

THE AIRPLANE RESERVATION SYSTEM

PROJECT REPORT

18CSC202J/ 18AIC203J - OBJECT ORIENTED DESIGN AND PROGRAMMING LABORATORY

(2018 Regulation)

II Year/ III Semester

Academic Year: 2022 -2023

By

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Kattankulathur, Kancheepuram

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BONAFIDE

This is to certify that **18CSC202J - OBJECT ORIENTED DESIGN AND PROGRAMMING LABORATORY project report** titled “**AIRPLANE RESERVATION SYSTEM**” is the bonafide work of **JAYESH SINGH (RA2111026010435) & NIBHRITI SARKAR (RA2111026010427)**

who undertook the task of completing the project within the allotted time.

Signature of the Guide

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About the course: -

18CSC202J/ 8AIC203J - Object Oriented Design and Programming are 4 credit courses with **L T P C as 3-0-2-4** (Tutorial modified as Practical from 2018 Curriculum onwards)

Objectives :

The student should be made to:

- Learn the basics of OOP concepts in C++
- Learn the basics of OOP analysis and design skills.
- Be exposed to the UML design diagrams.
- Be familiar with the various testing techniques

Course Learning Rationale (CLR): The purpose of learning this course is to:

- 1.Utilize class and build domain model for real-time programs
- 2.Utilize method overloading and operator overloading for real-time application development programs
- 3.Utilize inline, friend and virtual functions and create application development programs
- 4.Utilize exceptional handling and collections for real-time object-oriented programming applications
- 5.Construct UML component diagram and deployment diagram for design of applications
- 6.Create programs using object-oriented approach and design methodologies for real-time application development

Course Learning Outcomes (CLO): At the end of this course, learners will be able to:

- 1.Identify the class and build domain model
- 2.Construct programs using method overloading and operator overloading
- 3.Create programs using inline, friend and virtual functions, construct programs using standard templates
- 4.Construct programs using exceptional handling and collections
- 5.Create UML component diagram and deployment diagram
- 6.Create programs using object oriented approach and design methodologies

Table 1: Rubrics for Laboratory Exercises

(Internal Mark Splitup:- As per Curriculum)

CLAP-1	5=(2(E-lab Completion) + 2(Simple Exercises)(from CodeZinger, and any other coding platform) + 1(HackerRank/Code chef/LeetCode Weekend Challenge)	Elab test
CLAP-2	7.5=(2.0(E-lab Completion)+ 2.0 (Simple Exercises)(from CodeZinger, and any other coding platform) + 3.5 (HackerRank/Code chef/LeetCode Weekend Challenge)	Elab test
CLAP-3	7.5=(2.0(E-lab Completion(80 Pgms)+ 2.0 (Simple Exercises)(from CodeZinger, and any other coding platform) + 3.5 (HackerRank/Code chef/LeetCode Weekend Challenge)	2 Mark - E-lab Completion 80 Program Completion from 10 Session (Each session min 8 program) 2 Mark - Code to UML conversion GCR Exercises 3.5 Mark - Hacker Rank Coding challenge completion
CLAP-4	5= 3 (Model Practical) + 2(Oral Viva)	<ul style="list-style-type: none"> • 3 Mark – Model Test • 2 Mark – Oral Viva
Total	25	

COURSE ASSESSMENT PLAN FOR OODP LAB

S.No	List of Experiments	Course Learning Outcomes (CLO)	Blooms Level	PI	No of Programs in each session
1.	Implementation of I/O Operations in C++	CLO-1	Understand	2.8.1	10
2.	Implementation of Classes and Objects in C++	CLO-1	Apply	2.6.1	10
3.	To develop a problem statement. 1. From the problem statement, Identify Use Cases and develop the Use Case model. 2. From the problem statement, Identify the conceptual classes and develop a domain model with a UML Class diagram.	CLO-1	Analysis	4.6.1	Mini Project Given
4.	Implementation of Constructor Overloading and Method Overloading in C++	CLO-2	Apply	2.6.1	10
5.	Implementation of Operator Overloading in C++	CLO-2	Apply	2.6.1	10
6.	Using the identified scenarios, find the interaction between objects and represent them using UML Sequence diagrams and Collaboration diagrams	CLO-2	Analysis	4.6.1	Mini Project Given
7.	Implementation of Inheritance concepts in C++	CLO-3	Apply	2.6.1	10
8.	Implementation of Virtual function & interface concepts in C++	CLO-3	Apply	2.6.1	10
9.	Using the identified scenarios in your project, draw relevant state charts and activity diagrams.	CLO-3	Analysis	4.6.1	Mini Project Given
10.	Implementation of Templates in C++	CLO-3	Apply	2.6.1	10
11.	Implementation of Exception of Handling in C++	CLO-4	Apply	2.6.1	10

12.	Identify the User Interface, Domain objects, and Technical Services. Draw the partial layered, logical architecture diagram with UML package diagram notation such as Component Diagram, Deployment Diagram.	CLO-5	Analysis	4.6.1	Mini Project Given
13.	Implementation of STL Containers in C++	CLO-6	Apply	2.6.1	10
14.	Implementation of STL associate containers and algorithms in C++	CLO-6	Apply	2.6.1	10
15.	Implementation of Streams and File Handling in C++	CLO-6	Apply	2.6.1	10

LIST OF EXPERIMENTS FOR UML DESIGN AND MODELLING:

To develop a mini-project by following the exercises listed below.

1. To develop a problem statement.
2. Identify Use Cases and develop the Use Case model.
3. Identify the conceptual classes and develop a domain model with UML Class diagram.
4. Using the identified scenarios, find the interaction between objects and represent them using UML Sequence diagrams.
5. Draw relevant state charts and activity diagrams.
6. Identify the User Interface, Domain objects, and Technical services. Draw the partial layered, logical architecture diagram with UML package diagram notation.

Suggested Software Tools for UML:

StarUML, Rational Suite, Argo UML (or) equivalent, Eclipse IDE and Junit

ABSTRACT

Abstract must be a single paragraph in times new roman 14pt with a maximum of 300 words.

Airline reservation System is a computerized system used to store and retrieve information and conduct transactions related to air travel. The project is aimed at exposing the relevance and importance of Airline Reservation Systems. It is projected towards enhancing the relationship between customers and airline agencies through the use of ARSs, and thereby making it convenient for the customers to book the flights as when they require such that they can utilize this software to make reservations. This software has two parts. First is user part and the administrator part. User part is used as a front end and administrator is the back end. Administrator is used by airline authority. It will allow the customers to access database and allow new customers to sign up for online access. The system allows the airline passenger to search for flights that are available between the two travel cities, namely the "Departure city" and "Arrival city" for a particular departure and arrival dates. The system displays all the flight's details such as flight no, name, price, and duration of journey etc. After search the system display list of available flights and allows customer to choose a particular flight. Then the system checks for the availability of seats on the flight. If the seats are available then the system allows the passenger to book a seat. Otherwise, it asks the user to choose another flight. To book a flight the system asks the customer to enter his details such as name, address, city, state, and credit card number and contact number. Then it checks the validity of card and book the flight and update the airline database and user database. The system also allows the customer to cancel his/her reservation, if any problem occurs. The main purpose of this software is to reduce the manual errors involved in the airline reservation process and make it convenient for the customers to book the flights as when they require such that they can utilize this software to make reservations, modify reservations or cancel a particular reservation

MODULE DESCRIPTION

The tickets issued should have the details such as plane number, ticket number, seat

number, traveler's name, time of departure. The traveler should be informed about the check-in

time. The names of the fields involved in the airline reservation system are

- **FLIGHT DETAILS**
- **CHECK AVAILABILITY**
- **BOOK TICKET**
- **EXIT**

MODULE 1: FLIGHT DETAILS

This module is used to view the flight details with ease and it tends the passenger to

book tickets without much difficulty.

