

OBJECTIVE

The following Project is named IRCTC TRAIN RESERVATION SYSTEM . IT HAS THE FOLLOWING FEATURES-

1. TO DISPLAY LIST OF TRAINS AVAILABLE
2. TO BOOK TICKETS IN THE TRAIN
3. TO CANCEL A BOOKED TICKET IN A TRAIN
4. TO CHECK THE STATUS OF A TRAIN.

This project uses the concepts of Looping (for, while, do while), Conditional Statements (If else, switch, break), Array, File, pointer.

PROBLEM DEFINITION

The Problem is based on the train reservation system. The system displays its features –

1. View Train List
2. Book Tickets
3. Cancel Booking
4. Train Status Board
5. Exit

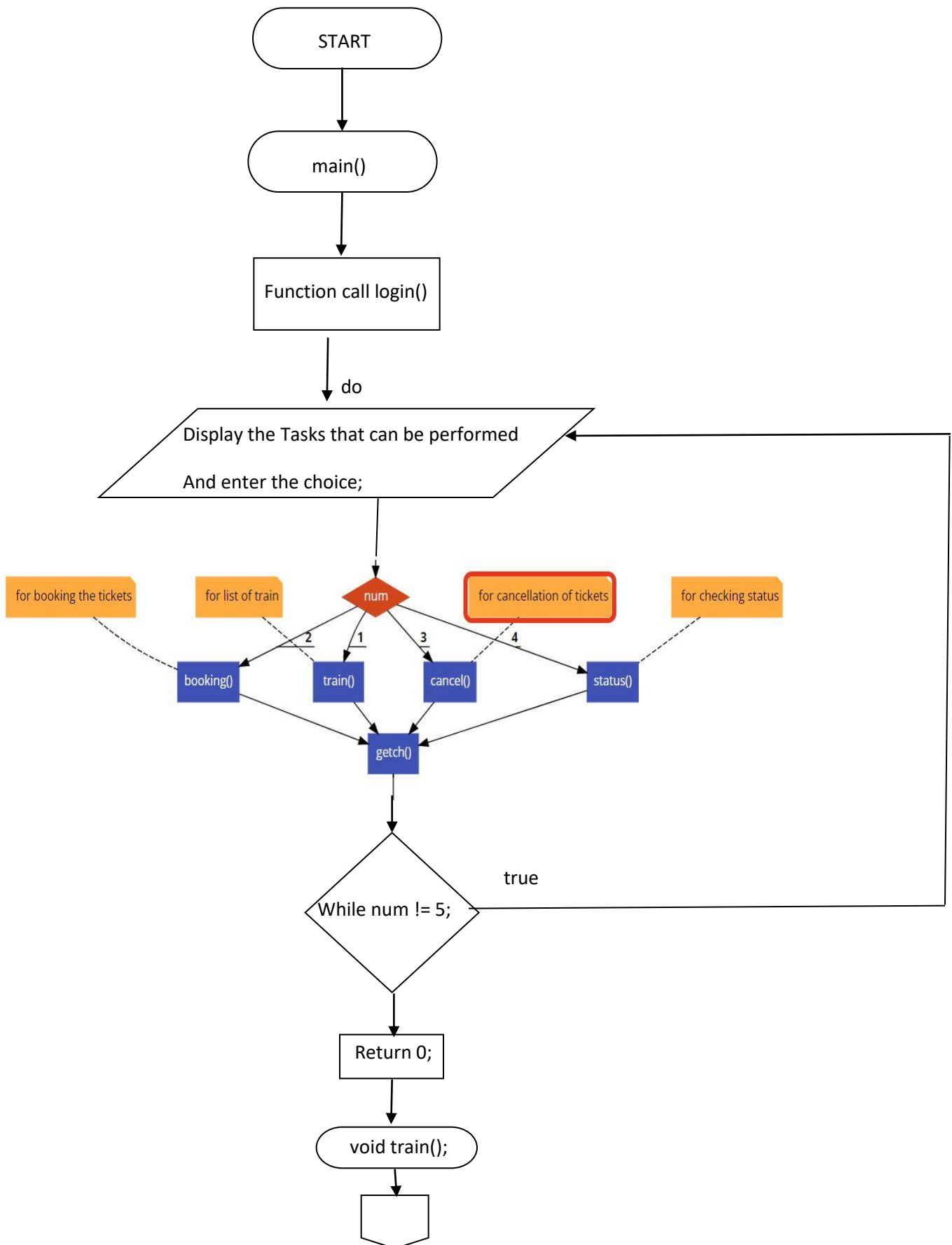
When the user enters its choice the respective operation is performed. When user enters 1 train list is displayed. When 2 is entered and the name and seat number is entered the seat is booked .When 3 is entered along with train number and seat number the seat booked is cancelled and the amount is refunded. When 4 is entered by the user along with train number the status of the train is displayed which seat is empty and which is booked. When 5 is entered the program ends and the message is displayed Thank you for using this system.

