time-consuming. The whole project is developed in 'C' Programming language, different variables and strings have been used for the development of this project. It's easy to operate and understand by users.

Features:

1. Proper login system
2. Booking System
3. Refunding (cancel bookings)
4. View Bus Status

SYSTEM ANALYSIS

Existing System:

System analysis is a detailed study of the various operation performed by a system and their relationships within and outside of the system. Here the key question is- What all problems exist in the present system? What must be done to solve the problem? Analysis begins when a user or manager begins a study of the program using existing system.

During analysis data collected on the various files, decision points and transactions handled by the present system. Training, experience and common sense are required for collection of relevant information needed to develop the system. The success of the system depends largely on how clearly the problem is defined, thoroughly investigated and properly carried out through the choice of solution.

A good analysis model should provide not only the mechanisms of problem understanding but also the framework of the solution. Thus, it should be studied thoroughly by collecting data about the system. Then the proposed system should be analyzed thoroughly in accordance with the needs.

System analysis can be categorized into four parts:

- System planning and initial investigation
- Information Gathering
- Applying analysis tools for structured analysis
- Feasibility study
- Cost/ Benefit analysis

In our existing system, all the transactions of tickets are done manually, so taking more time for a transaction like booking a ticket or cancelling a ticket and also for searching of vacant seats or booked seats. So after conducting the feasibility study I decided to make a computerized Bus Reservation System.

Proposed System:

Proposed system is an automated Bus Reservation System. Through this software user can user can view bus list, book tickets, cancel bookings and check bus status board. Our proposed system has following advantages:

- User friendly Interface
- Fast access to database
- Less Error
- No chance of data misuse
- Not time consuming
- Look and Feel environment

All the manual difficulties in managing the Reservation System have been rectified by implementing computerization.

FEASIBILITY ANALYSIS

Whatever we think need not be feasible. It is wise to think about the feasibility of any problem we undertake. Feasibility is the study of impact, which happens in the organization by the development of a system. The impact can be either positive or negative. When the positives nominate the negatives, then the system is considered feasible. Here the feasibility study can be performed in two ways such as Technical Feasibility and Economical Feasibility.

- **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 as well as the maintenance of the same is available in the organization; here we are utilizing the resources which are available already.

- **Economical Feasibility:** Development of this application is highly feasible. The organization needed not spend much more for the development of the system already available. The only thing is to be done is making an environment for the development with an effective supervision. I we are doing so, we can attain the maximum usability of the corresponding resources. Even after the development the organization will not be in a condition to invest more in the organization. Therefore, the system is economically feasible.

REQUIRED SPECIFICATION

1. **Hardware Requirements:**

   - PC with Pentium IV processor.
   - 512 MB RAM or above.
   - 40 GB Hard Disk or above.

2. **Software Requirements:**

   - Operating System: Windows 7 (or latest).
   - Integrated development environment(IDE) : Dev-C++

SYSTEM DESIGN

- **Input Design:**

  Input Design is the process of converting user-oriented input to a computer based format. Input design is a part of overall system design, which requires very careful attention. Often the collection of input data is the most expensive part of the system.

  The main objectives of the input design are:

  1. Produce cost effective method of input
  2. Achieve highest possible level of accuracy
  3. Ensure that the input is acceptable to and understood by the staff.

  Input Data: The goal of designing input data is to make enter easy, logical and free from errors as possible. The entering data entry operators need to know the allocated space for each field; filed sequence and which must match with that in the source document. The format in which the data fields are entered should be given in the input form. Here data entry is online; it makes use of processor that accepts commands and data from the operator through a keyboard. The input required is analyzed by the processor. It is then accepted or rejected. Input stages include the following processes:

  - Data recording
  - Data Transcription
  - Data Conversion
  - Data Verification
  - Data Control
  - Data Transmission
  - Data Correction

One of the aims of the system analyst must be to select data capture method and devices, which reduce the number of stages so as to reduce both the chances of error and cost. Input types can be categorized as:

- External
- Internal
- Operational
- Interactive
- Computerized

Input files can exist in document from before being input to the computer. Input design is rather complex since it involves procedures for capturing data as well as inputting it to the computer.

- **Output Design:**
  Outputs from computer systems are required primarily to communicate the results of processing to users. They are also used to provide a permanent copy of these results for latter consultation. Computer output is the most important and direct source of information to the users. Designing computer output should proceed in an organized well throughout the manner. The right output must be available for the people who find the system easy to use. The outputs have been defined during the logic design stage. If not, they should defined at the beginning of the output designing terms of types of output connect, format, response, etc.

