



AIRLINE RESERVATION SYSTEM



18CSS101JST

MINI PROJECT - C LANGUAGE

PROGRAMMING FOR PROBLEM-SOLVING

TITLE : AIRLINE RESERVATION SYSTEM

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Introduction

Originally, the C language is developed from two previous languages, BCPL and B. BCPL which were developed in 1967 by Martin Richards as a language for writing operating systems and compilers. C was evolved from B by Dennis Ritchie at Bell Laboratories and it was implemented in 1972. It initially became widely known as the development language of the UNIX operating system. Lots of today's leading operating systems are written in C and C++. C language is mostly hardware independent as it is possible to write C programs that are portable to most computers.

Why we use c language C has been used successfully for each kind of programming problem thinkable from operating systems to spreadsheets to expert systems - and efficient compilers are accessible for machines ranging in power from the Apple Macintosh to the Cray supercomputers. the largest measure of C's success appears to be based on strictly sensible considerations:

The standard library concept;

the ease with that applications can be optimized by hand-coding isolated procedures;

a powerful and varied repertoire of operators;

the portability of the compiler;

Project Explanation:

The project is Airline Reservation System:

Our main aim is to write a program to assign seats on each flight of the airlines only place (capacity: 15 seats).

The program should never assign a seat that is already assigned. If there's no seat available, then print the message " the flight is full ".

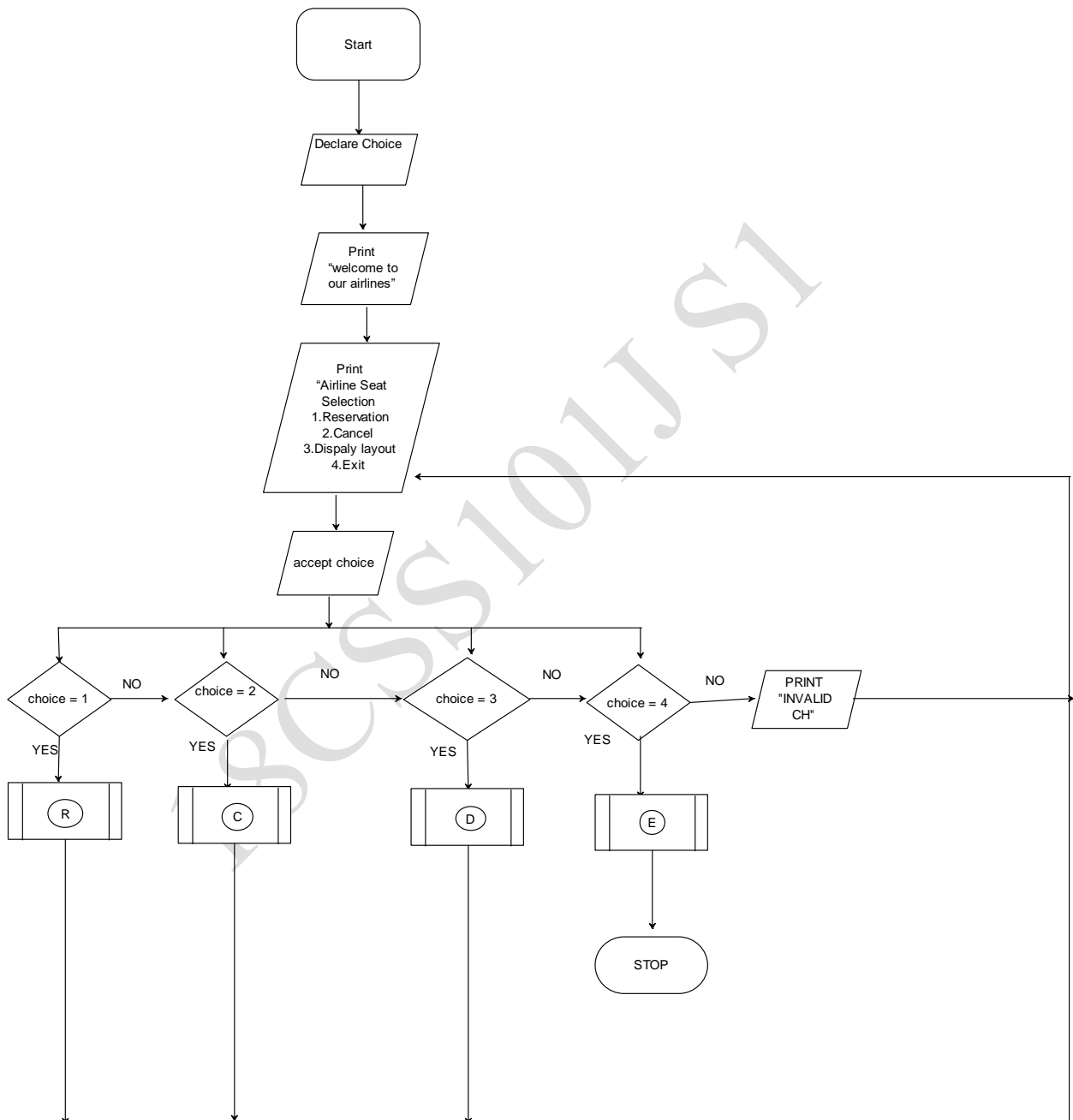
After the flight is full and someone wants to cancel the booking, it is displaying enter you're the passport number you want to cancel it so after the passenger cancels it, the system directly free that place if someone wants to book that seat.

