



## SLOT E2

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# **Abstract**

With the modernisation, the flight culture is increasing day by day. Everyone prefers to go to and fro destinations in a flight rather than any other mode of transportation, Since it is the fastest mode of transportation at affordable rates. With the increase in the demand for the flight culture the possibility of the error and wastage of time also increases. Due to limited amount of seats available it leads to a lot of wastage of time. This has led to long queues and waiting time. In this project we are designing , developing and testing an assembly language code program to be used for a flight reservation generally referred as flight reservation system. This software is built on 8086 and hence it has very little to no need of specialised hardware and can perform tasks very quickly and accurately. Such a system is portable lightweight and easy to mass-produce thus having a huge scope in these modern times.

The project gives an understanding of the Flight ticket booking system and how it can be user friendly so that the number of steps in booking the tickets gets narrowed down.

# Acknowledgement

The project report entitled “**Flight Reservation System**” is prepared and submitted by **Kartik Nahta (19BCE2009)**, **Shivam Singhal (19BCE2112)**.

We would like to thank our supervisor, **Sir Rajesh N**, for his great support and help through the process of doing this project, and through this tough phase of pandemic.

We are also grateful to VIT to have given us this opportunity to develop such projects to improve our expertise on microprocessors and in EMU 8086.

# **Introduction**

## **Motivation**

In most of the ticket booking systems, though they have the prime requirements that satisfies the users, they lack in partitioning and providing the users with the tickets with respect to the age group and in providing the choice of various genres that are available as each and every user are of different age groups and providing the same service to the user gives the exact meaning to the word “user-friendliness”. After choosing the respective destination he/she likes, it is the prime responsibility of the flight management to allocate tickets to the users according to the respective age groups.