  Various types of outputs are:
  - External Outputs
  - Internal Outputs
  - Operational Outputs
  - Interactive Outputs
  - Turn around Outputs

  All screens are informative and interactive in such a way that the user can full fill his requirements through asking queries.

DATABASE DESIGN

The general theme behind a database is to handle information as an integrated whole. A database is a collection of interrelated data stored with minimum redundancy to serve many users quickly and effectively. After designing input and output, the analyst must concentrate on database design or how data should be organized around user requirements. The general objective is to make information access, easy quick, inexpensive and flexible for other users. During database design the following objectives are concerned:-

- Controlled Redundancy
- Data Independence
- Accurate and integrating
- More information at low cost
- Recovery from failure
- Privacy and security
- Performance
- Ease of learning and use

SOURCE CODE

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
char ch[10][130]={"Cardiff Express","Belfast Express","Derby
Express","Chester Express","Newport Express","Truro Express"};
char name[32][100]={'\0'};
char number[32][2]={'\0'};
int num1[32]={0};
int trno;
void bus();                                        //for list of bus
void name_number(int booking,char numstr[100]);
void booking();                                    //for booking the tickets
int read_number(int trno);                //for reading the number from the
file
void read_name(int trno);                 //for reading the name from the
file
void status();                                     //for printing the status by
user input
void status_1(int trno);                  //for printing the status while
booking ticket
void cancel();

int main()
{
      login();
    int num,i;
    do
      {
    system("cls");
    printf("\n\n\n");
    printf("================================================ WELCOME TO
TRAVELPRO ================================================\n\n\n");
    printf("\t\t\t\t\t[1]=> View Bus List\n");
    printf("\n");
    printf("\t\t\t\t\t[2]=> Book Tickets\n");
    printf("\n");
    printf("\t\t\t\t\t[3]=> Cancel Booking\n");
    printf("\n");
    printf("\t\t\t\t\t[4]=> Bus Status Board\n");
    printf("\n");
    printf("\t\t\t\t\t[5]=> Logout\n\n");
printf("================================================================================
================================================\n\n");
```

```
printf("\t\t\tEnter Your Choice:: ");
    scanf("%d",&num);
    switch(num)
    {
    case 1:
        bus();//for list of bus
        break;
    case 2:
        booking();//for booking the tickets
        break;
    case 3:
        cancel();
        break;
    case 4:
        status();
        break;
    }
      getch();
    }while(num != 5);
    system("cls");

printf("\n\n\n\n\n\n\n\n\n\n\n\n\n\t****************************************
************************************************************\n");
    printf("\t\t\t\t\t You have successfully logged out of
TRAVELPRO.\t\t\t\t\t\t\n");
    printf("\t\t\t\t\t         Thank you for using
TRAVELPRO.\t\t\t\t\t\t\n");

printf("\t**********************************************************************
**********************************\n");
    getch();
    return 0;
}


void bus()
{
    system("cls");
    printf("\n\n\n");
    printf("================================================== TRVELPRO BUS
AGENCY ==================================================\n\n\n");
    printf("\t\t\t\t\t[1]  =>  %s\n",ch[0]);
    printf("\n");
    printf("\t\t\t\t\t[2]  =>  %s\n",ch[1]);
    printf("\n");
      printf("\t\t\t\t\t[3]  =>  %s\n",ch[2]);
    printf("\n");
      printf("\t\t\t\t\t[4]  =>  %s\n",ch[3]);
```

```
      printf("\n");
      printf("\t\t\t\t\t[5]  =>  %s\n",ch[4]);
}

void booking()
{

    int i=0;
    char numstr[100];
      system("cls");
      printf("================================================ TRVELPRO BUS
AGENCY ================================================\n\n\n");//for
entering train number
      bus();
      printf("Enter the Bus number:--->");
      scanf("%d",&trno);
      system("cls");
      printf("================================================ TRVELPRO BUS
AGENCY ================================================\n\n\n");//for
selecting coach
      printf("Your Bus Number is %d ********** %s",trno,ch[trno-1]);
      status_1(trno);
      FILE *f1, *fopen();//for reading the seats from the user.
      char str1[80]="32",str2[4],str3[4];
      int seat1,seat2,booking=0;
      if(trno == 1)
            {
                  f1 = fopen("tr1.txt","r+");
                  fgets(str1,80,f1);
                  fclose(f1);
            }
      else if(trno == 2)
            {
                  f1 = fopen("tr2.txt","r+");
                  fgets(str1,80,f1);
                  fclose(f1);
            }
      else if(trno == 3)
            {
                  f1 = fopen("tr3.txt","r+");
                  fgets(str1,80,f1);
                  fclose(f1);
            }
      else if(trno == 4)
            {
                  f1 = fopen("tr4.txt","r+");
                  fgets(str1,80,f1);
                  fclose(f1);
```