Moreover, the system should bring a boarding pass indicating the persons' name, passport number, and seat number as each seat is assigned, set the corresponding elements of the array to 1 to indicate that the seat is no longer available.



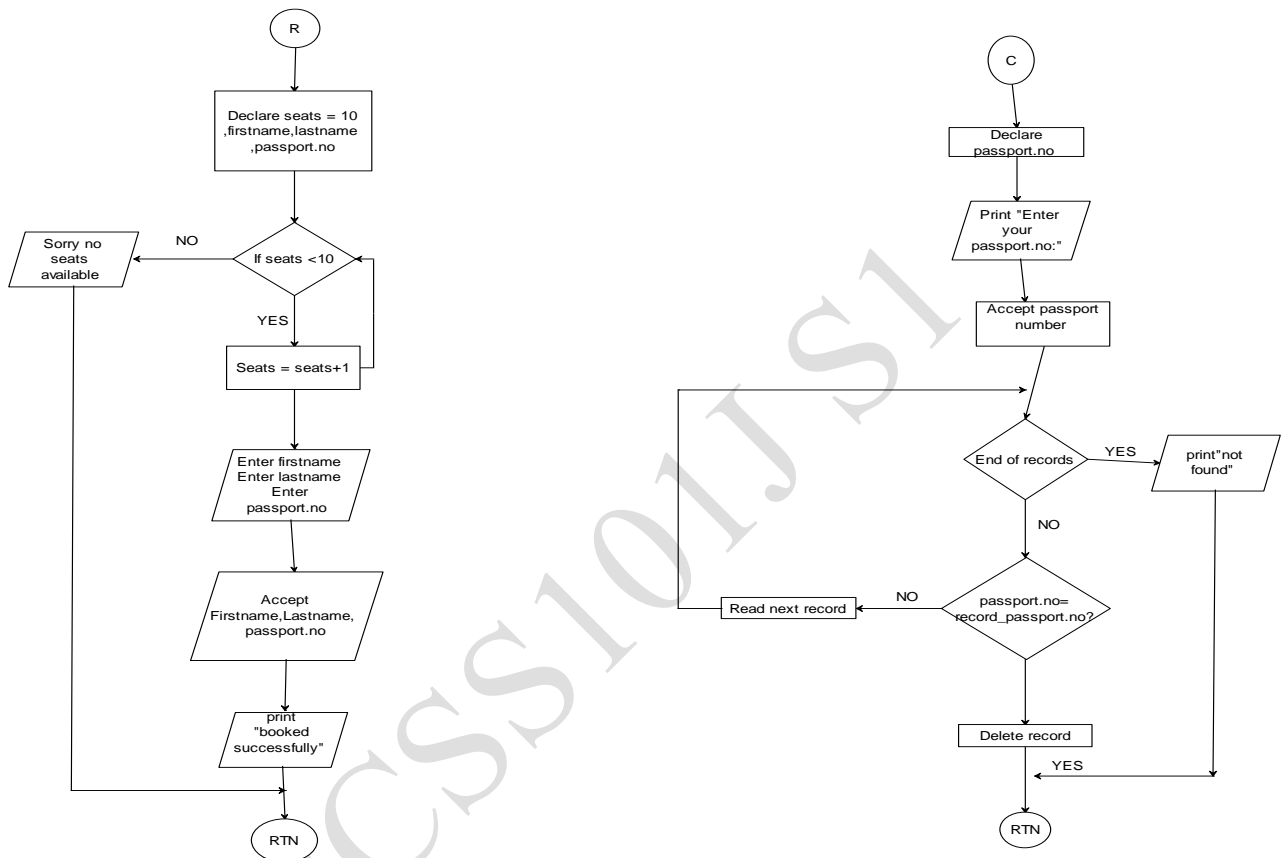
FLOW CHART

1.Main menu



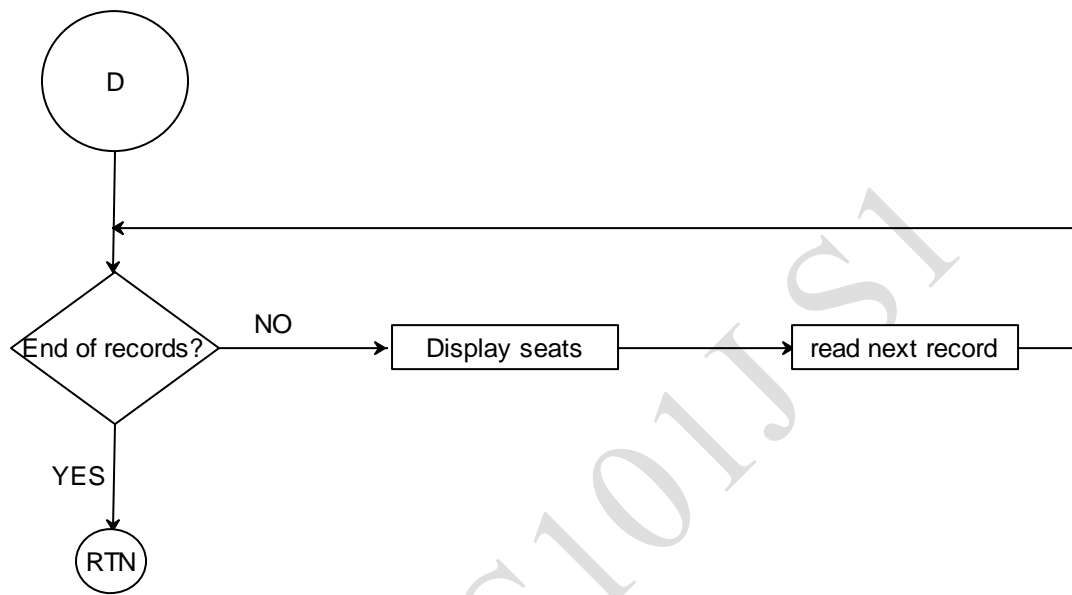
When the program is started, the user will direct to the main menu. The user will be required to select one of the four options.

2.Reservation and 3.cancel functions



These are the flowcharts for the reservation and cancel functions

4.Displaying Function.



That is the flowchart for the displaying function

Pseudocode

Begin

 Declare Choice Repeat

 repeat

 display “welcome to our airlines”

 display “Airline Seat Selection

 1.Reservathion

 2.Cancel

 3.Dispaly layout

 4.Exit

 Enter your choice”

 Accept choice

 If (choice = 1)

 Call R ()

 Else

 If (choice = 2)

 Call C ()

 Else

 If (choice = 3)

 Call D ()

 Else

 If (choice = 4)

 Call E ()

 Else

 Print “Invalid choice”

 End-If

 End-If

End-If

End-If

Until (choice \leq 4)

End

Function reservation ()

Declare passport number, name, num, email, contact number

Print "Enter your passport number"

Accept passport number

Print "Enter your name"

Accept name

Print "Enter your email "

Accept email

Print "Enter your contact number"

Accept contact number

IF (seats >15)

Print No Seats Available

ELSE

IF

(Seats \leq 15)

Print "registered successfully"

END-IF

END-IF

END-FOR

Return

Function Cancel ()