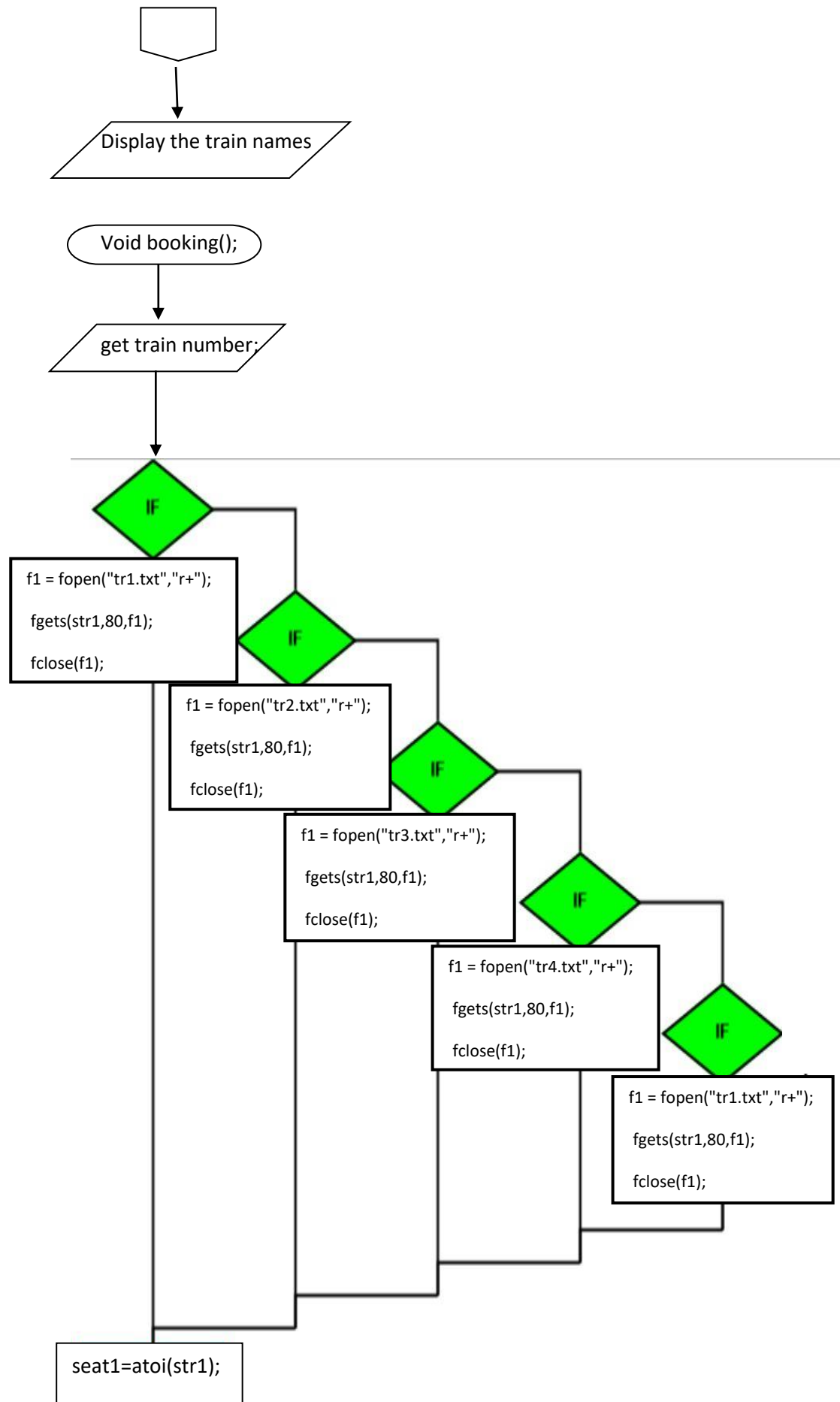
Project Prepared by –

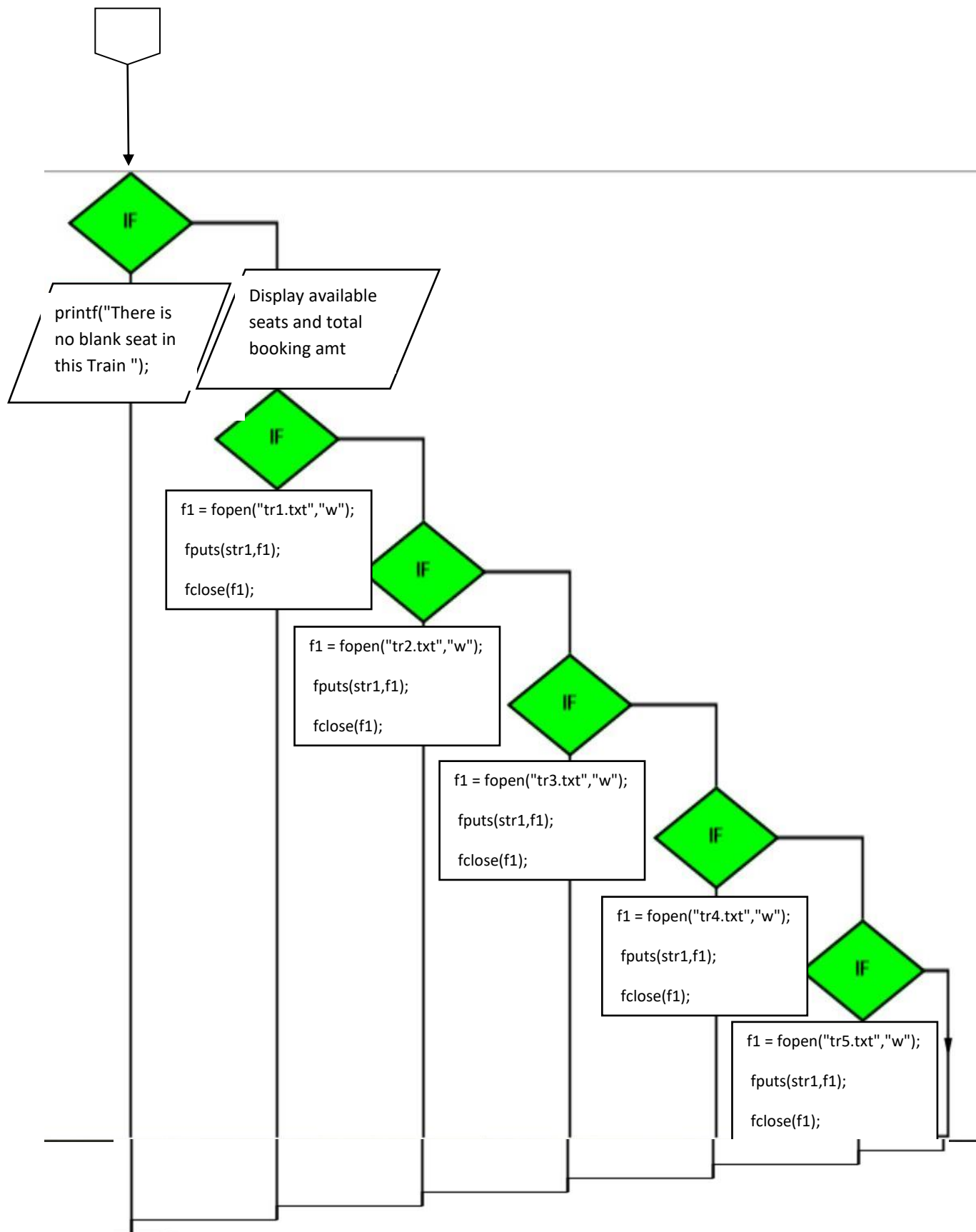
ABHISHEK SHUKLA – RA2111003010253