MODULE 2: CHECK AVAILABILITY

This module is used to check the availability of the flights and the information of the

seats in that flight.

MODULE 3: BOOK TICKET

This module is used to book the ticket after checking the availability of tickets in

the flights. A ticket can be booked just by entering the passenger's name, age and their details.

MODULE 4: EXIT

This module is used to exit from the reservation form.

PROGRAM

```
#include <iostream>
```

```
#include <math.h>
```

```
#include <iomanip>
```

```
#include <string.h>
```

```
#include <stdlib.h>
```

```
using namespace std;
```

```
int age1=-1,age2=-1,age3=-1,age4=-1,seat1,seat2,seat3,seat4=1,choice1=0,
choice2=0, mDest, menu=0, mTicket, couponOption, couponInvalid,
couponMenu, rTicket=0, a=0, b=0, rDest1=0, rDest2=0, rDest3=0, rDest4=0,
rDest5=0, rDest6=0, rDest7=0;
```

```
double price, rAdultPercent=0.0, rKidPercent=0.0, rTicketAdult=0,
rTicketKid=0, rTotalAmount=0, amount=0, rDiscount=0, rDiscountA,
rDiscountB, rProfit=0;
```

```
float priceAdult, priceKid, priceBusiness;
```

```
char passenger1[50], passenger2[50], passenger3[50], passenger4[50], dest[10],
timee[10], coupon[15], mClass1[20], mClass2[20], mClass3[20], mClass4[20],
departure, purchase, package;
```

```
void voidSeats();
```

```
void voidBoardingPassManual()
```

```
{    rDiscount=0.0;
```

```
    if (mTicket==1||mTicket==2||mTicket==3||mTicket==4)
```

```
    {    if (age1>=18)
```

```
        price=1000+priceAdult;
```

```
    else
```

```

        price=500+priceKid;
    if (seat1>=1&&seat1<=15)
        price=price+priceBusiness;
}
if (mTicket==2||mTicket==3||mTicket==4)
{
    if (age2>=18)
        price=price+1000+priceAdult;
    else
        price=price+500+priceKid;
    if (seat2>=1&&seat2<=15)
        price=price+priceBusiness;
}
if (mTicket==3||mTicket==4)
{
    if (age3>=18)
        price=price+1000+priceAdult;
    else
        price=price+500+priceKid;
    if (seat3>=1&&seat3<=15)
        price=price+priceBusiness;
}
if (mTicket==4)
{
    if (age4>=18)
        price=price+1000+priceAdult;
    else
        price=price+500+priceKid;
    if (seat4>=1&&seat4<=15)
        price=price+priceBusiness;
}

```

```

    }

    cout<<"\n\nYour flight is Boeing-770 (RB 370)";

    cout<<"\n\n A - 8.00AM\n B - 1.30PM\n C - 5.00PM\n D -
10.30PM\nChoose departure time\n";

    do

    {
        cin>>departure;

        if (departure=='A' || departure=='a')

            strcpy(timee,"8.00AM");

        else if (departure=='B' || departure=='b')

            strcpy(timee,"1.30PM");

        else if (departure=='C' || departure=='c')

            strcpy(timee,"5.00PM");

        else if (departure=='D' || departure=='d')

            strcpy(timee,"10.30PM");

        else

            cout<<"\nChoose (A / B / C / D) only\n";

    } while ((departure != 'A' && departure != 'a') && (departure != 'B' &&
departure != 'b') && (departure != 'C' && departure != 'c') && (departure != 'D'
&& departure != 'd'));

    system ("CLS");

    do

    {
        cout<<"\nTotal amount is Rs"<<fixed<<setprecision(2)<<price;

        cout<<"\nDo you want to apply any coupons? (Once)\n1. Yes\n2.
No\n";

        cin>>couponOption;

        system ("CLS");

        if (couponOption==1){

            do

            {
                cout<<"\nEnter your coupon\n";

```

```

cin>>coupon;

if (strcmp(coupon, "AERO15")==0){
    cout<<"\nSuccess, 15% off applied!";
    rDiscountB=15.0/100.0*price;
    price=price-(15.0/100.0*price);
}

else if (strcmp(coupon, "CAPTAIN5")==0)
{
    cout<<"\nSuccess, 5% off applied!";
    rDiscountB=5.0/100.0*price;
    price=price-(5.0/100.0*price);
}

else if (strcmp(coupon, "COPILOT10")==0)
{
    cout<<"\nSuccess, 10% off applied!";
    rDiscountB=10.0/100.0*price;
    price=price-(10.0/100.0*price);
}

else if (strcmp(coupon, "STEWARD10")==0)
{
    cout<<"\nSuccess, 10% off applied!";
    rDiscountB=10.0/100.0*price;
    price=price-(10.0/100.0*price);
}

else if ((strcmp(coupon,
"AERO15")!=0)&&(strcmp(coupon, "STEWARD10")!=0)&&(strcmp(coupon,
"COPILOT10")!=0)&&(strcmp(coupon, "CAPTAIN5")!=0))
{
    do
    {
        couponMenu=0;
        cout<<"\nInvalid coupon\n1. Apply
coupon again\n2. Continue\n";

        cin>>couponInvalid;
    }
}

```

```

        if (couponInvalid==2)

            couponMenu=1;

        else if
(couponInvalid!=1&&couponInvalid!=2)

            cout<<"\n\n***** E R R O
R *****\nInvalid option chosen (1-Enter coupon again 2-Continue without
coupon)\n*****\n";

        } while
(couponInvalid!=1&&couponInvalid!=2);

        system ("CLS");

    }

    } while ((strcmp(coupon,
"AERO15")!=0)&&(strcmp(coupon, "STEWARD10")!=0)&&(strcmp(coupon,
"COPILOT10")!=0)&&(strcmp(coupon,
"CAPTAIN5")!=0)&&couponMenu==0);

    }

    else if (couponOption!=1&&couponOption!=2)

        cout<<"\n\n***** E R R O R *****\nInvalid option chosen
(1-YES 2-NO)\n*****\n";

    } while (couponOption!=1&&couponOption!=2);

    cout<<"\n\nYou have completed your information and details\nTotal
amount : Rs "<<price<<"\n\n(Enter any key to CONFIRM PURCHASE)\n";

    cin.get();cin.get();

    cout<<"\n\n==== P A Y M E N T S U C C E S S F U L
====\n\n(Enter any key to get your BOARDING PASS)\n";

    cin.get();cin.get();

    system ("CLS");

    if (seat1>=16)

        strcpy (mClass1, "Economy Class");

    else

        strcpy (mClass1, "Business Class");

