“BUS RESERVATION SYSTEM”

A Project report submitted in the partial fulfillment
the award of degree of
BACHELOR OF TECHNOLOGY

IN

ELECTRONICS ANDCOMMUNICATIONS ENGINEERING

By

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(2023-2024)

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DEPARTMENT OF ELECTRONICS AND COMMUNICATIONS ENGINEERING

BONAFIDE CERTIFICATE

This is to certify that the project work entitled "BUS RESERVATION SYSTEMi fulfillment of project of B.HEMA SUNDAR(231801410008), B.KHAGESH(231801410009), P.SANDEEP(231801130032), P.JAGADEESH KUMAR(231801130017), G.DEVI CHANDU (231801130031), R.NKHILESH(231801410012), for the degree of **BACHELOR OF TECHNOLOGY** in **ELECTRONICS AND COMMUNICATIONBS ENGINEERING, Centurion University of Technology and Management**, during the academic year 2022-2023.

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ACKNOWLEDGEMENT

It is with at most pleasure and excitement we submit our project partial fulfillment of the requirement for the Bachelor of Technology.

The project is a result to the cumulate efforts, support, guidance, encouragement and inspiration from many of those for whom we have to give our truthful honor and express gratitude through bringing out this project at the outset as per our knowledge.

We convey special thanks to our project **Guide Mr. subrat Kumar M.Tech** who has guided us and encouraged us to enhance our knowledge with present working of this project to bring out enriching the quality of project.

We expressed our appreciativeness toDr satheeshAmpolu**,M.Tech, Asst.Professor and Head of the Department**, who facilitated us to providing the friendly environment

which helped to enhance our skills in present project.

DECLARATION

We hereby declare that the project entitled **"BUS RESERVATION SYSTEM"** submitted to the fulfillment the degree of **B.TECH (ECE) in Centurion University of Technology and Management.** This project work in original has not been submitted so far in any part or full for any other university or institute for the award of any degree.

CONTENTS

INTRODUCTION :-

The Bus Reservation System is a basic console program that runs on the C platform and has no visuals. The system uses bus information, which includes the bus number, seat number, and the passenger's name, to book a seat on the bus. Under the passenger's name, the specific bus seat number is booked.

The primary goal of this project is to create an application that allows users to make bus reservations. Instead of using file management to store bus information, this system uses a different method.