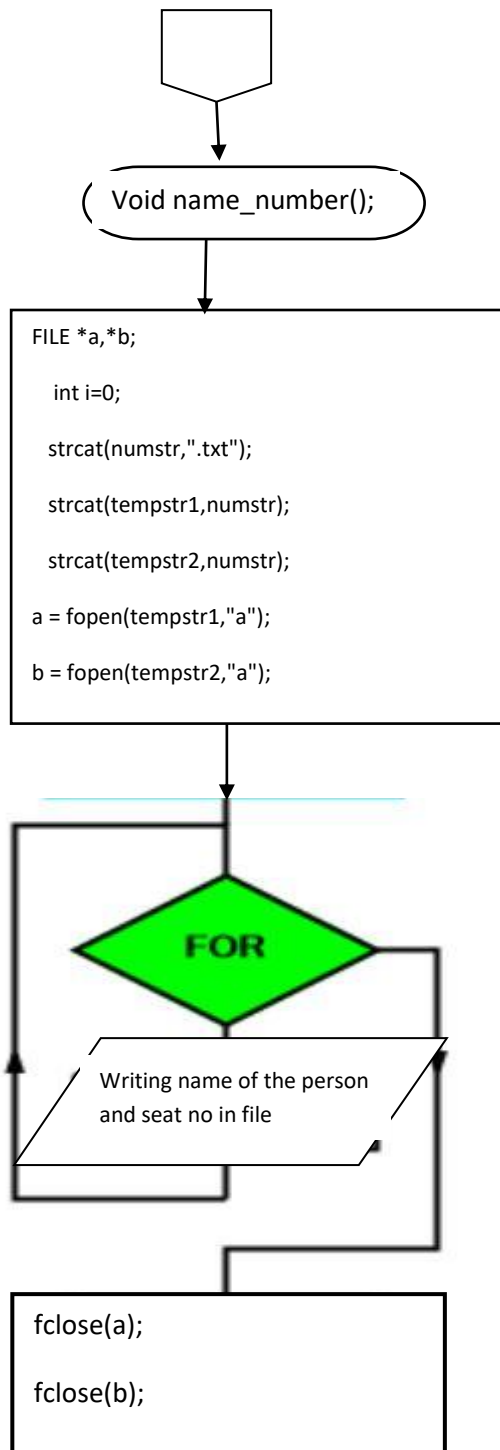
ANAND KUMAR- RA2111003010249

Under the Guidance of Dr. Mathew Eliazer Sir.