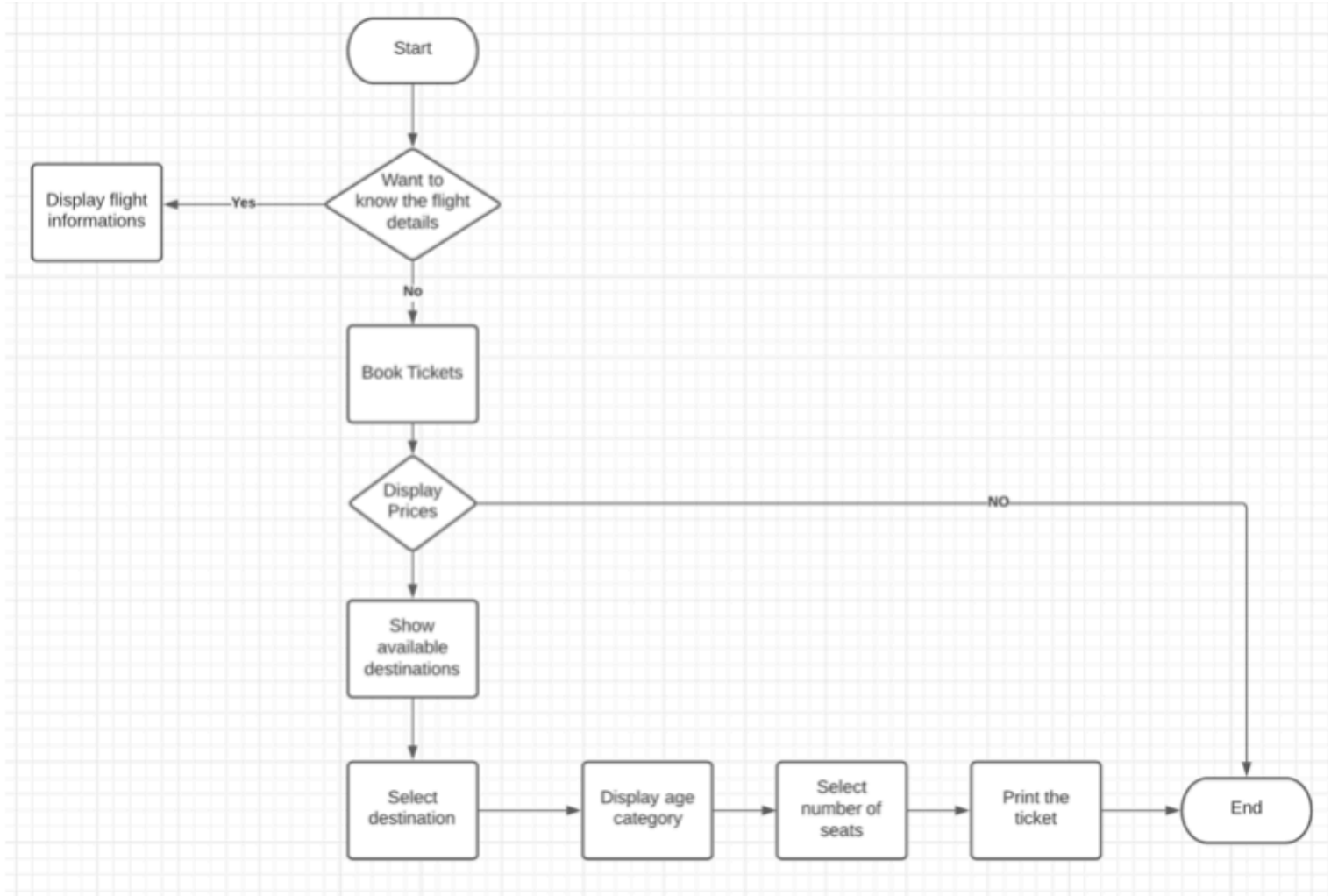
## **Aim**

The main objective of our project “Flight Reservation System” is to manage the details of Booking, Customer, Payment and Flight. The system is designed so as to manage all the information about Flight, Available Time, Flight Details, Destination, Prices as well as Availability.

## **Objective(s)**

This project is aimed at developing an online ticket booking system for Flight. This application will automate the reservation of tickets and Enquiries about availability of the tickets based on the age group and choice of respective genres. One of the main purposes of our system is to reduce the number of staff in the ticket box. So, most of the job is done by the system automatically.

# Flow Chart



# System Requirement

## Software Requirement

Operating System: Windows 7 and above  
EMU8086 for Building the entire system using the 8086  
ALP program.

## Hardware Requirement

**Processor:** Intel core i3 2nd generation and above must be used because it is faster & provides a reliable and stable working environment.