```
}
else if(trno == 5)
      {
            f1 = fopen("tr5.txt","r+");
            fgets(str1,80,f1);
            fclose(f1);
      }
seat1=atoi(str1);//covert the string into number
if(seat1 <= 0)
      {
            printf("There is no blank seat in this bus.");
      }
else
      {
            printf("\n\n\n\t\t\t\tAvailable Seats:------>%d\n",seat1);
            printf("\n\t\t\t\tNumber of Tickets:----->");
            scanf("%d",&booking);
            printf("\n");
            seat1=seat1-booking;
            itoa(trno,numstr,10);
            name_number(booking,numstr);
            printf("\n\t\t\t\tThe Total booking amount is
            %d.",200*booking);
            itoa(seat1, str1, 10);
            //for reading the seats from the user.
            if(trno == 1)
                  {
                        f1 = fopen("tr1.txt","w");
                        fputs(str1,f1);
                        fclose(f1);
                  }
            else if(trno == 2)
                  {
                        f1 = fopen("tr2.txt","w");
                        fputs(str1,f1);
                        fclose(f1);
                  }
            else if(trno == 3)
                  {
                        f1 = fopen("tr3.txt","w");
                        fputs(str1,f1);
                        fclose(f1);
                  }
            else if(trno == 4)
                  {
                        f1 = fopen("tr4.txt","w");
                        fputs(str1,f1);
                        fclose(f1);
```

```
	}
		else if(trno == 5)
			{
				f1 = fopen("tr5.txt","w");
				fputs(str1,f1);
				fclose(f1);
			}
		}
}


void name_number(int booking,char numstr[100])
		{
			char
tempstr[100],tempstr1[12]="status",tempstr2[12]="number";
			int number;
		FILE *a,*b;
		int i=0;
			strcat(numstr,".txt");
			strcat(tempstr1,numstr);
			strcat(tempstr2,numstr);
			a = fopen(tempstr1,"a");//for open the file to write the
name in the file
			b = fopen(tempstr2,"a");//for open the file for writing the
number in the file
			system("cls");
			for(i=0; i<booking; i++)//for entering the person name and
seat number in the file
				{

	printf("=====================================================\tENTER
DETAILS\t================================================\n\n\n");
					printf("\t\t\t\tTICKET NO. %d",i+1);
					printf("\n\t\t\t\tEnter the seat number:--->");
					scanf("%d",&number);
					printf("\t\t\t\tEnter the name of person:---
>");
					scanf("%s",name[number-1]);

	printf("\n============================================================
============================================================\n\n");
					printf("\n");
					itoa(number, tempstr, 10);
					fprintf(a,"%s ",name[number-1]);
					fprintf(b,"%s ",tempstr);

				}
			fclose(a);
```

```
fclose(b);
            }
int read_number(int trno)//for putting the numeric value in the array

      {
            char tempstr[100],tempstr2[12]="number";
            FILE *a,*b;
            char numstr[100];
            int i=0,j=0,k;
            itoa(trno,numstr,10);
            strcat(numstr,".txt");
            strcat(tempstr2,numstr);
                  a = fopen(tempstr2,"a+");//for open the file to write the
            name in the file
            while(!feof(a))
                  {
                        number[i][j] = fgetc(a);
                        if(number[i][j] == ' ')
                              {
                               j=0;
                               i++;
                              }
                        else
                              {
                                    j++;
                              }
                  }
            k=i;
            for(i=0; i<k; i++)
                  {
                        num1[i] = atoi(number[i]);
                  }
            fclose(a);
            return k;
      }
void read_name(int trno)//for putting the numeric value in the array
      {
            char tempstr1[12]="status";
            FILE *b;
            char numstr[100];
            int i=0,j=0,k=0;
            itoa(trno,numstr,10);
            strcat(numstr,".txt");
            strcat(tempstr1,numstr);
            b = fopen(tempstr1,"a+");//for open the file to write the name in
            the file
            while(!feof(b))
                  {
```

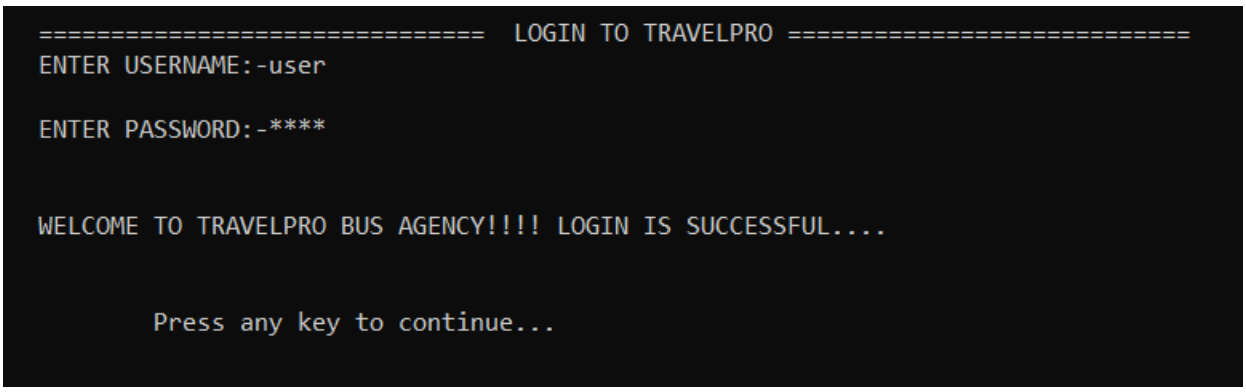
```
	name[i][j] = fgetc(b);
				if(name[i][j] == ' ')
					{
					j=0;
					i++;