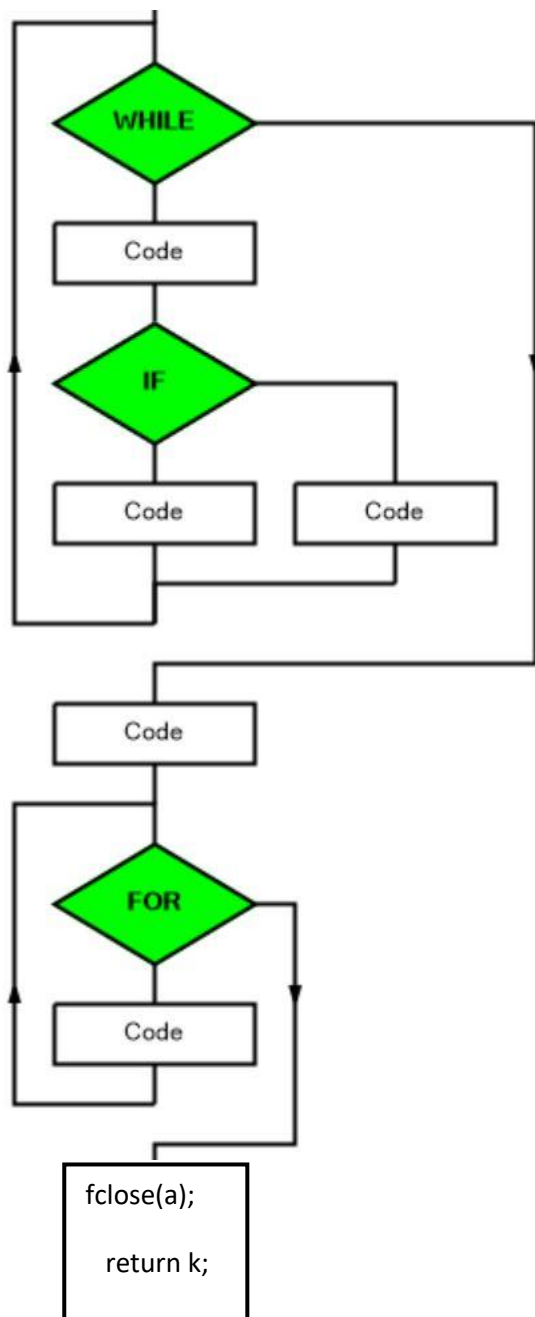






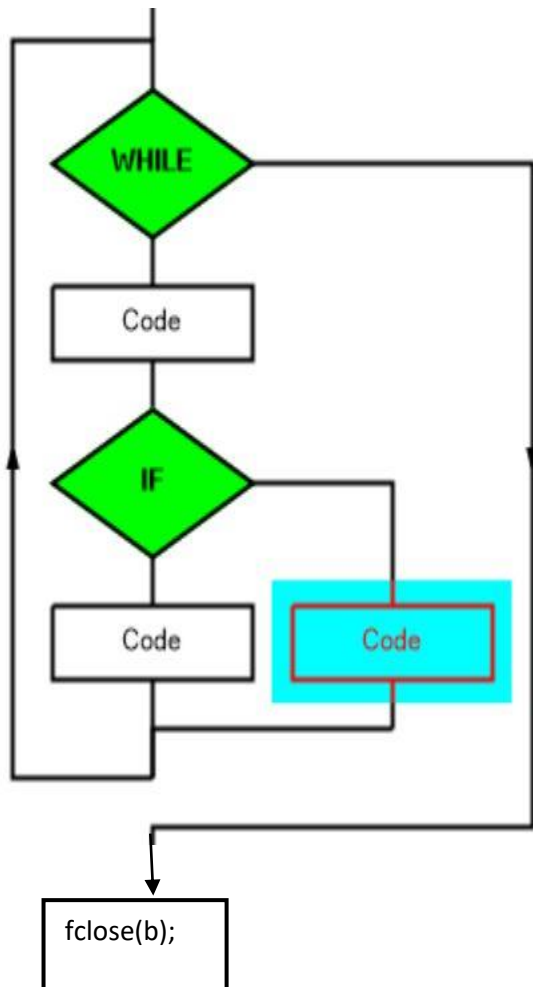
int read_number()

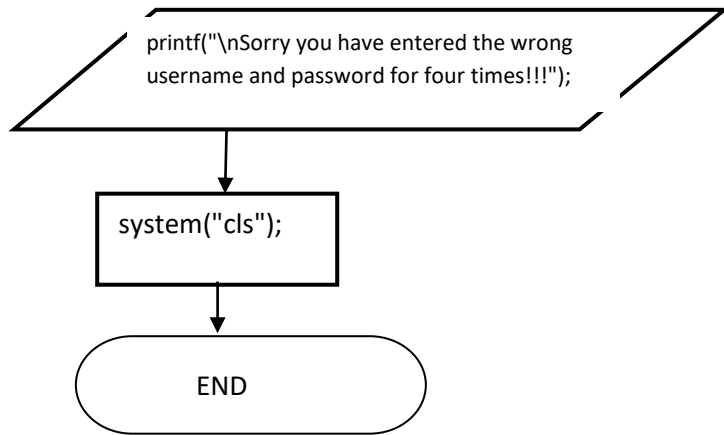
```
char tempstr[100],tempstr2[12]="number";  
  
FILE *a,*b;  
  
char numstr[100];  
  
int i=0,j=0,k;  
  
itoa(trno,numstr,10);  
  
strcat(numstr,".txt");  
  
strcat(tempstr2,numstr);  
  
a = fopen(tempstr2,"a+");
```



void read_name()

```
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+");
```





Algorithm

Step 1: Start

Step 2: Declare variables to store train names and number .

Step 3: Declare functions for train list, booking tickets, train status and cancellation

Step 4: Function call login();

Step 5: Inside login function the username and password are checked whether it is correct or not using strcmp function of string. If found same the message displayed is ("Welcome to our system Login is successful. If the user tries the username and password 4 times and still cannot enter the correct then message is displayed that wrong password entered 4 times and system (cls) is used to clear the screen.

