



CENG 241
OBJECT ORIENTED PROGRAMMING

Flight Reservation System

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1. INTRODUCTION

Program Language: C++

Main Programs Name: Flight Reservation System

Compiler: CLion and DevC++

A flight reservation system is a software used for managing transportation for flight companies.

1.1 Purpose

The purpose of our program is to provide the customers easy and understandable system for their flight reservation.

We aim to create a simple reservation system for customers easy use. The program provides its customers to choose their flights, flight packages, and their seats. In the program there are 3 different types of flight packages, each package has its price.

The program also provides a discount for children.

1.2 Scope

We created a system plan by analyzing some other flight company's websites, to figure out what data the system needs. Then we created a class diagram to figure out how the system is going to work. Then we transfer our algorithm and class diagram into code by using C++. Last, of all, we tested our program many times for testing the accuracy of our program.

2. DESIGN

2.1 Approach

Our program is based on a simple and easily understandable menu. Information that is needed for the user to buy a ticket is very clear in the program.

2.2 System

With this program, users can buy a ticket, check their ticket, choose where they want to go, choose when they want to go. The menu system works by the user to input their choice, generally by numbers.

```
Welcome To The Fligh Reservation System
-----
1 - Buy Ticket
2 - Check ticket
0 - Exit
->
```

When the user wants to buy the ticket the program will print the flights on its system. And ask the user where they want to go:

```
International flights are transferred from Istanbul.
1 - Istanbul          SAW
2 - Izmir             ADB
3 - Antalya           AYT
4 - Mugla             BJV
5 - Adana             ADA
6 - Samsun            SZF
7 - Paris-France      ORY
8 - Berlin-Germany    BER
9 - Roma-Italy        FCO
10 - NewYork-US       JFK
11 - Toronto-Canada   YTZ

Where do you want to go ?
->
```

When the user chooses their destination, the program will ask the user when they want to travel:

```
International flights are transferred from Istanbul.
1 - Istanbul          SAW
2 - Izmir             ADB
3 - Antalya           AYT
4 - Mugla             BJV
5 - Adana             ADA
6 - Samsun            SZF
7 - Paris-France      ORY
8 - Berlin-Germany    BER
9 - Roma-Italy        FCO
10 - NewYork-US       JFK
11 - Toronto-Canada   YTZ

Where do you want to go ?
-> 1

You will go from Ankara (ESB) to Istanbul (SAW)

Enter DAY & MONTH (01.01.2022-30.06.2022) ->
```

Then the program asks the user what time do they want to travel:

```
International flights are transferred from Istanbul.
1 - Istanbul          SAW
2 - Izmir             ADB
3 - Antalya           AYT
4 - Mugla             BJV
5 - Adana             ADA
6 - Samsun            SZF
7 - Paris-France      ORY
8 - Berlin-Germany    BER
9 - Roma-Italy        FCO
10 - NewYork-US       JFK
11 - Toronto-Canada   YTZ

Where do you want to go ?
-> 1

You will go from Ankara (ESB) to Istanbul (SAW)

Enter DAY & MONTH (01.01.2022-30.06.2022) -> 01 01

Pick a time :
1 - 04:10
2 - 13:19
3 - 16:04
->
```

Then the program asks the user which company do they prefer:

```
1 - Istanbul      SAW
2 - Izmir         ADB
3 - Antalya       AYT
4 - Mugla         BJV
5 - Adana         ADA
6 - Samsun        SZF
7 - Paris-France  ORY
8 - Berlin-Germany BER
9 - Roma-Italy    FCO
10 - NewYork-US   JFK
11 - Toronto-Canada YTZ

Where do you want to go ?
-> 1

You will go from Ankara (ESB) to Istanbul (SAW)

Enter DAY & MONTH (01.01.2022-30.06.2022) -> 01 01

Pick a time :
1 - 04:42
2 - 12:13
3 - 17:29
-> 1

Ticket prices :
1 - Turk Haya Yollari - 291.27 (economy).
2 - Pegasus - 270.465 (economy).
Choose a company -> 
```