 Declare Passport number

 Print "Enter passport number to delete record"

 Accept passport number

 Do while (not end of records)

 IF (passport = record _passport)

 Delete record

 Return

 END-IF

 Read next record

 END-do

print

Return

Function Display layout ()

 Do while (not end of records)

 Display Record

 Read next record

 End -do

Return

C source code

```
#include<stdio.h>
#include<stdlib.h>
#include<conio.h>
#include<string.h>

struct srm_airline
{
    char passport[6];
    char name[15];
    int seat_num;
    char email[15];
    struct srm_airline *following;
}
*begin, *stream;
struct srm_airline *dummy;

void main()
{
    void reserve(int x), cancel(), display(), savefile();
    //function prototypes
    int choice;
    begin = stream = NULL;
    //initialize the struct pointers to NULL
    int num = 1;
    do
    {

        printf("\n\n\t\t*****");
        printf("\n\t\t *****welcome to SRM airline system*****");

        printf("\n\t\t*****");
        printf("\n\n\n\t\t Please enter your choice from below (1-4):");
        printf("\n\n\t\t 1. Reservation");
        printf("\n\n\t\t 2. Cancel");
        printf("\n\n\t\t 3. DISPLAY RECORDS");
        printf("\n\n\t\t 4. EXIT");
        printf("\n\n\t\t feel free to ask us");
        printf("\n\n\t\t Enter your choose ");

        scanf("%d", &choice); fflush(stdin);
        system("cls");
        switch (choice)
        {
            case 1:
                reserve(num);
                num++;
                break;
            case 2:
                cancel();
```

```

        break;
    case 3:
        display();
        break;
    case 4:
    {
        savefile();
        break;
    }
    default:
        printf("\n\n\t SORRY INVALID CHOICE!");
        printf("\n\n\t PLEASE CHOOSE FROM 1-4");
        printf("\n\n\t Do not forget to chose from 1-4");
    }
    getch();
} while (choice != 4);
}
// *****GOOD LUCK*****
void details()
{
    printf("\n\t Enter your passport number:");
    gets(stream->passport); fflush(stdin);
//reads a line from stdin and stores it into the string pointed
    printf("\n\t Enter your name:");
    gets(stream->name); fflush(stdin);
    printf("\n\t Enter your email address:");
    gets(stream->email); fflush(stdin);
}

// *****GOOD LUCK*****
void details();

void reserve(int x)
{
    stream = begin;
    if (begin == NULL)
    {
        // first user
        begin = stream = (struct srm_airline*)malloc(sizeof(struct srm_airline));
        details();
        stream->following = NULL;
        printf("\n\t Seat booking successful!");
        printf("\n\t your seat number is: Seat A-%d", x);
        stream->seat_num = x;
        return;
    }
    else if (x > 15) // FULL SEATS
    {
        printf("\n\t\t Seat Full.");
        return;
    }
    else
    {
        // next user
        while (stream->following)
            stream = stream->following;
    }
}

```

```

stream->following = (struct srm_airline *)malloc(sizeof(struct srm_airline));
    stream = stream->following;
    details();
    stream->following = NULL;
    printf("\n\t Seat booking succesful!");
    printf("\n\t your seat number is: Seat A-%d", x);
    stream->seat_num = x;
    return;
}
}
// *****GOOD LUCK*****

void savefile()
{
    FILE *fpointer = fopen("Airline records", "w");
    if (!fpointer)
    {
        printf("\n Error in opening file!");
        return;
    }
    stream = begin;
    while (stream)
    {
        fprintf(fpointer, "%-6s", stream->passport);
        fprintf(fpointer, "%-15s", stream->name);
        fprintf(fpointer, "%-15s", stream->email);
        stream = stream->following;
    }
    printf("\n\n\t Details have been saved to a file (Airline records)");
    fclose(fpointer);
}
//*****GOOD LUCK*****

void display()
{
    stream = begin;
    while (stream)
    {
        printf("\n\n Passport Number : %-6s", stream->passport);
        printf("\n\t\t\t\t\t Name : %-15s", stream->name);
        printf("\n\t\t\t\t\t Email address: %-15s", stream->email);
        printf("\n\t\t\t\t\t Seat number: A-%d", stream->seat_num);

        printf("\n\n++*=====++*");
        stream = stream->following;
    }
}
//*****GOOD LUCK*****

void cancel()
{
    stream = begin;
    system("cls");
    char passport[6];
    printf("\n\n Enter passport number to delete record?:");
    gets(passport); fflush(stdin);
}