Step 6: Inside a do while loop the features of the Reservation System are displayed using printf and a choice is asked by the user using scanf .

Step 4: Switch is used to navigate through the features/tasks of the reservation based on the choice entered by the user .

Step 5: Case =1 then train() is called which displays the list of trains and their number using printf .

Step 6: Case =2 then booking() is called for booking seats in the train.

Step 7: It asks the train number from the user and reads the present number of available seats in the train. If not available displays ("There is no blank seat in this train") else displays("Available seats");

Step 8 : It asks the user about the number of tickets to be booked and displays the total booking amount to be paid.

Step 9: A void name_number() is used for opening the respective train file in writing mode and write the name and seat number entered by the user respectively.

Step 10: Case=3 then status() function is called for checking the seating status of the train. It opens the file and reads the status of the seats whether empty or filled by someone.

Step 11: Case= 4 then cancel() function is called to cancel the seat booked by the user of the respective train. It replaces the name of the booked person by the string Empty using strcpy function. And a message is displayed using printf("Your 200 rupees have been returned").

Step 12: Message is displayed using printf("Thank you for using this system");

Step 13: End

PROGRAM

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
char ch[10][130]={"Rajdhani Express","RaptiSagar Superfast Express","Shatabdi Express","Tejas Express","Vande Bharat Express","Humsafar Express"};
char name[32][100]={'\0'};
char number[32][2]={'\0'};
int num1[32]={0};
int trno;
void login();
void train();//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{
        printf("\n\n\n");
        printf("===== WELCOME TO IRCTC TRAIN  
RESERVATION SYSTEM =====\n\n\n");
        printf("\t\t\t\t\t[1]=> View Train 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]=> Train Status Board\n");
        printf("\n");
        printf("\t\t\t\t\t[5]=> Exit\n\n");

        printf("===== \n\n");
        printf("\t\t\t\t\tEnter Your Choice:: ");
```

```

scanf("%d",&num);
switch(num)
{
case 1:
    train();//for list of train
    break;
case 2:
    booking();//for booking the tickets
    break;
case 3:
    cancel();
    break;
case 4:
    status();
    break;
}
getch();
}while(num != 5);
printf("\t-----\n");

printf("\t\t\t\t\tThank You For Using This System\t\t\t\t\t\n");
printf("\t-----\n");

getch();
return 0;
}

void train()
{
    printf("\n\n\n");
    printf("===== IRCTC TRAIN RESERVATION
SYSTEM =====\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];
printf("===== IRCTC TRAIN RESERVATION
SYSTEM =====\n\n\n");//for entering train
number
train();//for seeing train list
printf("Enter the Train number:--->");
scanf("%d",&trno);
printf("===== IRCTC TRAIN RESERVATION
SYSTEM =====\n\n\n");//for selecting coach
printf("Your Train 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);//convert the string into number  
if(seat1 <= 0)  
{  
    printf("There is no blank seat in this Train ");  
}else  
{  
printf("\n\n\n\t\t\t\tAvailable Seats:----->%d\n",seat1);  
printf("\n\t\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\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
    for(i=0; i<booking; i++)//for entering the person name and seat number in the file
    {
        printf("=====Enter the details for ticket no
%d=====\\n\\n\\n",i+1);
        printf("\\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()
{
printf("===== IRCTC TRAIN RESERVATION
SYSTEM =====\n\n\n");
    int i,trno,index=0,j;
    printf("Enter the number of Train:---->");
    scanf("%d",&trno);
    j=read_number(trno);
    read_name(trno);

printf("_____
\n");

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

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
"};
    for(i=0; i<j; i++)
    {
        strcpy(tempname[num1[i]],name[i]);
    }
    for(i=0; i<8; i++)
    {
        printf("\t\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 Train Number is %d ***** %s",trno,ch[trno-1]);
    printf("===== IRCTC TRAIN RESERVATION
SYSTEM =====\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
"};
    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 Train 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\\tYour 200 rupees has been Returned\\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";
char pass[10]="pass";
do
{
    printf("\n ===== LOGIN FORM =====
");
    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';
    //char code=pword;
    i=0;
    //scanf("%s",&pword);
    if(strcmp(uname,"user")==0 && strcmp(pword,"pass")==0)
    {
        printf(" \n\n\n                WELCOME TO OUR SYSTEM !!!! LOGIN IS SUCCESSFUL");
        printf("\n\n\n\t\t\t\t\tPress any key to continue...");
        getch();//holds the screen
        break;
    }
    else
    {
        printf("\n                SORRY !!!! LOGIN IS UNSUCCESSFUL");
        a++;

        getch();//holds the screen

    }
}
while(a<=2);
if (a>2)
{

```

```
        printf("\nSorry you have entered the wrong username and password for four  
times!!!");  
  
        getch();  
  
    }  
    system("cls");  
}
```

OUTPUT SCREEN.