After choosing the company program offers an exit, in case of any wrong input by the user:

```
Do you want to go back?
Return to the city selection, press 1
Return to the date selection, press 2
Return to the time selection, press 3
Return to the company selection, press 4
NO. press any number else
-> 
```

If the user wants to continue with purchasing, seats will be printed and occupied seats will be shown with an asterisk next to the seat number, then ask the user how many seats they want to buy:

```
***** VIP Seats *****
1*  2*    3   4
5   6*    7   8*
9* 10*   11* 12

*** Business Seats ***
13 14*   15 16
17* 18*  19* 20
21* 22   23* 24*
25* 26*  27* 28*
29* 30   31* 32*

*** Economy Seats *****
33* 34*   35* 36
37* 38   39* 40
41* 42*   43* 44
45* 46*   47* 48*
49* 50*   51* 52
53* 54*   55* 56*
57* 58   59* 60*
61 62*   63* 64
65* 66*   67* 68*
69* 70*   71* 72*
73* 74   75 76
77 78*   79* 80*
81* 82   83* 84
85* 86*   87* 88
89* 90   91 92

How many seats do you want to buy -> 4
```

Then the program asks the user which seat they want to buy, if user chooses occupied seats, program gives an error and asks user to choose a seat again:

```
***** VIP Seats *****
1*  2*    3   4
5   6*    7   8*
9* 10*   11* 12

*** Business Seats ***
13 14*   15 16
17* 18*  19* 20
21* 22   23* 24*
25* 26*  27* 28*
29* 30   31* 32*

*** Economy Seats *****
33* 34*   35* 36
37* 38   39* 40
41* 42*   43* 44
45* 46*   47* 48*
49* 50*   51* 52
53* 54*   55* 56*
57* 58   59* 60*
61 62*   63* 64
65* 66*   67* 68*
69* 70*   71* 72*
73* 74   75 76
77 78*   79* 80*
81* 82   83* 84
85* 86*   87* 88
89* 90   91 92

How many seats do you want to buy -> 4

Choose seats -> 3 13 75 76
```

Based on how many seats does the user wants to buy, the program asks how many children are going to be passengers in economy class:

```
***** VIP Seats *****
1*  2*    3   4
5   6*    7   8*
9*  10*   11* 12

*** Business Seats ***
13  14*   15  16
17* 18*   19* 20
21* 22    23* 24*
25* 26*   27* 28*
29* 30    31* 32*

*** Economy Seats *****
33* 34*   35* 36
37* 38    39* 40
41* 42*   43* 44
45* 46*   47* 48*
49* 50*   51* 52
53* 54*   55* 56*
57* 58    59* 60*
61  62*   63* 64
65* 66*   67* 68*
69* 70*   71* 72*
73* 74    75  76
77  78*   79* 80*
81* 82    83* 84
85* 86*   87* 88
89* 90    91  92

How many seats do you want to buy -> 4

Choose seats -> 3 13 75 76

How many children? (children must be accompanied by at least one adult):
There are not enough seats for a child in vip seats.

There are not enough seats for a child in bussines seats.

How many children in economy -> 1
```


Then based on their seat number(which is connected to the flight package), the number of children, and the company of choice ticket price will calculate, and ask the user if they want to purchase the ticket or not:

```
Your Ticket price : 1537.38
Do you want to buy ?
1 - Yes
2 - Go back and change something
Otherwise - No
->
```

If the user chooses to buy the ticket, program asks the user their personal information:

```
Your Ticket price : 1537.38
Do you want to buy ?
1 - Yes
2 - Go back and change something
Otherwise - No
-> 1
Please enter the customer(s) information:
Please enter the 1. passengers name: Name Surname
Please enter the 1. passengers gender: Female
Please enter the 1. passengers birth date: 02.06.1990
Please enter the 1. passengers email address: namesurname@gmail.com
Please enter the 1. passengers telephone number(10 digits): 1234567890
Please enter the 1. passengers ID number(11 digits): 12345678910
```