```

```
if (strcmp(begin->passport, passport) == 0)
{
    dummy = begin;
    begin = begin->following;
    free(dummy);
    printf(" booking has been deleted");
    return;
}

while (stream->following)
{
    if (strcmp(stream->following->passport, passport) == 0)
    {
        dummy = stream->following;
        stream->following = stream->following->following;
        free(dummy);
        printf("has been deleted ");
        getch();
        return;
    }
    stream = stream->following;
}
printf("passport number is wrong please check your passport");
}
```

REPORT

```
Please enter your choice from below (1-4):  
1. Reservation  
2. Cancel  
3. DISPLAY RECORDS  
4. EXIT  
feel free to ask us  
Enter your choose _
```

Main Menu

When the program is executed, the user will be directed to the main menu interface. The program is introduced with a few lines of text. Then four selections are made for the user as the user can choose to reserve, cancel, display or exit the program.

```
SORRY INVALID CHOICE!  
PLEASE CHOOSE FROM 1-4  
Do not forget to chose from 1-4
```

Invalid value

. If the user accidentally enters an invalid input, an interface will be shown to notify the user to choose again and it notify the user again to enter from 1-4.

```
Enter your passport number:1  
Enter your name:1  
Enter your email address:1
```

reservation function

The program is asking the user to enter passport number, name, and email address to reserve a seat for the user and the seat cannot be book for anyone else.

```
Enter your passport number:1  
Enter your name:1  
Enter your email address:1  
Seat booking successful!  
your seat number is: Seat A-1
```

seat has successfully booked

As shown in the interface the seat reservation has been booked successfully, after the user has entered the details.

```
Enter your passport number:1n
Enter your name:n
Enter your email address:n
Seat booking succesfull!
your seat number is: Seat A-15_
```

15 is the maximum seat number

The program could not book any more seat

After registering 15 users in the system now the flight is supposed to be full and cannot except anymore.

```
Seat Full._
```

no more seat available

The system will pop out to notify the user that there's no seat available, the flight contains only 15 seat after that it is displaying it is full sorry we cannot register anymore.


```
Enter passport number to delete record?:
```

cancel function

After the passenger entered 3 and want to cancel the record, after that, the program requires the user to enter which passport number to delete it. For example, that Person A registered the seat on the flight and he wants to cancel it.

```
Enter passport number to delete record?:4321  
has been deleted _
```

The system asks A to enter his passport number to cancel it from the system without any problems and in an efficient way. After “A” entered his passport number the system pop in your record has been deleted from the system.

```
Enter passport number to delete record?:WEWSD  
passport number is wrong please check your passport_
```

If “A” entered the wrong passport number by mistake the system pop in hey passport number is wrong, please check your passport number and enter it again.

```
Passport Number : 1234
    name : AHMED
    email address: SSS
    Seat number: A-1

++*=====*++

Passport Number : 4321
    name : MUFTI
    email address: DDS
    Seat number: A-2

++*=====*++
```

The interface is displaying all the user's records that now you have two seats Ahmed with his details and "A" with his details as well. There's a line between the users to make it clear to read and do not misunderstand it.

```
Passport Number : 1234
    name : AHMED
    email address: DD
    Seat number: A-1

++*=====*++
```

display function

After "A" cancel his seat from the system, the interface is showing that only One person is in the system and A's seat already deleted.

after entered 4 which is exit function, it is storing all the records into file with all the passenger's details in Airline record.



The interface is showing the record in notepad which is the storing part and it is displaying ahmed and his details after "A" cancel his record.

Conclusion

The Airline reservation system is designed for users to reserve a seat, cancel, display seats and exit the system. A formula is included in the function to calculate the seats are reserved. Pseudocode is written for some important codes. A few flow charts are also created for explaining the process of the Airline reservation system.

From this Project, I have learned to implement a few C concepts in future projects such as functions, switch statements and do...while statements, arrays, pointers, and structures in the program. I have also learned to create flow charts for explaining the program.

~THANK YOU!