```

```

if (seat2>=16)
    strcpy (mClass2, "Economy Class");
else
    strcpy (mClass2, "Business Class");
if (seat3>=16)
    strcpy (mClass3, "Economy Class");
else
    strcpy (mClass3, "Business Class");
if (seat4>=16)
    strcpy (mClass4, "Economy Class");
else
    strcpy (mClass4, "Business Class");

cout<<"\n\n\n_____\n\n      RAUB AIRLINE
e-Boarding Pass      [Reference Number : UTMRB370]";

cout<<"\n_____\n\n      PASSENGER &
FLIGHT DETAILS\n";

cout<<"\n      "<<passenger1;
cout<<"\n      Age "<<age1<<"      Flight RB370      "<<mClass1;
cout<<"\n      Seat "<<seat1;
cout<<"\n      MUMBAI to "<<dest<<"      "<<timee<<endl;
if (mTicket==2||mTicket==3||mTicket==4)
{
    cout<<"\n      "<<passenger2;
    cout<<"\n      Age "<<age2<<"      Flight RB370
"<<mClass2;
    cout<<"\n      Seat "<<seat2;
    cout<<"\n      MUMBAI to "<<dest<<"      "<<timee<<endl;
}

```

```

        if (mTicket==3||mTicket==4)
        {
            cout<<"\n    "<<passenger3;
            cout<<"\n    Age "<<age3<<"    Flight RB370
"<<mClass3;
            cout<<"\n    Seat "<<seat3;
            cout<<"\n    MUMBAI to "<<dest<<"    "<<timee<<endl;
        }
        if (mTicket==4)
        {
            cout<<"\n    "<<passenger4;
            cout<<"\n    Age "<<age4<<"    Flight RB370
"<<mClass4;
            cout<<"\n    Seat "<<seat4;
            cout<<"\n    MUMBAI to "<<dest<<"    "<<timee<<endl;
        }
        cout<<"\n    TOTAL AMOUNT : "<<fixed<<setprecision(2)<<price;
        cout<<"\n_____
_____\\n(Enter any key to return to
Main Menu)\\n";

        cin.get();cin.get();

        if (mDest==1)
            rDest1=rDest1+mTicket;
        else if (mDest==2)
            rDest2=rDest2+mTicket;
        else if (mDest==3)
            rDest3=rDest3+mTicket;
        else if (mDest==4)
            rDest4=rDest4+mTicket;
        else if (mDest==5)
            rDest5=rDest5+mTicket;

```

```

else if (mDest==6)
    rDest6=rDest6+mTicket;
else if (mDest==7)
    rDest7=rDest7+mTicket;
rTotalAmount=rTotalAmount+price+rDiscountB;
rDiscount=rDiscount+rDiscountB;
system ("CLS");
}
void voidFirstPassenger()
{
    cout<<"\n\nEnter 1st passenger name\n";
    cin.get();cin.getline(passenger1, 50);
    cout<<"\n\nEnter 1st passenger age\n";
    cin>>age1;
    voidSeats();
    do
    {
        cin>>seat1;
        if (seat1>81 || seat1<1)
            cout<<"\n\n***** E R R O R *****\nAvailable seats for this flight
is 1-81 only\n*****\nChoose available seat\n";
    } while (seat1>81 || seat1<1);
    system ("CLS");
}
void voidSecondPassenger()
{
    cout<<"\n\nEnter 2nd passenger name\n";
    cin.get();
    cin.getline(passenger2, 50);

```



```

        cout<<"\n\nEnter 2nd passenger age\n";
        cin>>age2;
        voidSeats();
        do
        {
            do
            {
                cin>>seat2;

                if (seat2>81 || seat2<1)

                    cout<<"\n\n***** E R R O R *****\nAvailable seats
for this flight is 1-81 only\n*****\nChoose available
seat\n";

            }
            while (seat2>81 || seat2<1);

            if (seat2==seat1)

                cout<<"\n\n***** E R R O R *****\nSeat "<<seat1<<" has
been taken\n*****\nChoose another seat\n";

        }
        while (seat2==seat1);

        system ("CLS");
    }

void voidThirdPassenger()
{
    cout<<"\n\nEnter 3rd passenger name\n";
    cin.get();cin.getline(passenger3, 50);
    cout<<"\n\nEnter 3rd passenger age\n";
    cin>>age3;
    voidSeats();
    do
    {
        do
        {
            cin>>seat3;

            if (seat3>81 || seat3<1)

```

```

        cout<<"\n\n***** E R R O R *****\nAvailable seats
for this flight is 1-81 only\n*****\nChoose available
seat\n";

```

```

    }    while (seat3>81 || seat3<1);

```

```

    if (seat3==seat1||seat3==seat2)

```

```

        cout<<"\n\n***** E R R O R *****\nSeat "<<seat1<<" and
"<<seat2<<" has been taken\n*****\nChoose another
seat\n";

```

```

    }    while (seat3==seat1||seat3==seat2);

```

```

    system ("CLS");

```

```

}

```

```

void voidSeats()

```

```

{

```

```

    cout<<"\n
_____ \n\n\n";

```

```

    cout<<"          01      02      03          \n";

```

```

    cout<<"          04      05      06      BUSINESS \n";

```

```

    cout<<"          07      08      09      CLASS    \n";

```

```

    cout<<"          10      11      12          \n";

```

```

    cout<<"          13      14      15          \n";

```

```

    cout<<"          _____ \n\n";

```

```

    cout<<"          16 17  18 19  21 22          \n";

```

```

    cout<<"          23 24  25 26  27 28          \n";

```

```

    cout<<"          29 30  31 32  33 34          \n";

```

```

    cout<<"          35 36  37 38  39 40          \n";

```

```

    cout<<"          41 42  43 44  45 46      ECONOMY  \n";

```

```

    cout<<"          47 48  49 50  51 52      CLASS    \n";

```

```

    cout<<"          53 54  55 56  57 58          \n";

```

```

    cout<<"          59 60  61 62  63 64          \n";

```

```

        cout<<"          65 66  67 68   69 70          \n";
        cout<<"          71 72  72 73   74 75          \n";
        cout<<"          76 77  78 79   80 81          \n\n";
        cout<<"_____ \n\n";

        cout<<"Choose seat\n";

    }

void voidManualReservation()
{
    age1=-1; age2=-1; age3=-1; age4=-1; menu=0;

    cout<<"\n===== M A N U A L   R E S E R V A T I O N
===== \n\n_____ \n";

    cout<<"\nYou will depart at MUMBAI\n\nAvailable DESTINATION
today :\n 1. Dubai\n 2. Singapore\n 3. Sydney\n 4. Tokyo\n 5. Paris \n 6.
London\n 7.
Chicago\n_____ ";

    cout<<"\nChoose your destination\n";

    do

    {
        cin>>mDest;

        if (mDest==1){

            strcpy(dest, "DUBAI");

            priceAdult=0;priceKid=0;priceBusiness=500;}

        else if (mDest==2){

            strcpy(dest, "SINGAPORE");

            priceAdult=100;priceKid=50;priceBusiness=600;}

        else if (mDest==3){

            strcpy(dest, "SYDNEY");

            priceAdult=200;priceKid=100;priceBusiness=700;}

        else if (mDest==4){

            strcpy(dest, "TOKYO");