After the user inputs their personal information, the program asks for their payment information, and whether or not do the user want to purchase a return ticket or not:

```
Your Ticket price : 1537.38
Do you want to buy ?
1 - Yes
2 - Go back and change something
Otherwise - No
-> 1
Please enter the customer(s) information:
Please enter the 1. passengers name: Name Surname
Please enter the 1. passengers gender: Female
Please enter the 1. passengers birth date: 02.06.1990
Please enter the 1. passengers email address: namesurname@gmail.com
Please enter the 1. passengers telephone number(10 digits): 1234567890
Please enter the 1. passengers ID number(11 digits): 12345678910
-----Payment-----
Please enter the credit cards holders name: Name Surname
Please enter the card number(16 digits): 1234567890123456
Please enter the credit card CVC(3 digits): 123
Please enter the credit expiration date:(DD.MM.YYYY)(10 digits): 01.02.2023

Would you like to buy a return ticket?
1 - Yes
Otherwise - No
->
```

If the user chooses to buy a return ticket, the program prints a similar menu to before:

```
Enter DAY & MONTH (2.1.2022-30.06.2022) ->02 02

Pick a time :
1 - 03:05
2 - 12:40
3 - 16:35
-> 1

Ticket prices :
1 - Turk Haya Yollari - 260.61 (economy).
2 - Pegasus - 241.995 (economy).
Choose a company -> 1
```

```
***** VIP Seats *****
1   2       3   4
5   6       7   8

*** Business Seats ***
9   10      11  12
13* 14      15  16*
17   18      19  20

*** Economy Seats *****
21  22      23* 24
25* 26      27  28
29  30      31  32
33  34      35  36
37  38      39* 40
41  42      43  44
45  46      47  48
49  50*     51* 52
53  54      55  56

How many seats do you want to buy -> 4

Choose seats -> 1 2 3 4

How many children? (children must be accompanied by at least one adult):
How many children in vip -> 1
```

If the user wants to check their ticket, the program asks for their ID number:

```
1 - Buy Ticket
2 - Check ticket
0 - Exit
-> 2

Enter your ID please : █
```