**RAM:** A RAM size of 1gb is preferred to be used as it will provide fast reading & writing capabilities.

**Microsoft Compatible 101 or more Keyboard.**

**512 KB Cache Memory**

# Implementation

## Code Screenshots

```
org 100h

.model small
.stack 100h

.data
|

menu:  DB 0Dh,0Ah,"1- View flights from Mumbai",0Dh,0Ah
       DB "2- Book a ticket",0Dh,0Ah
       DB "3- Exit the application",0Dh,0Ah,
       DB "please choose: ", '$'

CrLf   db 13,10,'$'

totalbill: DB 0Dh,0Ah,"The total bill is: ",'$'

flight_info:
DB 0Dh,0Ah,0Dh,0Ah,"flight name   Destination           Flight number           Timing",0Dh,0Ah
DB "Indigo           Indore               6E-624                 21:35 - 22:45 (1hr 10min)",0Dh,0Ah
DB "SpiceJet         Chennai            SG-325                 22:15 - 00:05+1D (1hr 50min)",0Dh,0Ah
DB "Vistara          Bangalore          UK-857                 21:30 - 23:10 (1hr 40min)",0Dh,0Ah
DB "GoAir            Delhi              G8-325+G8-238         21:45 - 8:05+1D (10hr 20min)",0Dh,0Ah
DB "Air_India        Pune               AI-430+AI-538          21:45 - 6:45+1D (9hr)",0Dh,0Ah,'$'

Indigo:
DB 0Dh,0Ah,"1- Indigo",0Dh,0Ah,
DB "The ticket           Price",0Dh,0Ah
DB "Under 6 years old    1000 Rs",0Dh,0Ah
DB "Adults               1500 Rs",0Dh,0Ah
DB "seniors              1250 Rs",0Dh,0Ah,'$'

SpiceJet:
DB "2- SpiceJet",0Dh,0Ah,
DB "The ticket           Price",0Dh,0Ah
DB "Under 6 years old    1100 Rs",0Dh,0Ah
DB "Adults               1350 Rs",0Dh,0Ah
DB "seniors              1150 Rs",0Dh,0Ah,'$'

Vistara:
DB "3- Vistara",0Dh,0Ah,
DB "The ticket           Price",0Dh,0Ah
DB "Under 6 years old    1050 Rs",0Dh,0Ah
DB "Adults               1500 Rs",0Dh,0Ah
DB "seniors              1350 Rs",0Dh,0Ah,'$'

GoAir:
DB "4- GoAir",0Dh,0Ah,
DB "The ticket           Price",0Dh,0Ah
DB "Under 6 years old    1100 Rs",0Dh,0Ah
DB "Adults               1600 Rs",0Dh,0Ah
DB "seniors              1350 Rs",0Dh,0Ah,'$'

Air_India:
DB "5- Air_India",0Dh,0Ah,
DB "The ticket           Price",0Dh,0Ah
DB "Under 6 years old    1150 Rs",0Dh,0Ah
DB "Adults               1400 Rs",0Dh,0Ah
DB "seniors              1250 Rs",0Dh,0Ah,'$'
```



```

Air_Indigo:
    DB "5- Air_India",0Dh,0Ah,
    DB "The ticket      Price",0Dh,0Ah
    DB "Under 6 years old    1150 Rs",0Dh,0Ah
    DB "Adults              1400 Rs",0Dh,0Ah
    DB "seniors              1350 Rs",0Dh,0Ah,'$'

flight:    DB 0Dh,0Ah,"What flight would you like to go to (1-Indigo , 2-SpiceJet, 3-Vistara, 4-GoAir, 5-Air_India)? ",'$'
ticket:    DB 0Dh,0Ah,"What ticket would you like to buy (1-child , 2-adult , 3-seniors)? ",'$'
ticket_number: DB 0Dh,0Ah,"How many ticket do you want to buy ",'$'

child_Indigo    DD 1000 ; child Price
adult_Indigo    DD 1500 ; adult Price
seniors_Indigo  DD 1250 ; seniors Price

child_SpiceJet  DD 1100 ; child Price
adult_SpiceJet  DD 1350 ; adult Price
seniors_SpiceJet DD 1150 ; seniors Price

child_Vistara   DD 1050 ; child Price
adult_Vistara   DD 1500 ; adult Price
seniors_Vistara DD 1350 ; seniors Price

child_GoAir     DD 1100 ; child Price
adult_GoAir     DD 1600 ; adult Price
seniors_GoAir   DD 1450 ; seniors Price

child_Air_India DD 1150 ; child Price
adult_Air_India DD 1400 ; adult Price
seniors_Air_India DD 1350 ; seniors Price

flight_type DB 0
ticket_type DB 0
ticket_num  DD 0
ticket_price DD 0
result      DD 0

.code

begin:
    mov ax,@data
    mov ds,ax

start:
; Code to display the menu
    mov dx, offset menu
    mov ah, 09h
    int 21h

;code to choose one choice from the menu
get_choice:

    mov ah, 1
    int 21h

    ; first choice
    cmp al, '1'
    je FIRST_CHOICE

    ; second choice
    cmp al, '2'
    je SECOND_CHOICE

    ; third choice
    cmp al, '3'
    je THIRD_CHOICE

    jmp get_choice

;===== Get a flight_info =====
FIRST_CHOICE:
    ; Code to display the flight_info message
    mov dx, offset flight_info
    mov ah, 9
    int 21h

    mov dx, offset CRLF
    MOV AH,9
    INT 21H

    ; return to menu
    jmp start

;===== book a ticket =====
SECOND_CHOICE:
    ; Code to display the flight type message
    mov dx, offset CRLF
    MOV AH,9
    INT 21H
    mov dx, offset Indigo
    mov ah, 9
    int 21h

    mov dx, offset CRLF
    MOV AH,9
    INT 21H

    mov dx, offset SpiceJet
    mov ah, 9
    int 21h

    mov dx, offset CRLF
    MOV AH,9
    INT 21H

    mov dx, offset Vistara
    mov ah, 9
    int 21h

    mov dx, offset CRLF
    MOV AH,9
    INT 21H

    mov dx, offset GoAir
    mov ah, 9
    int 21h