```

```

        priceAdult=300;priceKid=150;priceBusiness=800;}
else if (mDest==5){
    strcpy(dest, "PARIS");
    priceAdult=400;priceKid=200;priceBusiness=900;}
else if (mDest==6){
    strcpy(dest, "LONDON");
    priceAdult=500;priceKid=250;priceBusiness=1000;}
else if (mDest==7){
    strcpy(dest, "CHICAGO");
    priceAdult=600;priceKid=300;priceBusiness=1100;}

else if
(mDest!=1&&mDest!=2&&mDest!=3&&mDest!=4&&mDest!=5&&mDest!=6
&&mDest!=7){
    cout<<"\n\n***** E R R O R *****\nInvalid number
chosen (Choose 1-7 only)\n*****\n";}

} while
(mDest!=1&&mDest!=2&&mDest!=3&&mDest!=4&&mDest!=5&&mDest!=6
&&mDest!=7);

system ("CLS");

do
{
    cout<<"\n\nEnter number of tickets (maximum 4)\n";
    cin>>mTicket;
    if (mTicket==1)
    {
        system ("CLS");
        voidFirstPassenger();
        voidBoardingPassManual();
    }
    else if (mTicket==2)
    {
        system ("CLS");

```

```

        voidFirstPassenger();
        voidSecondPassenger();
        voidBoardingPassManual();
    }
    else if (mTicket==3)
    {
        system ("CLS");
        voidFirstPassenger();
        voidSecondPassenger();
        voidThirdPassenger();
        voidBoardingPassManual();
    }
    else if (mTicket==4)
    {
        system ("CLS");
        voidFirstPassenger();
        voidSecondPassenger();
        voidThirdPassenger();
        cout<<"\n\nEnter 4th passenger name\n";
        cin.get();cin.getline(passenger4, 50);
        cout<<"\n\nEnter 4th passenger age\n";
        cin>>age4;
        voidSeats();
        do
        {
            while (seat4<1||seat4>81)
            {
                cin>>seat4;
                if (seat4>81||seat4<1)
                    cout<<"\n\n***** E R R O R
*****\nAvailable seats for this flight is 1-81
only\n*****\n";
            }
        }
    }
}

```

```

        }

        if (seat4==seat1||seat4==seat2||seat4==seat3)

            cout<<"\n\n***** E R R O R *****\nSeat
"<<seat1<<" "<<seat2<<" and "<<seat3<<" has been
taken\n*****\n";

        } while (seat4==seat1||seat4==seat2||seat4==seat3);

        system ("CLS");

        voidBoardingPassManual();

    }

    else if (mTicket!=1&&mTicket!=2&&mTicket!=3&&mTicket!=4)

        cout<<"\n\n***** E R R O R *****\nInvalid number of
tickets chosen (1-4 only)\n*****\n";

        } while
(mTicket!=1&&mTicket!=2&&mTicket!=3&&mTicket!=4&&menu==0);

        system ("CLS");

        rTicket=rTicket+mTicket;

        if (age1>=18)

            rTicketAdult++;

        else if (age1>=0&&age1<18)

            rTicketKid++;

        if (age2>=18)

            rTicketAdult++;

        else if (age2>=0&&age2<18)

            rTicketKid++;

        if (age3>=18)

            rTicketAdult++;

        else if (age3>=0&&age3<18)

            rTicketKid++;

        if (age4>=18)

```



```

        {
            do

                {
                    cin>>seat3;

                    if (seat3>81 || seat3<1)

                        cout<<"\n\n***** E R R O R *****\nAvailable seats
for this flight is 1-81 only\n*****\nChoose available
seat\n";

                }
                while (seat3>81 || seat3<1);

                if (seat3==seat1 || seat3==seat2)

                    cout<<"\n\n***** E R R O R *****\nSeat "<<seat1<<" and
"<<seat2<<" has been taken\n*****\nChoose another
seat\n";

                }
                while (seat3==seat1 || seat3==seat2);

                system ("CLS");

                cout<<"\n\nEnter 4th passenger name\n";

                cin.get();cin.getline(passenger4, 50);

                cout<<"\n\nEnter 4th passenger age\n";

                do

                {
                    cin>>age4;

                    if ((age1>=18 && age2>=18 && age4>=18) || (age1<18 &&
age2<18 && age4<18) || (age1>=18 && age3>=18 && age4>=18) || (age1<18
&& age3<18 && age4<18) || (age2>=18 && age3>=18 && age4>=18) ||
(age2<18 && age3<18 && age4<18))

                        {
                            cout<<"\n\n\n_____
";
                            cout<<"\nThis package is for 2 adults and 2 kids only.
(Adults = 18 and above, Kids = Below 18)";

                            cout<<"\n1st passenger age = "<<age1<<"\n2nd passenger
age = "<<age2<<"\n3rd passenger age = "<<age3;

                            cout<<"\n_____
\n";

                            cout<<"\n\nEnter 4th passenger age\n";

```



```

    }

    } while ((age1>=18 && age2>=18 && age4>=18) || (age1<18 &&
age2<18 && age4<18) || (age1>=18 && age3>=18 && age4>=18) || (age1<18
&& age3<18 && age4<18) || (age2>=18 && age3>=18 && age4>=18) ||
(age2<18 && age3<18 && age4<18));

voidSeats();

do

{
    do

        {
            cin>>seat4;

            if (seat4>81 || seat4<1)

                cout<<"\n\n***** E R R O R *****\nAvailable seats
for this flight is 1-81 only\n*****\nChoose available
seat\n";

        } while (seat4>81 || seat4<1);

        if (seat4==seat1 || seat4==seat2 || seat4 == seat3)

            cout<<"\n\n***** E R R O R *****\nSeat "<<seat1<<,"
"<<seat2<<" and "<<seat3<<" has been
taken\n*****\nChoose another seat\n";

        } while (seat4==seat1 || seat4==seat2 || seat4 == seat3);

system ("CLS");

cout<<"\n\nYour flight is Boeing-770 (RB 370)";

cout<<"\n\n A - 8.00AM\n B - 1.30PM\n C - 5.00PM\n D - 10.30PM";

cout<<"\nChoose departure time\n";

do

{
    cin>>departure;

    if (departure == 'A' || departure == 'a')

        strcpy(timee, "8.00AM");

    else if (departure == 'B' || departure == 'b')

        strcpy(timee, "1.30PM");

    else if (departure == 'C' || departure == 'c')

```

```

        strcpy(timee, "5.00PM");

    else if (departure == 'D' || departure == 'd')

        strcpy(timee, "10.30PM");

    else

        cout<<"\n\n***** E R R O R *****\nChoose (A / B / C / D)
only\n\n*****\n";

    } while ((departure != 'A' && departure != 'a')&&(departure != 'B' &&
departure != 'b')&&(departure != 'C' && departure != 'c')&&(departure != 'D'
&& departure != 'd'));

    system ("CLS");

    cout<<"\n\nYou have completed your information and details\nTotal
amount : Rs "<<amount<<"\n\n(Enter any key to CONFIRM PURCHASE)\n";

    cin.get();cin.get();

    cout<<"\n\n===== P A Y M E N T   S U C C E S S F U L
=====
\n\n(Enter any key to get your BOARDING PASS)\n";

    cin.get();cin.get();

    system ("CLS");

    cout<<"\n\n\n_____
\n";

    cout<<"\n    RAUB AIRLINE          e-Boarding Pass    [Reference
Number : UITMRB370]";

    cout<<"\n\n_____
\n";

    cout<<"\n    PASSENGER & FLIGHT DETAILS\n";

    cout<<"\n    "<<passenger1;

    cout<<"\n    Age "<<age1<<"    Flight RB370";

    cout<<"\n    Seat "<<seat1;

    cout<<"\n    Mumabai to "<<dest<<"    "<<timee<<endl;

    cout<<"\n    "<<passenger2;

    cout<<"\n    Age "<<age2<<"    Flight RB370";

    cout<<"\n    Seat "<<seat2;