			}
				else
					{
						j++;
					}
			}
			name[i][j]='\0';
			k=i;
			fclose(b);
	}

void status()
	{
	system("cls");
		printf("================================================
TRVELPRO BUS AGENCY
================================================\n\n\n");
	int i,trno,index=0,j;
	printf("Enter the number of bus:---->");
	scanf("%d",&trno);
	j=read_number(trno);
	read_name(trno);

	printf("_____________________________________________________________________
_____________________________________________________\n\n\n");
	printf("                                                    Bus.no-->%d---->%s
\n",trno,ch[trno-1]);

	printf("_____________________________________________________________________
_____________________________________________________\n");
	printf("\n");
	char tempname[33][10]={"Empty ","Empty ","Empty ","Empty ","Empty
","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty
","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty
","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty
","Empty ","Empty ","Empty ","Empty "};
	for(i=0; i<j; i++)
		{
			strcpy(tempname[num1[i]],name[i]);
			}
	for(i=0; i<8; i++)
		{
```

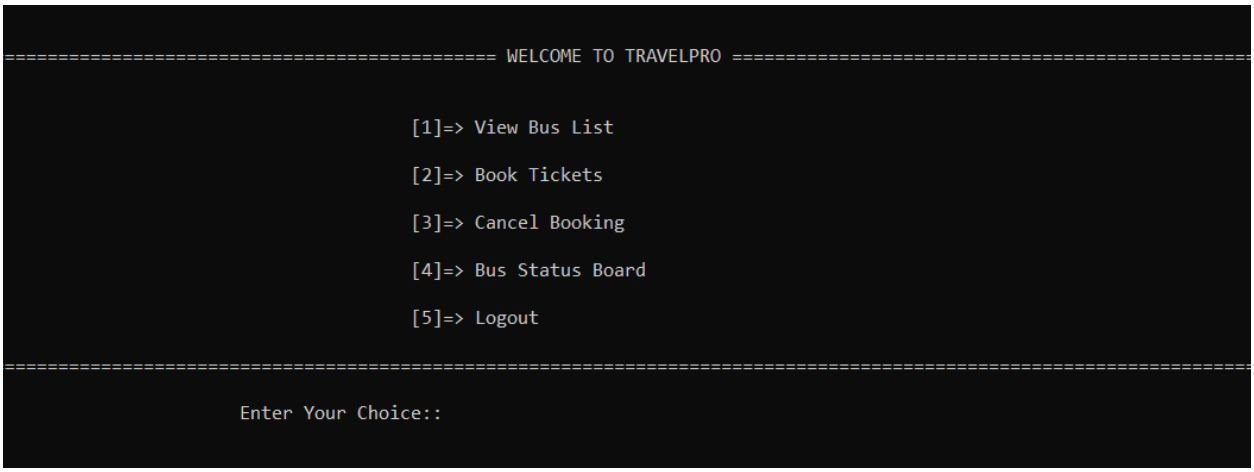
```
      printf("\t\t\t\t");
        for(j=0; j<4; j++)
            {
                  printf("%d. %s\t",index+1,tempname[index+1]);
                  index++;
            }
        printf("\n");
            }
      }
void status_1(int trno)
      {
      printf("Your Bus Number is %d ********** %s",trno,ch[trno-1]);
      system("cls");
            printf("================================================
            TRVELPRO BUS AGENCY
            ================================================\n\n\n");
      int i,index=0,j;
      j=read_number(trno);
      read_name(trno);
      char tempname[33][10]={"Empty ","Empty ","Empty ","Empty ","Empty
","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty
","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty
","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty ","Empty
","Empty ","Empty ","Empty ","Empty "};
      for(i=0; i<j; i++)
            {
                  strcpy(tempname[num1[i]],name[i]);
            }
      for(i=0; i<8; i++)
            {
                  printf("\t\t\t\t");
        for(j=0; j<4; j++)
            {
                  printf("%d. %s\t",index+1,tempname[index+1]);
                  index++;
            }
        printf("\n");
                  }
      }
void cancel()
      {
            int seat_no,i,j;
            char numstr[100],tempstr2[15]="number",tempstr1[15]="status";
            printf("Enter the bus number:---->");
            scanf("%d",&trno);
            itoa(trno,numstr,10);
            strcat(numstr,".txt");
            strcat(tempstr1,numstr);
```

