

MINI PROJECT USING FEATURES OF C++ AND DATA STRUCTURES

PROJECT TITLE: AIRLINE RESERVATION SYSTEM

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ABSTRACT:

This mini project presents an Airplane Reservation System implemented in C++.The system is designed to facilitate the efficient management of airline reservations, providing functionality for both customers and administrators.

For customers, the system allows them to search for available flights based on various criteria such as destination, departure date, and preferred airline. Once a suitable flight is found, customers can reserve seats, choose seat preferences, and make payments securely. Additionally, customers can view their reservation details and modify or cancel bookings.

PROBLEM STATEMENT:

In reservation systems,Customers should be able to search for available flights based on criteria such as destination, departure date, and preferred airline and Administrators should have the capability to add, update, and delete flight information, including flight number, destination, departure time, and available seats.But, most of the reservation systems fail to fulfill all the criteria that are mentioned above.So using c++ and oops concepts,the problem could be overcome effectively and efficiently.

OBJECTIVES:

Implemented using object-oriented programming principles, the Airline Reservation System emphasises modularity, extensibility, and robustness. This ensures code reusability and maintainability.This program utilizes object-oriented programming principles to design and implement the system, promoting code reusability, modularity, and maintainability.

Overall, this project serves as a practical demonstration of developing a real-world application using C++ and provides a foundation for further enhancements and customizations to meet specific airline industry requirements.

CODE:

```
#include<iostream>
#include<fstream>
#include<iomanip>

using namespace std;

void mainMenu();

class Management
{
    public:

        Management()
        {
            mainMenu();
        }
};

class Details
{
    public:

        static string name, gender;
        static int phoneNo;
        static int age;
        static string add;
        static int cId;
        static char arr[100];

        void information()
        {
            cout<<"\nEnter the customer ID:";
            cin>>cId;
            cout<<"\nEnter the name :";
            cin>>name;
            cout<<"\nEnter the age :";
            cin>>age;
            cout<<"\nEnter the address :";
            cin>>add;
```

```

        cout<<"\nGender :";
        cin>>gender;
        cout<<"Your details are saved with us\n"<<endl;

    }

};

int Details::cId;
string Details::name;
string Details::gender;

class registration
{
    public:
        static int choice;
        int choice1;
        int back=100;
        static float charges;

        void flights()
        {
            string flightN[]={"Dubai","Canada","UK","USA","Australia","Europe"};

            for(int a=0;a<6;a++)
            {
                cout<<(a+1)<<".flight to"<<" "<<flightN[a]<<endl;

            }

            cout<<"\nWelcome to the Airlines!"<<endl;
            cout<<"Press ther number of the country of which you want to book the
flight:";

            cin>>choice;

            switch(choice)
            {
                case 1:
                    {
                        cout<<"_____Welcome    to
Dubai Emirates_____ \n"<<endl;

                        cout<<"Your  comfort  is  our  priority.  Enjoy  the
journey!"<<endl;

```

```

        cout<<"Following are the flights \n"<<endl;

        cout<<"1. DUB - 498"<<endl;
        cout<<"\to8-01-2022 8:00AM 10hrs Rs. 14000"<<endl;
        cout<<"2. DUB - 658"<<endl;
        cout<<"\to9-01-2022 4:00AM 12hrs Rs. 10000"<<endl;
        cout<<"3. DUB - 508"<<endl;
        cout<<"\t11-01-2022 11:00AM 11hrs Rs. 9000"<<endl;

        cout<<"\nSelect the flight you want to book :";
        cin>>choice1;

        if(choice1==1)
        {
            charges=14000;
            cout<<"\nYou have successfully booked the flight
DUB - 498"<<endl;

            cout<<"You can go back to menu and take the
ticket"<<endl;
        }

        else if(choice1==2)
        {
            charges=10000;
            cout<<"\nYou have successfully booked the flight
DUB - 658"<<endl;

            cout<<"You can go back to menu and take the
ticket"<<endl;
        }

        else if(choice1==3)
        {
            charges=9000;
            cout<<"\nYou have successfully booked the flight
DUB - 508"<<endl;

            cout<<"You can go back to menu and take the
ticket"<<endl;
        }

        else
        {
            cout<<"Invalid input , shifting to the previous menu"<<endl;
            flights();
        }

        cout<<"Press any number to go back to the main menu:"<<endl;