```
===== LOGIN FORM =====
ENTER USERNAME:-user

ENTER PASSWORD:-****

WELCOME TO OUR SYSTEM !!!! LOGIN IS SUCCESSFUL

Press any key to continue...

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  JUPYTER

===== WELCOME TO IRCTC TRAIN RESERVATION SYSTEM =====
=====

[1]=> View Train List
[2]=> Book Tickets
[3]=> Cancel Booking
[4]=> Train Status Board
[5]=> Exit

=====

Enter Your Choice:: 1

Enter Your Choice:: 1

===== IRCTC TRAIN RESERVATION SYSTEM =====
=====

[1] => Rajdhani Express
[2] => RaptiSagar Superfast Express
[3] => Shatabdi Express
[4] => Tejas Express
[5] => Vande Bharat Express
```

```
===== WELCOME TO IRCTC TRAIN RESERVATION SYSTEM =====
=====

[1]=> View Train List
[2]=> Book Tickets
[3]=> Cancel Booking
[4]=> Train Status Board
[5]=> Exit

=====
Enter Your Choice:: 2

===== IRCTC TRAIN RESERVATION SYSTEM =====
=====

[1] => Rajdhani Express
[2] => RaptiSagar Superfast Express
[3] => Shatabdi Express
[4] => Tejas Express
[5] => Vande Bharat Express

Enter the Train number:--->1

===== IRCTC TRAIN RESERVATION SYSTEM =====
[5] => Vande Bharat Express
Enter the Train number:--->1
===== IRCTC TRAIN RESERVATION SYSTEM =====
=====

Your Train Number is 1 ***** Rajdhani ExpressYour Train Number is 1 ***** Rajdhani Express=====
===== IRCTC TRAIN RESERVATION SYSTEM =====

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

Available Seats:----->32

Number of Tickets:----->[]
```



```

Number of Tickets: 72

=====Enter the details for ticket no 1=====

Enter the seat number:-->1
Enter the name of person:-->ABHISHEK

=====

=====Enter the details for ticket no 2=====

Enter the seat number:-->2
Enter the name of person:-->ANAND

=====

The Total booking amount is 400

```

```

===== WELCOME TO IRCTC TRAIN RESERVATION SYSTEM =====
=====

[1]=> View Train List
[2]=> Book Tickets
[3]=> Cancel Booking
[4]=> Train Status Board
[5]=> Exit

=====

Enter Your Choice:: 3

```

```

=====
Enter Your Choice:: 3
Enter the Train number:---->1
Your Train Number is 1 ***** Rajdhani Express===== IRCTC TRAIN RESER
VATION SYSTEM =====

1.ABHISHEK    2.ANAND      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 the seat number:-->2

=====
Your 200 rupees has been Returned
=====

```

```
===== WELCOME TO IRCTC TRAIN RESERVATION SYSTEM =====
=====
```

- [1]=> View Train List
- [2]=> Book Tickets
- [3]=> Cancel Booking
- [4]=> Train Status Board
- [5]=> Exit

```
-----
Enter Your Choice:: 4
```

```
Enter Your Choice:: 4
```

```
===== IRCTC TRAIN RESERVATION SYSTEM =====
=====
```

```
Enter the number of Train:---->1
```

```
-----
Train.no-->1---->Rajdhani Express
```

```
-----
1.ABHISHEK      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
```

```
===== WELCOME TO IRCTC TRAIN RESERVATION SYSTEM =====
=====
```

- [1]=> View Train List
- [2]=> Book Tickets
- [3]=> Cancel Booking
- [4]=> Train Status Board
- [5]=> Exit

```
-----
Enter Your Choice:: 5
```

```
---
Thank You For Using This System
---
```