```

```

cout<<"\n    Mumabai to "<<dest<<"    "<<timee<<endl;
cout<<"\n    "<<passenger3;
cout<<"\n    Age "<<age3<<"    Flight RB370";
cout<<"\n    Seat "<<seat3;
cout<<"\n    Mumabai to "<<dest<<"    "<<timee<<endl;
cout<<"\n    "<<passenger4;
cout<<"\n    Age "<<age4<<"    Flight RB370";
cout<<"\n    Seat "<<seat4;
cout<<"\n    Mumabai to "<<dest<<"    "<<timee<<endl;
cout<<"\n    TOTAL AMOUNT : Rs"<<amount;
cout<<"\n_____
";

cout<<"\n(Enter any key to return to Main Menu)\n";
cin.get();cin.get();
menu=1;
rTicket=rTicket+4;
rTicketAdult=rTicketAdult+2;
rTicketKid=rTicketKid+2;
rTotalAmount=rTotalAmount+amount+rDiscountA;
rDiscount=rDiscount+rDiscountA;
}

//adult-Rs1000
//kid-Rs500

/*1. Dubai (adult = adult, kid = kid / per person)
2. Singapore (adult = +100, kid = +50 / per person)
3. Sydney (adult = +200, kid = +100 / per person)
4. Tokyo (adult = +300, kid = +150 / per person)
5. Paris (adult = +400, kid = +200 / per person)

```

6. London (adult = +500, kid = +250 / per person)

7. Chicago (adult = +600, kid = +300 / per person)

*/

int main()

{ do

{

menu=0;

cout<<"#####
#####\n";

cout<<" * \n";

cout<<" * * * * \n";

cout<<" * * * WELCOME TO AIRLINE
* * * \n";

cout<<" * * * RERSERVATION *
* * \n";

cout<<" * * * * * \n";

cout<<" * * * * \n";

cout<<"#####
#####\n";

cout<<"\n\n==== M A I N M E N U =====\n\n 1.
PACKAGES \n 2. MANUAL RESERVATION\n 3. Coupons\n 4. Report\n 5. Credits\n 6. Exit\n ";

cin>>choice1;

system ("CLS");

if (choice1==1) //< < < < < < < < < < P A C K A G E S > >
> > > > > > > > >

{ cout<<"\n===== P A C K A G E S
===== \n\n_____\n";

cout<<"\n A : MUMBAI to LONDON";

```

        cout<<"\n    2 Adults 2 Kids        < DISCOUNT 30%\n
Rs.3150 (After Discount)\n";

```

```

        cout<<"\n B : MUMBAI to TOKYO";

```

```

        cout<<"\n    2 Adults 2 Kids        < DISCOUNT 20%\n
Rs.3120 (After Discount)\n";

```

```

        cout<<"\n C : MUMBAI to SYDNEY";

```

```

        cout<<"\n    2 Adults 2 Kids        < DISCOUNT 35%\n
Rs.2340 (After Discount)";

```

```

        cout<<"\n_____
_";

```

```

        cout<<"\nChoose package (A / B / C). If NOT interested (M
= Main Menu)\n";

```

```

        do

```

```

        {    cin>>package;

```

```

            if (package=='A' || package=='a'){

```

```

                strcpy(dest,
"LONDON");amount=3150;rDiscountA=1350;rDest6=rDest6+4;

```

```

                voidPackages();

```

```

            }

```

```

            else if (package=='B' || package=='b'){

```

```

                strcpy(dest,
"TOKYO");amount=3120;rDiscountA=780;rDest4=rDest4+4;

```

```

                voidPackages();

```

```

            }

```

```

            else if (package=='C' || package=='c'){

```

```

                strcpy(dest,
"SYDNEY");amount=2340;rDiscountA=1260;rDest3=rDest3+4;

```

```

                voidPackages();

```

```

            }

```

```

            else if (package=='M' || package=='m')

```



```

rAdultPercent=rTicketAdult/(rTicketAdult+rTicketKid)*100;

rKidPercent=rTicketKid/(rTicketAdult+rTicketKid)*100;

cout<<"\nTotal Adults      :
"<<a<<fixed<<setprecision(2)<<" ("<<rAdultPercent<<"%");

cout<<"\nTotal Kids      :
"<<b<<fixed<<setprecision(2)<<" ("<<rKidPercent<<"%");

cout<<"\n\nTotal tickets sold (by destination)";

cout<<"\n- DUBAI : "<<rDest1<<"\n- SINGAPORE :
"<<rDest2<<"\n- SYDNEY : "<<rDest3<<"\n- TOKYO : "<<rDest4<<"\n-
PARIS : "<<rDest5<<"\n- LONDON : "<<rDest6<<"\n- CHICAGO :
"<<rDest7;

cout<<"\n\nTotal Discount Allowed : Rs "<<rDiscount;

cout<<"\nTotal Income      : Rs
"<<fixed<<setprecision(2)<<rTotalAmount;

rProfit=rTotalAmount-rDiscount;

cout<<"\nNET PROFIT      : Rs "<<rProfit;

cout<<"\n\n(Enter any key to return to Main Menu)\n";

cin.get();cin.get();

menu=1;

system ("CLS");

}

else if (choice1==5) //< < < < < < < < < C R E D I T S >
> > > > > > > > > >

{
cout<<"\n===== C R E D I T S
=====\\n\nThis program is prepared by :\\n\n 1. Nibhriti Sarkar\\n 2.
Jayesh Singh\\n";

cout<<"\n\n(Enter any key to return to Main Menu)\n";

cin.get();cin.get();

menu=1;

system ("CLS");

}

```

```

        else if (choice1!=6)

            cout<<"***** E R R O R *****\nInvalid option chosen (1-6
only)\n*****\n\n";

        } while
        ((choice1!=1&&choice1!=2&&choice1!=3&&choice1!=4&&choice1!=5&&ch
oice1!=6)||menu==1);

        return 0;

    }

```

```

*****
*****

```


OUTPUT

Main Menu

A screenshot of a Windows terminal window titled "C:\Users\Jayesh\Desktop\Airli". The terminal displays a welcome message "WELCOME TO AIRLINE RERERVATION" flanked by two star-based logos. Below this is a main menu with six options: 1. PACKAGES, 2. MANUAL RESERVATION, 3. Coupons, 4. Report, 5. Credits, and 6. Exit. The user has entered the number '1' at the prompt.

```
C:\Users\Jayesh\Desktop\Airli > .\main.py  
#####  
  
      *           *           *           *  
    * *         * *       * *     * *  
  * *   *   * *   * *   * *   * *   * *  
* *   * *   * *   * *   * *   * *   * *  
* *   * *   * *   * *   * *   * *   * *  
  * *   *   * *   * *   * *   * *   * *  
    * *         * *       * *     * *  
      *           *           *           *  
  
                WELCOME TO AIRLINE  
                RERERVATION  
  
#####  
  
===== M A I N   M E N U =====  
  
1. PACKAGES  
2. MANUAL RESERVATION  
3. Coupons  
4. Report  
5. Credits  
6. Exit  
  
1
```