```

```

        cin>>back;
        if(back==1)
        {
            mainMenu();

        }
        else
        {
            mainMenu();

        }
    }

    case 2:
    {
        cout<<"_____Welcome to Canadian
Airlines_____\\n"<<endl;

        cout<<"Your comfort is our priority. Enjoy the journey!"<<endl;

        cout<<"Following are the flights \\n"<<endl;

        cout<<"1. CA - 198"<<endl;
        cout<<"\\t09-01-2022 2:00PM 20hrs Rs. 34000"<<endl;
        cout<<"2. CA - 158"<<endl;
        cout<<"\\t11-01-2022 6:00AM 23hrs Rs. 29000"<<endl;
        cout<<"3. CA - 208"<<endl;
        cout<<"\\t14-01-2022 12:00AM 21hrs Rs. 40000"<<endl;

        cout<<"\\nSelect the flight you want to book :";
        cin>>choice1;

        if(choice1==1)
        {
            charges=34000;
            cout<<"\\nYou have successfully booked the flight CA - 198"<<endl;
            cout<<"You can go back to menu and take the ticket"<<endl;
        }

        else if(choice1==2)
        {
            charges=29000;
            cout<<"\\nYou have successfully booked the flight CA - 158"<<endl;
            cout<<"You can go back to menu and take the ticket"<<endl;
        }
    }
}

```

```

        }

        else if(choice1==3)
        {
            charges=40000;
            cout<<"\nYou have successfully booked the flight CA - 208"<<endl;
            cout<<"You can go back to menu and take the ticket"<<endl;
        }
        else
        {
            cout<<"Invalid input , shifting to the previous menu"<<endl;
            flights();
        }

        cout<<"Press any number to go back to the main menu:"<<endl;
        cin>>back;

        if(back==1)
        {
            mainMenu();
        }
        else
        {
            mainMenu();
        }
    }

case 3:
{
    cout<<"_____Welcome _____ to _____ UK
    Airways_____ \n"<<endl;

    cout<<"Your comfort is our priority. Enjoy the journey!"<<endl;
    cout<<"Following are the flights \n"<<endl;

    cout<<"1. UK - 798"<<endl;
    cout<<"\t12-01-2022 10:00AM 14hrs Rs. 44000"<<endl;
    cout<<"\nSelect the flight you want to book :";
    cin>>choice1;
    if(choice1==1)
    {
        charges=44000;
        cout<<"\nYou have successfully booked the flight UK - 798"<<endl;
    }
}

```

```

        cout<<"You can go back to menu and take the ticket"<<endl;
    }
    else
    {
        cout<<"Invalid input , shifting to the previous menu"<<endl;
        flights();
    }

    cout<<"Press any number to go back to the main
menu:"<<endl;

    cin>>back;

    if(back==1)
    {
        mainMenu();
    }
    else
    {
        mainMenu();
    }
}
case 4:
{
    cout<<"_____Welcome to US
Airways_____\\n"<<endl;

    cout<<"Your comfort is our priority. Enjoy the journey!"<<endl;

    cout<<"Following are the flights \\n"<<endl;
    cout<<"1. US - 567"<<endl;
    cout<<"\\t10-01-2022 9:00AM 22hrs Rs. 37000"<<endl;
    cout<<"2. US - 658"<<endl;
    cout<<"\\t09-01-2022 6:00AM 22hrs Rs. 39000"<<endl;
    cout<<"3. US - 508"<<endl;
    cout<<"\\t12-01-2022 10:00AM 21hrs Rs. 42000"<<endl;
    cout<<"\\nSelect the flight you want to book :";
    cin>>choice1;
    if(choice1==1)
    {
        charges=37000;
        cout<<"\\nYou have successfully booked the flight US - 658"<<endl;
        cout<<"You can go back to menu and take the ticket"<<endl;}
}