2. System Requirements: -

2.1.] Software Requirements: -

2.1.1] Windows 7 or above / linux / mac Operating Systems

2.1.2] Dev C++ Version 5.1 or above

2.2] Hardware Requirements: -

2.2.1] Intel core(i3) processor or Ryzen 3 processor

2.2.2] RAM: 8 GB

2.2.3] Intel iris integrated graphics card

Source code

```
#include <stdio.h>
#include <stdlib.h>
#include <conio.h>
#include <string.h>
#include <time.h>
typedef struct BinarySearchTree BST;
// if bst is empty then we have to handle the error
struct BinarySearchTree
{
  int PassnNo; // busNo0SeatNo.
  char name[10];
  struct BinarySearchTree *left;
  struct BinarySearchTree *right;
};
BST *root = NULL;
int cost(BST *r);              // calculates costs
void status();                 // shows bus and seats status
void busLists();               // shows buslist and do booking
seat and return customer ID
void DisplaySeat(int bus[33]); // Display the seats of buses
void cancel(int x);            //cancel the booking
BST *reservationInfo(BST *, int, int *); // Display
Reservation Info
BST *insert(BST **r, int custID); // inserting a node

int busSeat[32][9] = {0};
void redColor() /// Print the message in redcolor
{
```

```
{
  printf("\033[1;31m");
}
void resetColor() /// reset the old
color of console
{
  printf("\033[0m");
}
BST *reservationInfo(BST *r, int s, int
*custIDmatched) // find function
{
  if (r == NULL)
    return NULL;
  BST *presentnode = r;
  while (presentnode)
  {
    // --------------------

    if (presentnode->PassnNo == s)
    {
      *custIDmatched = 1;
      redColor();
      printf("\n----------------------------------
------------------------------");
      printf("\n||            NAME: %10s
||", (presentnode->name));
      printf("\n||            CUSTOMER ID:
%d                        ||", presentnode-
>PassnNo);
      printf("\n||            BUS NUMBER:
%d                        ||",
(presentnode->PassnNo) / 1000);
```

```
printf("\n||            SEAT NUMBER:
%d                          ||", (presentnode->PassnNo) %
100);
     printf("\n||            TICKET COST:
Rs.%d                       ||", cost(presentnode));
     printf("\n-------------------------------------------------------
-------");
     resetColor();
     getch();
     return r;
   }
   else if (presentnode->PassnNo > s)
     presentnode = presentnode->left;
   else
     presentnode = presentnode->right;
  }

  return NULL;
}
BST *insert(BST **r, int custId)
{
  if (*r == NULL)
  {

    *r = (BST *)malloc(sizeof(BST));
    (*r)->PassnNo = custId;
    if (*r == NULL)
    {
      printf("No memory");
      return NULL;
    }
    else
    {
      (*r)->left = (*r)->right = NULL;
      printf("\n   ENTER THE PERSON NAME: ");
```

```
    scanf("%s", &((*r)->name));
    }
  }
  else
  {
    if ((*r)->PassnNo > custId)
    {
      (*r)->left = insert(&((*r)->left), custId);
    }
    else if ((*r)->PassnNo < custId)
    {
      (*r)->right = insert(&((*r)->right), custId);
    }
  }
  return *r;
}

void DisplaySeat(int bus[33])
{
  int i;
  for ( i = 1; i <= 32; i++)
  {
    redColor();
    if (i < 10 && i > 0)
    {
      printf("0%d .", i);
    }
    else
    {
      printf("%d .", i);
    }
```

```
resetColor();
   {
     if (bus[i] == 0)
       printf("EMPTY ");
     else
       printf("BOOKED"); // reserv
   }
   printf("        ");
   if (i % 4 == 0)
     printf("\n");
 }
}
void login()
{
 char userName[20] = "user";
 char passWord[10] = "team18";
 char matchPass[10];
 char matchUser[10];
 int value;
 redColor();
 printf("\n\n=====================================
=========================================
=======\n");
 printf("\n\t\t\tWELCOME TO ONLINE BUS
RESERVATION");
 printf("\n\n=====================================
=========================================
=======\n\n");
 resetColor();
login:
{
 printf("\n\nUserName: ");
 gets(matchUser);

 printf("\nPassWord: ");
 gets(matchPass);
}
```

```
value = strcmp(passWord, matchPass); /// string compare is
function defined in headerfile i.e string.h
  if (value != 0)
  {
    redColor();
    printf("\nINVALID DETAILS TRY AGAIN...\n");
    resetColor();
    goto login;
  }
  else
  {
    printf("\nLOGED IN SUCCESFULLY...\n");
  }
}
int cost(BST *r)
{
  int cost, buscost;
  buscost = (r->PassnNo) / 1000;
  switch (buscost % 3)
  {
  case 1:
    return 70;
    break;
  case 2:
    return 55;
    break;
  case 0:
    return 40;
    break;
  default:
    return 0;
    break;
  }
}
void status()
{
```

```
int busNum;
 busLists();
busInput:
 printf("\n\nENTER YOUR BUS NUMBER : ");
 scanf("%d", &busNum);
 if (busNum <= 0 || busNum >= 10)
 {
  redColor();
  printf("\n  PLEASE ENTER CORRECT BUS NUMBER !!\n");
  resetColor();
  goto busInput;
 }
 printf("\n");
 DisplaySeat(busSeat[busNum]);
 getch();
}
void busLists()
{
 redColor();
 printf("------");
 printf("\nBus.No\tName\t\t\tDestinations  \t\tCharges  \
t\tTime\n");
 printf("-----------");
 resetColor();
 printf("\n1\tGangaTravels        \tDharan to
Kavre      \tRs.70   \t\t07:00  AM");
 printf("\n2\tPhaphara Travels    \tKavre To
Dharan      \tRs.55    \t\t01:30  PM");
 printf("\n3\tShiv Ganga Travels   \tAllahabad To
Gorakhpur\tRs.40    \t\t03:50  PM");
 printf("\n4\tSuper Deluxe        \tPokhara To
Benigha    \tRs.70    \t\t01:00  AM");
 printf("\n5\tSai Baba Travels    \tMaitidevi To Janakpur
\tRs.55    \t\t12:05  AM");
```

```
printf("\n6\tShine On Travels  \tMadhubani to