```

```

    mov dx, offset CRLF
MOV AH,9
INT 21H

mov dx, offset Air_India
mov ah, 9
int 21h

mov dx, offset flight
mov ah, 9
int 21h

; Get the flight type
MOV AH, 1
INT 21H
mov flight_type, al

; Code to display the ticket_type message
mov dx, offset ticket
mov ah, 9
int 21h

; Get the ticket type
MOV AH, 1
INT 21H
mov ticket_type, al

; Code to display the ticket_number message
mov dx, offset ticket_number
mov ah, 9
int 21h

; Get the ticket number
call INDEC
mov ticket_num, ax

; check the flight type
cmp flight_type, '1'
je Indigo_flight
cmp flight_type, '2'
je SpiceJet_flight
cmp flight_type, '3'
je Vistara_flight
cmp flight_type, '4'
je GoAir_flight
cmp flight_type, '5'
je Air_India_flight
jmp SECOND_CHOICE

; code for the film flight
Indigo_flight:
; child ticket
cmp ticket_type, '1'
jne ADULT_ticket_Indigo
mov ax, child_Indigo
mov ticket_price, ax
jmp calculate

; adult ticket
ADULT_ticket_Indigo:
cmp ticket_type, '2'
jne seniors_ticket_Indigo
mov ax, adult_Indigo
mov ticket_price, ax
jmp calculate

; seniors ticket
seniors_ticket_Indigo:
cmp ticket_type, '3'
jne SECOND_CHOICE
mov ax, seniors_Indigo
mov ticket_price, ax
jmp calculate

SpiceJet_flight:
; child ticket
cmp ticket_type, '1'
jne ADULT_ticket_SpiceJet
mov ax, child_SpiceJet
mov ticket_price, ax
jmp calculate

; adult ticket
ADULT_ticket_SpiceJet:
cmp ticket_type, '2'
jne seniors_ticket_SpiceJet
mov ax, adult_SpiceJet
mov ticket_price, ax
jmp calculate

; seniors ticket
seniors_ticket_SpiceJet:
cmp ticket_type, '3'
jne SECOND_CHOICE
mov ax, seniors_SpiceJet
mov ticket_price, ax
jmp calculate

; code for the flight
Vistara_flight:
; child ticket
cmp ticket_type, '1'
jne ADULT_ticket_Vistara
mov ax, child_Vistara
mov ticket_price, ax

```

```

; code for the flight
Vistara_flight:
; child ticket
cmp ticket_type, '1'
jne ADULT_ticket_Vistara
mov ax, child_Vistara
mov ticket_price, ax
jmp calculate

; adult ticket
ADULT_ticket_Vistara:
cmp ticket_type, '2'
jne seniors_ticket_Vistara
mov ax, adult_Vistara
mov ticket_price, ax
jmp calculate

; seniors ticket
seniors_ticket_Vistara:
cmp ticket_type, '3'
jne SECOND_CHOICE
mov ax, seniors_Vistara
mov ticket_price, ax
jmp calculate

GoAir_flight:
; child ticket
cmp ticket_type, '1'
jne ADULT_ticket_GoAir
mov ax, child_GoAir
mov ticket_price, ax
jmp calculate

; adult ticket
ADULT_ticket_GoAir:
cmp ticket_type, '2'
jne seniors_ticket_GoAir
mov ax, adult_GoAir
mov ticket_price, ax
jmp calculate

; seniors ticket
seniors_ticket_GoAir:
cmp ticket_type, '3'
jne SECOND_CHOICE
mov ax, seniors_GoAir
mov ticket_price, ax
jmp calculate

Air_India_flight:
; child ticket
cmp ticket_type, '1'
jne ADULT_ticket_Air_India
mov ax, child_Air_India
mov ticket_price, ax

; calculate price
calculate:
mov cx, ticket_num
mov ax, ticket_price
mul cx ; ticket_num * ticket_price
mov result, ax

; Code to display the total bill message
mov dx, offset CRLF
MOV AH,9
INT 21H
mov dx, offset totalbill
MOV AH,9
INT 21H

mov ax, result
call OUTDEC

mov dx, offset CRLF
MOV AH,9
INT 21H

jmp start

THIRD_CHOICE:
mov ah,4Ch
int 21h

INDEC PROC

PUSH BX
PUSH CX
PUSH DX

JMP @READ

@SKIP_BACKSPACE:
MOV AH, 2
MOV DL, 20H
INT 21H

@READ:
XOR BX, BX
XOR CX, CX
XOR DX, DX

MOV AH, 1
INT 21H

CMP AL, '-'
JE @MINUS

CMP AL, '+'
JE @PLUS