Packages

```
C:\Users\Jayesh\Desktop\Airli > + v
===== P A C K A G E S =====
-----
A : MUMBAI to LONDON
  2 Adults 2 Kids          < DISCOUNT 30%
  Rs.3150 (After Discount)

B : MUMBAI to TOKYO
  2 Adults 2 Kids          < DISCOUNT 20%
  Rs.3120 (After Discount)

C : MUMBAI to SYDNEY
  2 Adults 2 Kids          < DISCOUNT 35%
  Rs.2340 (After Discount)
-----
Choose package (A / B / C). If NOT interested (M = Main Menu)
```

Manual Reservation

```
C:\Users\Yayesh\Desktop\Airli < X + v
===== MANUAL RESERVATION =====
-----
You will depart at MUMBAI

Available DESTINATION today :
1. Dubai
2. Singapore
3. Sydney
4. Tokyo
5. Paris
6. London
7. Chicago
-----
Choose your destination
```

Passenger Details & Seat Selection

```
Enter 1st passenger name
Jayesh

Enter 1st passenger age
19

-----

          01      02      03
          04      05      06      BUSINESS
          07      08      09      CLASS
          10      11      12
          13      14      15
          -----
          16 17 18 19 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      ECONOMY
          47 48 49 50 51 52      CLASS
          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

-----

Choose seat
35|
```

Departure Time

```
Your flight is Boeing-770 (RB 370)

A - 8.00AM
B - 1.30PM
C - 5.00PM
D - 10.30PM
Choose departure time
A|
```

Coupon Code

```
Total amount is Rs2800.00
Do you want to apply any coupons? (Once)
1. Yes
2. No
```

Coupon Applied Successfully

```
Enter your coupon
AER015

Success, 15% off applied!

You have completed your information and details
Total amount : Rs 2380.00

(Enter any key to CONFIRM PURCHASE)
```

Boarding Pass

```
-----
ETIHAD AIRLINE          e-Boarding Pass          [Reference Number : UITMRB370]
-----

PASSENGER & FLIGHT DETAILS

Jayesh
Age 19          Flight RB370          Economy Class
Seat 35
MUMBAI to PARIS    8.00AM

Akshita
Age 22          Flight RB370          Economy Class
Seat 36
MUMBAI to PARIS    8.00AM

TOTAL AMOUNT : 2380.00
-----
(Enter any key to return to Main Menu)
```

Coupons

```
===== C O U P O N S =====

Apply one of these coupons in Manual Reservation only

- CAPTAIN5      (5% OFF)
- COPILOT10     (10% OFF)
- AER015        (15% OFF)
- STEWARD10     (10% OFF)

(Enter any key to return to Main Menu)
```

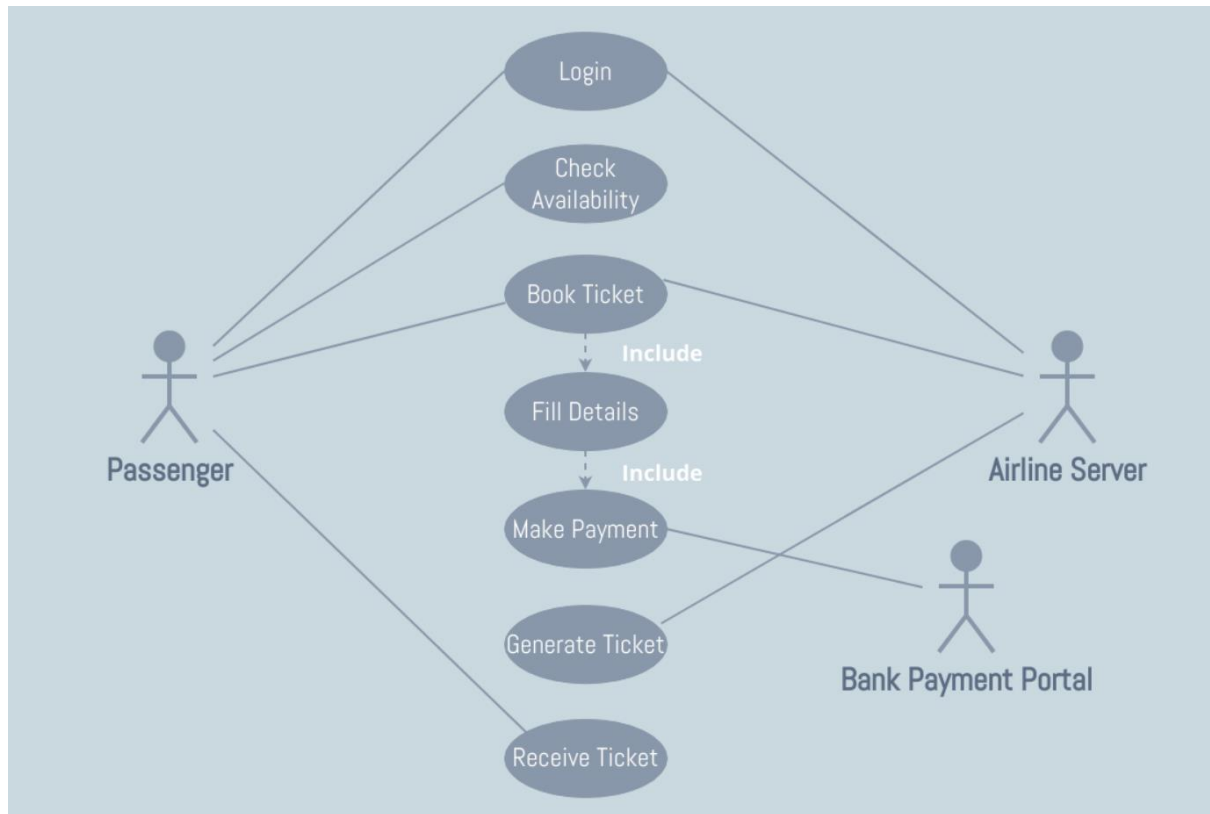
Report

```
===== E T I H A D   A I R L I N E   R E P O R T =====  
  
Total Tickets Sold : 2  
Total Adults       : 2 (100.00%)  
Total Kids         : 0 (0.00%)  
  
Total tickets sold (by destination)  
- DUBAI : 0  
- SINGAPORE : 0  
- SYDNEY : 0  
- TOKYO : 0  
- PARIS : 2  
- LONDON : 0  
- CHICAGO : 0  
  
Total Discount Allowed : Rs 420.00  
Total Income           : Rs 2800.00  
NET PROFIT              : Rs 2380.00  
  
(Enter any key to return to Main Menu)
```