Patna    \tRs.40    \t\t09:30  AM");
  printf("\n7\tMayur Travels       \tPatna To
Gaya        \tRs.70   \t\t11:00  PM");
  printf("\n8\tRajjo Travels      \tBegusarai To
Patna     \tRs.55    \t\t08:15  AM");
  printf("\n9\tShree Travels       \tGaya To
Chhapra      \tRs.40    \t\t04:00  PM");
  printf("\n");
  printf("\n   PRESS 'ENTER' KEY TO CONTINUE ");
  getch();
}
void cancel(int randomNum)
{int reservationNo;
  int seatNumber;
  int choice;
  char c;
  int seatCancel;
aa:
{ printf("\nENTER YOUR RESERVATION NUMBER : ");
  scanf("%d", &reservationNo);
  if (reservationNo == randomNum)
  {printf("\nRESERVATION NUMBER IS IT CORRECT ? %d
\nENTER (Y/N) : ", reservationNo);
    scanf("%s", &c);
    if (c == 'y' || c == 'Y')
    { printf("\n\n====\n\n");
      printf("   ENTER THE BUS NUMBER: ");
      scanf("%d", &choice);
      printf("\n HOW MANY SEATS DO WANT TO CANCEL : ");
      scanf("%d", &seatCancel);
```

```
[redacted]int i;
     for ( i = 0; i < seatCancel; i++)
     {
       printf("   \nENTER THE SEAT NUMBER: ");
       scanf("%d", &seatNumber);
       busSeat[choice][seatNumber] = 0;
     }
     printf("\n\nYOUR RESERVATION HAS BEEN CANCEL
!!\n\n");
     printf("\n  PRESS 'ENTER' KEY TO CONTINUE \n");
     getch();
     DisplaySeat(busSeat[choice]);
    }
    else if (c == 'n' || c == 'N')
{printf("\nYOUR RESERVATION CANCELATION HAS BEEN
DENIED\n");
    }
  }
  else
  {
    printf("\nNOT FOUND!! ENTER THE CORRECT
RESERVATION NUMBER\n");
    goto aa;
  }
}
}
int main()
{srand(time(0));
  int randomNum = rand();
  int num, i, custID, reservationNo;
  BST *root1;
  login();
main:
{
```

```
do
 {
  printf("\n\n===\n\n");
  printf("\t\t\t\033[1;31mBUS RESERVATION\033[0m\t\t");
  printf("\n\n======\n");
  printf("\n====================");
  redColor();
  printf("  MAIN MENU ");
  resetColor();
  printf("====================\n\n");
  printf("  \033[1;31m[1]\033[0m VIEW BUS LIST \n\n");
  printf("   \033[1;31m[2]\033[0m BOOK TICKETS\n\n");
  printf("   \033[1;31m[3]\033[0m CANCEL BOOKING\n\n");
  printf("   \033[1;31m[4]\033[0m BUSES SEATS INFO\n\n");
  printf("   \033[1;31m[5]\033[0m RESERVATION INFO\n\n");
  printf("   \033[1;31m[6]\033[0m EXIT\n");
  printf("\n=======\n");
  printf("\n   ENTER YOUR CHOICE: ");
  scanf("%d", &num);
  switch (num)
  {
  case 1:
    busLists(); // for list of bus
    break;
  case 2:
    busLists(); // for booking the tickets
    int CustId, choice, seats;
  busChoice:
    printf("\n\nCHOOSE YOUR BUS  : ");
```

```
scanf("%d", &choice);
     if (choice <= 0 || choice > 9)
     {
       redColor();
 printf("\nENTER VALID BUS NUMBER !! \n");
       resetColor();
       getch();
       goto busChoice;
     }
     printf("\n");
     DisplaySeat(busSeat[choice]);
   busSeatChoice:
     printf("\n\nNO. OF SEATS YOU NEED TO BOOK
: ");
     scanf("%d", &seats);
     if (seats <= 0)
     { redColor();
       printf("\nENTER VALID SEAT NUMBER!!\n");
       resetColor();
       goto busSeatChoice;
     }
     else if (seats > 32)
  {redColor();
       printf("\nENTER VALID SEAT NUMBER WE
HAVE ONLY 32 SEATS IN A BUS !!\n");
       resetColor();
       goto busSeatChoice;
     }
     int seatNumber;
     int i;
     for ( i = 1; i <= seats; i++)
{printf("\n\n=====\n\n");
     seat:
```

```
printf("   ENTER THE SEAT NUMBER: ");
      scanf("%d", &seatNumber);
      if (seatNumber <= 0)
 { redColor();
        printf("\n   ENTER VALID SEAT NUMBER!!\n\n");
        resetColor();
        goto seat;
  } else if (seatNumber > 32)
{redColor();
        printf("\n   ENTER VALID SEAT NUMBER WE HAVE ONLY
32 SEATS IN A BUS !!\n\n");
        resetColor();
        goto seat;
   } CustId = choice * 1000 + seatNumber; // CustumerId
     busSeat[choice][seatNumber] = 1;
     root = insert(&root, CustId);
     redColor();
     printf("\n   YOUR CUSTOMER ID IS : %d", CustId);
     resetColor();
     printf("\n\n====\n\n");
    }
    printf("\nYOUR RESERVATION NUMBER IS : ");
    redColor();
    printf("%d\n", randomNum);
    printf("\nPLEASE NOTE DOWN YOUR RESERVATION
NUMBER FOR CANCEL BOOKING TICKETS!!\n");
    resetColor();
    printf("PRESS 'ENTER' KEY TO CONTINUE ");
    getch();
    break;
  case 3:
```

```
case 3:
    cancel(randomNum);
    break;
  case 4:
    status(randomNum);
    break;
  case 5:
  takingReservationNo:
    printf("\n   ENTER YOUR RESERVATION NUMBER :");
    scanf("%d", &reservationNo);
    if (randomNum == reservationNo)
    {
    cust:
      printf("\n   ENTER YOUR CUSTOMER ID :");
      scanf("%d", &custID);
      int custIDmatched = 0;
      root1 = reservationInfo(root, custID, &custIDmatched);
      if (custIDmatched == 0)
      { redColor();
        printf("\n   ENTER CORRECT CUSTOMER ID!!\n");
        resetColor();
        goto cust;
      }
    }
    else
   { redColor();
      printf("\n INVALID RESERVATION NUMBER PLEASE
ENTER CORRECT RESERVATION NUMBER !!\n");
      resetColor();
      goto takingReservationNo;
    }
```

```
break;
    default:
      redColor();
      printf("\n\n   INVALID INPUT
CHOOSE CORRECT OPTION\n");
      resetColor();
      break;
    }
  } while (num != 6);
  printf("\n\n====================
==============================
==================\n\n");
  printf("THANK YOU FOR USING THIS
BUS RESERVATION SYSTEM");
  printf("\n\nPRESS ANY KEY TO EXIT
THE END PROGRAM !! \n");
  printf("\n\n");
  getch();
  return 0;
}
}
```