```

```

@MINUS:
MOV CH, 1
INC CL
JMP @INPUT

@PLUS:
MOV CH, 2
INC CL

@INPUT:
MOV AH, 1
INT 21H

@SKIP_INPUT:

CMP AL, 0DH
JE @END_INPUT

CMP AL, 8H
JNE @NOT_BACKSPACE

CMP CH, 0
JNE @CHECK_REMOVE_MINUS

CMP CL, 0
JE @SKIP_BACKSPACE
JMP @MOVE_BACK

@CHECK_REMOVE_MINUS:

CMP CH, 1
JNE @CHECK_REMOVE_PLUS

CMP CL, 1
JE @REMOVE_PLUS_MINUS

@CHECK_REMOVE_PLUS:

CMP CL, 1
JE @REMOVE_PLUS_MINUS
JMP @MOVE_BACK

@REMOVE_PLUS_MINUS:
MOV AH, 2
MOV DL, 20H
INT 21H

MOV DL, 8H
INT 21H

JMP @READ

```

```

@MOVE_BACK:
MOV AH, 2
MOV DL, 20H
INT 21H

MOV DL, 8H
INT 21H

XOR DX, DX
DEC CL

JMP @INPUT

@NOT_BACKSPACE:

INC CL

CMP AL, 30H
JL @ERROR

CMP AL, 39H
JG @ERROR

AND AX, 000FH

PUSH AX

MOV AX, 10
MUL BX
MOV BX, AX

POP AX

ADD BX, AX
JS @ERROR
JMP @INPUT

@ERROR:

MOV AH, 2
MOV DL, 7H
INT 21H

XOR CH, CH

@CLEAR:
MOV DL, 8H
INT 21H

MOV DL, 20H
INT 21H

MOV DL, 8H
INT 21H
LOOP @CLEAR

JMP @READ

```

```

JNE @EXIT
NEG BX

@EXIT:
MOV AX, BX

POP DX
POP CX
POP BX

RET
INDEC ENDP

OUTDEC PROC
PUSH BX
PUSH CX
PUSH DX

CMP AX, 0
JGE @START

PUSH AX

MOV AH, 2
MOV DL, '-'
INT 21H
POP AX
NEG AX

@START:
XOR CX, CX
MOV BX, 10

@OUTPUT:
XOR DX, DX
DIV BX
PUSH DX
INC CX
OR AX, AX
JNE @OUTPUT

MOV AH, 2


@DISPLAY:
POP DX
OR DL, 30H
INT 21H
LOOP @DISPLAY

POP DX
POP CX
POP BX
RET
OUTDEC ENDP

HLT

```

## Output

 emulator screen (94x25 chars)

```

- View flights from Mumbai
2- Book a ticket
3- Exit the application
please choose: _

```

```
1- View flights from Mumbai
2- Book a ticket
3- Exit the application
please choose: 1
```