```
strcat(tempstr2,numstr);
      read_number(trno);
      read_name(trno);
      status_1(trno);
      printf("Enter the seat number:--->");
      scanf("%d",&seat_no);


      FILE *a,*b;
      a = fopen(tempstr1,"w+");
      b = fopen(tempstr2,"w+");
      for(i=0; i<32; i++)
            {
            if(num1[i] == seat_no)
                  {
                        for(j=0; j<32; j++)
                              {
                              if(num1[j] != seat_no && num1[j] != 0)
                                          {
                                          fprintf(b,"%d ",num1[j]);
                                          fprintf(a,"%s",name[j]);
                                          }
            else if(num1[j] == seat_no && num1[j] != 0)
                  {
                  strcpy(name[j],"Empty ");
                  }
                              }
                        }
            }
      fclose(a);
      fclose(b);
      printf("\n\n");
      printf("============================================================
      ================================================================\n
      ");
      printf("\t\t\t\t     Rs. 200 are refunded to your
      account.\t\t\t\n");
      printf("============================================================
      ================================================================\n
      ");
}
void login()
      {
      int a=0,i=0;
      char uname[10],c=' ';
      char pword[10],code[10];
      char user[10]="user";
      har pass[10]="pass";
```

```
do
        {
            system("cls");
            printf("\n  \t\t\t==============================
            LOGIN TO TRAVELPRO ============================  ");
            printf(" \n                          ENTER USERNAME:-");
            scanf("%s", &uname);


      printf(" \n                          ENTER PASSWORD:-");
      while(i<10)
            {
            pword[i]=getch();
            c=pword[i];
            if(c==13) break;
            else printf("*");
            i++;
            }
      pword[i]='\0';
      i=0;
      if(strcmp(uname,"user")==0 && strcmp(pword,"pass")==0)
            {
                  printf("  \n\n\n                          WELCOME TO
                  TRAVELPRO BUS AGENCY!!!! LOGIN IS SUCCESSFUL....");
                  printf("\n\n\n\t\t\t\tPress any key to continue...");
                  getch();
                  //holds the screen
                  break;
            }
      else
            {
                  printf("\n\n\n                          SORRY !!!!
                  LOGIN IS UNSUCESSFUL.");
                  a++;
                  getch();
                  //holds the screen
            }
            }
                  while(a<=2);
                  if (a>2)
                  {
                        printf("\n\n\n\t\t\tYou have reached the
                        maximum login attempts. Exit and try again.");
                        exit(0);
                  }
            system("cls");
            }
```

SOME SNAP SHOTS





```
**********************************************************************************************************
                                You have successfully logged out of TRAVELPRO.

                                          Thank you for using TRAVELPRO.
**********************************************************************************************************
```

```
================================================ TRVELPRO BUS AGENCY ================================================

Enter the number of bus:---->1

--------------------------------------------------------------------------------------------------------

                                        Bus.no-->1---->Cardiff Express

--------------------------------------------------------------------------------------------------------

                            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. 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
```

```
================================================  ENTER DETAILS   ================================================


                            TICKET NO. 1
                            Enter the seat number:--->5
                            Enter the name of person:--->Yash

========================================================================================================================



                            The Total booking amount is 200.
```

CONCLUSION

It was an effort to develop a simple “Bus Reservation System” using which user can view the bus list, book tickets, cancel bookings and check bus status board.

This facility is helpful for the users and organization as well. This is a simple but effective technology which helps the user to access the service concurrently from different places. This system provides a user-friendly interface. I would also help in providing adequate data to the corporation or a person.

This is the 24×7 available system. My project provides an easy way for booking the bus tickets, bus list and few more operations.

I do hope you find this project useful as well as interesting.

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