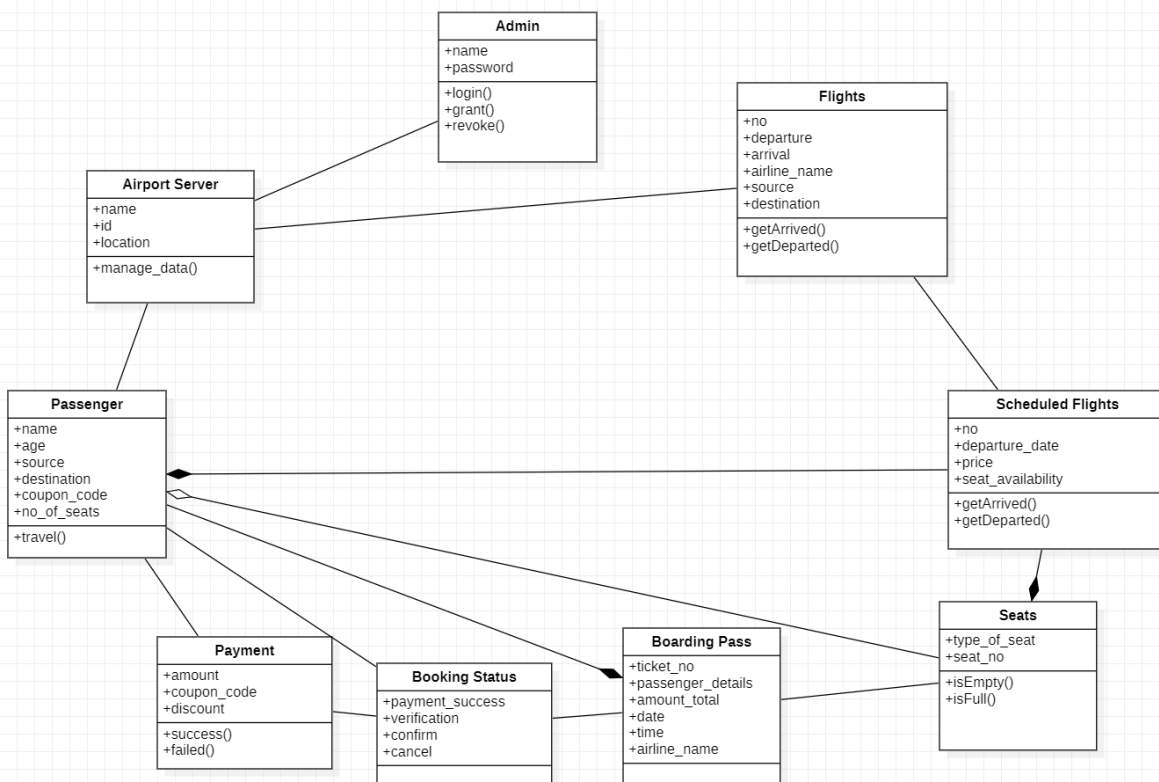
Credits

```
===== C R E D I T S =====  
  
This program is prepared by :  
  
    1. Nibhriti Sarkar  
    2. Jayesh Singh
```