flight name	Destination	Flight number	Timing
Indigo	Indore	6E-624	21:35 - 22:45 (1hr 10min)
SpiceJet	Chennai	SG-325	22:15 - 00:05+1D (1hr 50min)
Vistara	Bangalore	UK-857	21:30 - 23:10 (1hr 40min)
GoAir	Delhi	G8-325+G8-238	21:45 - 8:05+1D (10hr 20min)
Air_India	Pune	AI-430+AI-538	21:45 - 6:45+1D (9hr)

```
1- View flights from Mumbai
2- Book a ticket
3- Exit the application
please choose: 2
```

```
1- View flights from Mumbai
2- Book a ticket
3- Exit the application
please choose: 2
```

```
1- Indigo
The ticket      Price
Under 6 years old 1000 Rs
Adults          1500 Rs
seniors         1250 Rs
```

```
2- SpiceJet
The ticket      Price
Under 6 years old 1100 Rs
Adults          1350 Rs
seniors         1150 Rs
```

```
3- Vistara
The ticket      Price
Under 6 years old 1050 Rs
Adults          1500 Rs
seniors         1350 Rs
```

```
4- GoAir
The ticket      Price
Under 6 years old 1100 Rs
Adults          1600 Rs
seniors         1350 Rs
```

```
5- Air_India
The ticket      Price
Under 6 years old 1150 Rs
Adults          1400 Rs
seniors         1350 Rs
```

```
emulator screen (122x40 chars)

The ticket      Price
Under 6 years old 1000 Rs
Adults          1500 Rs
seniors         1250 Rs

2- SpiceJet
The ticket      Price
Under 6 years old 1100 Rs
Adults          1350 Rs
seniors         1150 Rs

3- Vistara
The ticket      Price
Under 6 years old 1050 Rs
Adults          1500 Rs
seniors         1350 Rs

4- GoAir
The ticket      Price
Under 6 years old 1100 Rs
Adults          1600 Rs
seniors         1350 Rs

5- Air India
The ticket      Price
Under 6 years old 1150 Rs
Adults          1400 Rs
seniors         1350 Rs

What flight would you like to go to <1-Indigo , 2-SpiceJet, 3-Vistara, 4-GoAir, 5-Air_India)? 3
What ticket would you like to buy <1-child , 2-adult , 3-seniors)? 2
How many ticket do you want to buy 4

The total bill is: 6000

1- View flights from Mumbai
2- Book a ticket
3- Exit the application
```

```
emulator screen (122x40 chars)

The ticket      Price
Under 6 years old 1000 Rs
Adults          1500 Rs
seniors         1250 Rs

2- SpiceJet
The ticket      Price
Under 6 years old 1100 Rs
Adults          1350 Rs
seniors         1150 Rs

3- Vistara
The ticket      Price
Under 6 years old 1050 Rs
Adults          1500 Rs
seniors         1350 Rs

4- GoAir
The ticket      Price
Under 6 years old 1100 Rs
Adults          1600 Rs
seniors         1350 Rs

5- Air India
The ticket      Price
Under 6 years old 1150 Rs
Adults          1400 Rs
seniors         1350 Rs

What flight would you like to go to <1-Indigo , 2-SpiceJet, 3-
What ticket would you like to buy <1-child , 2-adult , 3-seni
How many ticket do you want to buy 4

The total bill is: 6000

1- View flights from Mumbai
2- Book a ticket
3- Exit the application
```

emulator: flight.com\_

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers

	H	L
AX	4C	33
BX	00	00
CX	00	04
DX	01	03
CS	F400	
IP	0204	
SS	0700	
SP	FFFF	
BP	0000	
SI	0000	
DI	0000	
DS	0700	
ES	0700	

message

PROGRAM HAS RETURNED CONTROL TO THE OPERATING SYSTEM

OK

F420F:	00 000	NULL	ADD [BX + SI], AL
F4210:	00 000	NULL	ADD [BX + SI], AL
F4211:	00 000	NULL	ADD [BX + SI], AL
F4212:	00 000	NULL	ADD [BX + SI], AL
F4213:	00 000	NULL	ADD [BX + SI], AL
F4214:	00 000	NULL	ADD [BX + SI], AL
F4215:	00 000	NULL	...

screen source reset aux vars debug stack flags

## **Result**

Using this interface, customers will have immediate information about the available flight and the destination.

The user can choose the ticket according to their preference and their respective age. This interface will reduce the stress of manual ticket booking.



# Conclusion and Scope for future Work

## Conclusion

We successfully developed a working menu driven Flight Reservation System in emu8086. In this project, we aimed to develop these modules:

- 🕒 Display flight information.
- 🕒 Book the flight tickets with user defined destination and age groups.
- 🕒 Show the Total bill amount and ask the user for further ticket booking/ exit the system.

## Future Scope

This program can be improved drastically by providing a better UI/UX to user as well as improving the billing functionality so that users can see clearly which tickets were booked under what categories, their subtotal and the breakdown of total amount.

This flight reservation system logic can further be applied to a majority of other systems, like a EMU8086 based shopping system/ any conglomerate of system.

where a user buys something under categories and subcategories, in this project, User buys a movie ticket under different genres/ locations/time and subcategories like adult/child flight ticket.

## References

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Github Link: [https://github.com/shivam24-2000/Flight\\_Reservation\\_System](https://github.com/shivam24-2000/Flight_Reservation_System)