OUTPUT

```
================================================================================

                        WELCOME TO ONLINE BUS RESERVATION

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



UserName: user

PassWord: team18

LOGED IN SUCCESFULLY...
```

```
================================================================================

                        BUS RESERVATION

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

====================  MAIN MENU ======================

   [1] VIEW BUS LIST

   [2] BOOK TICKETS

   [3] CANCEL BOOKING

   [4] BUSES SEATS INFO

   [5] RESERVATION INFO

   [6] EXIT
```

```
================================================

   ENTER YOUR CHOICE: 2
--------------------------------------------------------------------------------
Bus.No  Name                    Destinations            Charges         Time
--------------------------------------------------------------------------------
1       GangaTravels            Dharan to Kavre         Rs.70           07:00  AM
2       Phaphara Travels        Kavre To Dharan         Rs.55           01:30  PM
3       Shiv Ganga Travels      Allahabad To Gorakhpur  Rs.40           03:50  PM
4       Super Deluxe            Pokhara To Benigha      Rs.70           01:00  AM
5       Sai Baba Travels        Maitidevi To Janakpur   Rs.55           12:05  AM
6       Shine On Travels        Madhubani to Patna      Rs.40           09:30  AM
7       Mayur Travels           Patna To Gaya           Rs.70           11:00  PM
8       Rajjo Travels           Begusarai To Patna      Rs.55           08:15  AM
9       Shree Travels           Gaya To Chhapra         Rs.40           04:00  PM

   PRESS 'ENTER' KEY TO CONTINUE

CHOOSE YOUR BUS  : 9
```

```
01 .EMPTY        02 .EMPTY        03 .EMPTY        04 .EMPTY
05 .EMPTY        06 .EMPTY        07 .EMPTY        08 .EMPTY
09 .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


NO. OF SEATS YOU NEED TO BOOK : 3
```

```
================================================================================

   ENTER THE SEAT NUMBER: 2

   ENTER THE PERSON NAME: kamesh

   YOUR CUSTOMER ID IS : 9002

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



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

   ENTER THE SEAT NUMBER: 3

   ENTER THE PERSON NAME: sandeep

   YOUR CUSTOMER ID IS : 9003

================================================================================
```

```
================================================================================


YOUR RESERVATION NUMBER IS : 1279830049

PLEASE NOTE DOWN YOUR RESERVATION NUMBER FOR CANCEL BOOKING TICKETS!!
PRESS 'ENTER' KEY TO CONTINUE

--------------------------------------------------------------------------------
```

CONCLUSION :

All After implementing a bus reservation system using the C programming language, it can be concluded that C is a powerful and efficient language for developing such a system. The use of functions and pointers in C allows for effective organization and management of data, making it easy to handle large amounts of information such as bus routes, etc.