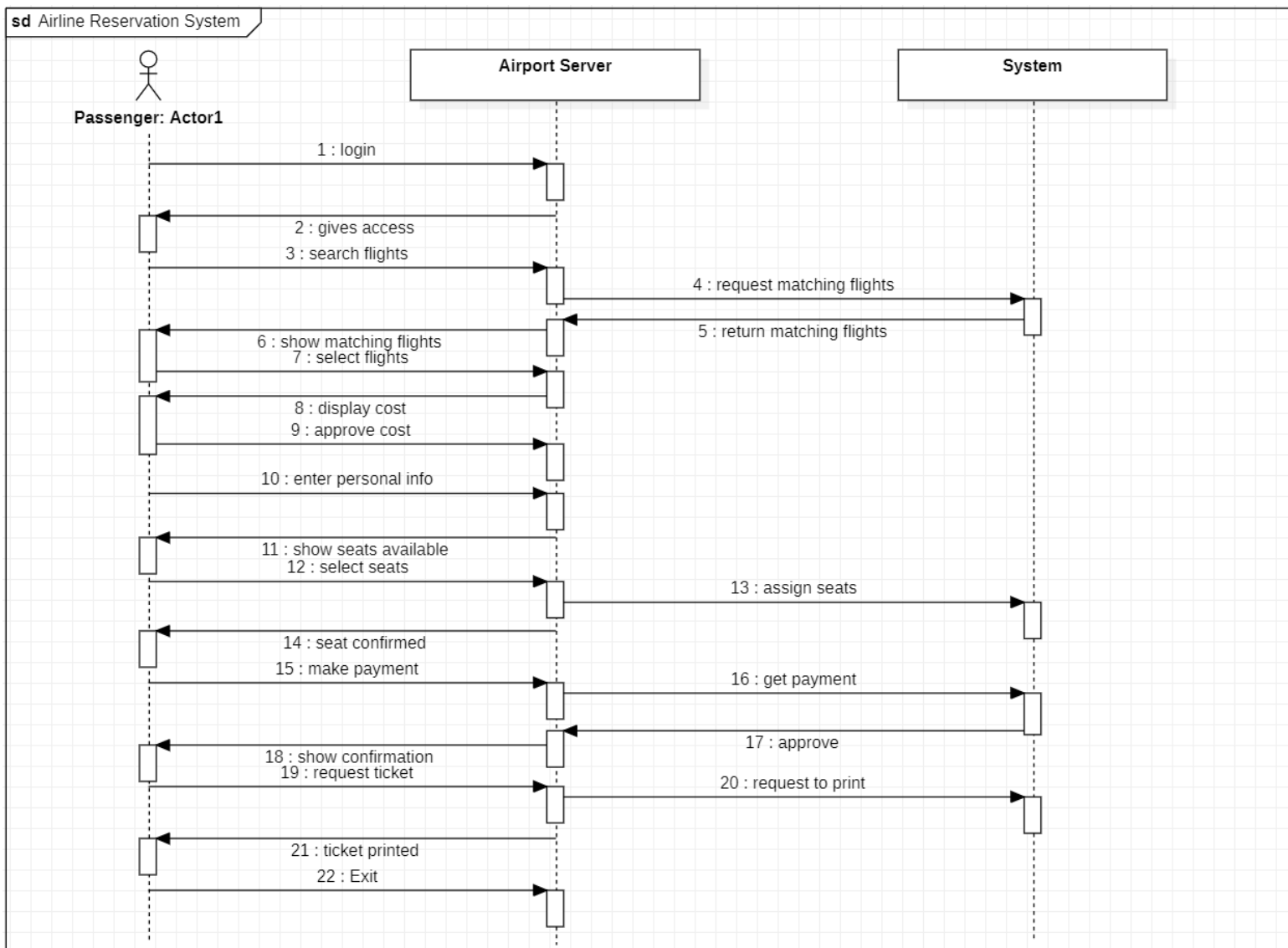
USE CASE DIAGRAM WITH EXPLANATION



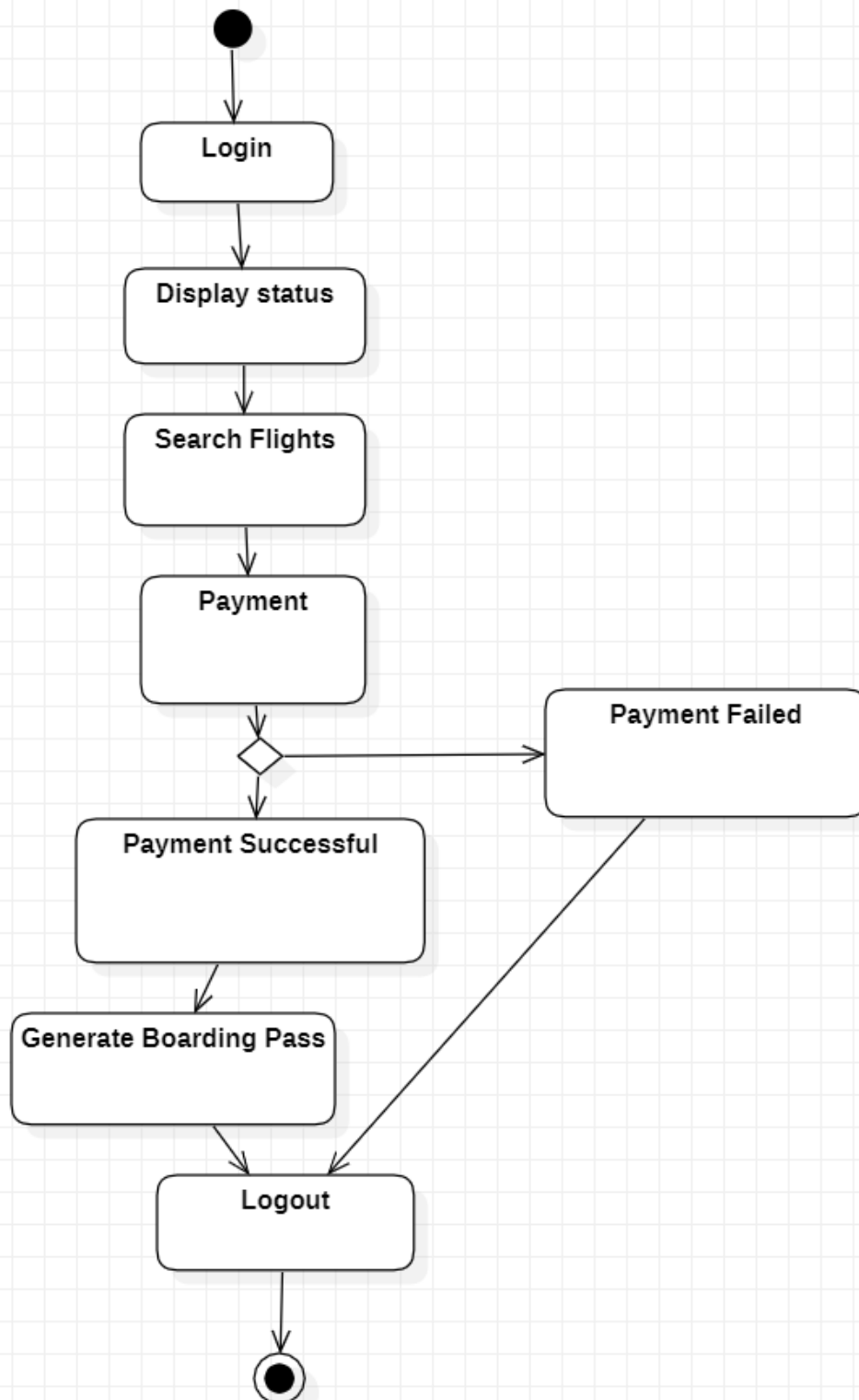
Class diagram with explanation



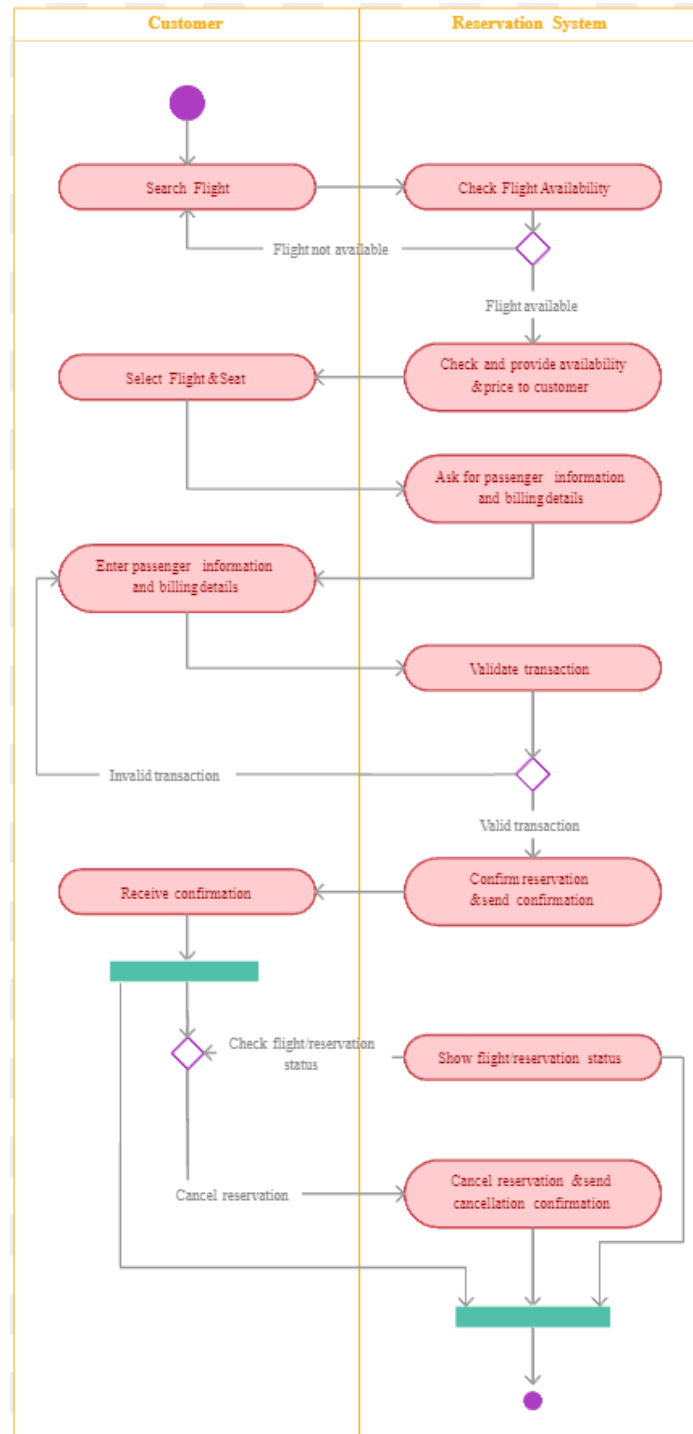
SEQUENCE DIAGRAM WITH EXPLANATION



STATE CHART DIAGRAM WITH EXPLANATION



ACTIVITY DIAGRAM WITH EXPLANATION



CONCLUSION

The Airline reservation system a java project is not an exception. With working employees traveling 24/7 this software speed up your reservation process and makes it convenient for the customers to book flights whenever and wherever!

AIRLINE-RESERVATION-SYSTEM-A-JAVA-PROJECT

It reduces the scope of manual error and conveniently maintains any modifications, cancellations in the reservations. It not only provides flight details but also but also creates a platform to book tickets, cancels or modifies ticket timings or dates and even informs about the number of people on board!

REFERENCES

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- **wikihow.com**
- **folkstalk.com**
- **quora.com**
- **StarUML**
- **Joyce Jaison Youtube**