When the user enters their ID number, their flight information is printed:

```
1 - Buy Ticket
2 - Check ticket
0 - Exit
-> 2

Enter your ID please : 12345678910

Dear Name Surname your ticket is :

From : Ankara (ESB) to : Istanbul (SAW)
Price : 1537.38
Fligth date(D.M.Y) : 1.1.2022
Fligth time : 13:19

Number of adult ticket in vip : 1
Number of child ticket in vip : 0
Number of adult ticket in bussiness : 1
Number of child ticket in bussiness : 0
Number of adult ticket in economy : 1
Number of child ticket in economy : 1
Your seat numbers : 3 13 75 76

Dear Name Surname your ticket is :

From : Istanbul (SAW) to : Ankara (ESB)
Price : 2032.76
Fligth date(D.M.Y) : 2.2.2022
Fligth time : 03:05

Number of adult ticket in vip : 3
Number of child ticket in vip : 1
Number of adult ticket in bussiness : 0
Number of child ticket in bussiness : 0
Number of adult ticket in economy : 0
Number of child ticket in economy : 0
Your seat numbers : 1 2 3 4

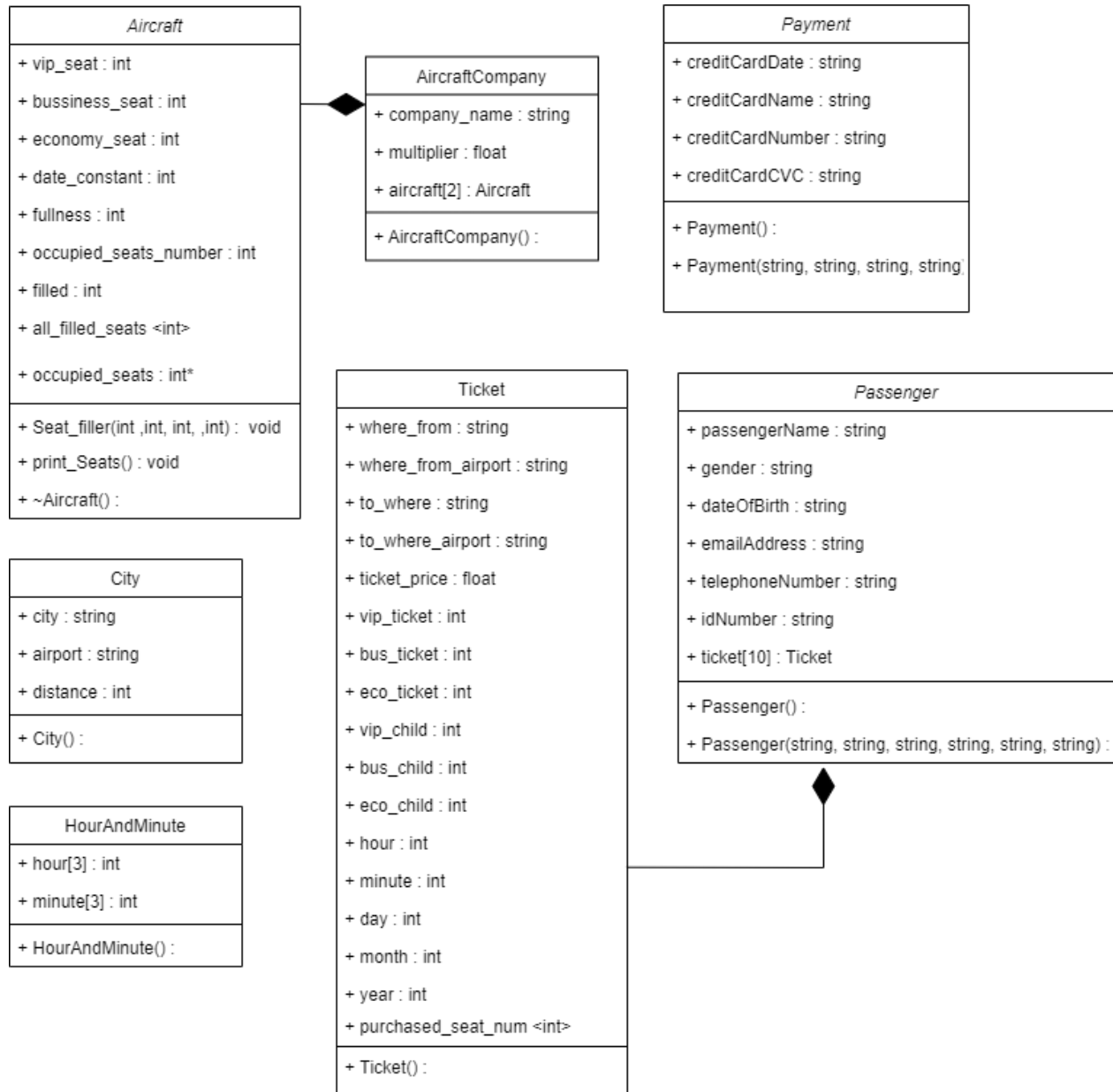
Press any key to continue . . .
```

If the user wants to exit the program:

```
1 - Buy Ticket  
2 - Check ticket  
0 - Exit  
-> 0  
  
BYE !
```

2.3 System Design

Class Diagram:



3. CONCLUSION

This flight reservation system, was written with the needs of the users in mind. In this program, we have developed it by taking the advanced systems used today as an example. It was prepared according to the topics covered in the Ceng 241 course (functions, classes, vectors, dynamic memory, etc.) and it has been developed by using C++ (object-oriented) language. We believe that, the errors and warnings while writing this program that we encountered, will make us a better program developer in business life.