```

```

else if(choice1==2)
{
    charges=39000;
    cout<<"\nYou have successfully booked the flight DUB - 658"<<endl;
    cout<<"You can go back to menu and take the ticket"<<endl;
}
else if(choice1==3)
{
    charges=42000;
    cout<<"\nYou have successfully booked the flight DUB - 508"<<endl;
    cout<<"You can go back to menu and take the ticket"<<endl;
}
else
{
    cout<<"Invalid input , shifting to the previous menu"<<endl;
    flights();
}

cout<<"Press any number to go back to the main menu:"<<endl;
    cin>>back;

    if(back==1)
    {
        mainMenu();
    }
    else
    {
        mainMenu();
    }
}

case 5:
{
    cout<<"_____Welcome to Australian
Airlines_____\n"<<endl;

    cout<<"Your comfort is our priority. Enjoy the journey!"<<endl;
    cout<<"Following are the flights \n"<<endl;

    cout<<"1. As - 698"<<endl;
    cout<<"\t018-01-2022 9:00AM 20hrs Rs. 44000"<<endl;
        cout<<"2. AS - 158"<<endl;
    cout<<"\t019-01-2022 4:00AM 22hrs Rs. 34000"<<endl

```



```

        cout<<"3. AS - 708"<<endl;
        cout<<"\t17-01-2022      10:00AM      21hrs      Rs.
42000"<<endl;

        cout<<"\nSelect the flight you want to book :";
        cin>>choice1;

        if(choice1==1)
        {
            charges=44000;
            cout<<"\nYou have successfully booked the flight
DUB - 498"<<endl;
            cout<<"You can go back to menu and take the ticket"<<endl;
        }

        else if(choice1==2)
        {
            charges=34000;
            cout<<"\nYou have successfully booked the flight DUB - 658"<<endl;
            cout<<"You can go back to menu and take the ticket"<<endl;
        }
        else if(choice1==3)
        {
            charges=42000;
            cout<<"\nYou have successfully booked the flight
DUB - 508"<<endl;
            cout<<"You can go back to menu and take the
ticket"<<endl;
        }
        else
        {
            cout<<"Invalid input , shifting to the previous menu"<<endl;
            flights();
        }

        cout<<"Press any number to go back to the main
menu:"<<endl;
        cin>>back;

        if(back==1)
        {
            mainMenu();
        }
        else{

```

```
mainMenu();

    }
}
case 6:
{

cout<<"_____Welcome          to          European
Airlines_____"<<endl;

        cout<<"Your comfort is our priority. Enjoy the
journey!"<<endl;

        cout<<"Following are the flights \n"<<endl;

        cout<<"1. EU - 898"<<endl;
        cout<<"\t02-01-2022 2:00AM 18hrs Rs. 36000"<<endl;
        cout<<"2. EU - 958"<<endl;
        cout<<"\t03-01-2022 6:00AM 19hrs Rs. 37000"<<endl;
        cout<<"3. EU - 608"<<endl;
        cout<<"\t12-01-2022      10:00AM      20hrs      Rs.
31000"<<endl;

        cout<<"\nSelect the flight you want to book :";
        cin>>choice1;

        if(choice1==1)
        {
            charges=36000;
            cout<<"\nYou have successfully booked the flight
EU - 898"<<endl;

            cout<<"You can go back to menu and take the
ticket"<<endl;
        }

        else if(choice1==2)
        {
            charges=37000;
            cout<<"\nYou have successfully booked the flight
EU - 958"<<endl;

            cout<<"You can go back to menu and take the
ticket"<<endl;
```

```

    }

    else if(choice1==3)
    {
        charges=31000;
        cout<<"\nYou have successfully booked the flight
EU - 608"<<endl;

        cout<<"You can go back to menu and take the
ticket"<<endl;

    }
    else

    {
        cout<<"Invalid input , shifting to the previous menu"<<endl;
        flights();
    }

    cout<<"Press any number to go back to the main menu:"<<endl;

    cin>>back;

    if(back==1)
    {
        mainMenu();

    }
    else
    {
        mainMenu();

    }
    }
    default :
    {
        cout<<"Invalid input, Shifting you to the
main menu !"<<endl;

        mainMenu();
        break;

    }

    }
};
float registration::charges;
int registration::choice;

class ticket : public registration, public Details

```

```

{
    public:

        void Bill()
        {
            string destination="";
            ofstream outf("records.txt");
            {
                outf<<"_____XYZ Airlines_____"<<endl;
                outf<<"_____Ticket_____"<<endl;

            }

            outf<<"_____"<<endl;

            outf<<"Customer ID:"<<Details::cId<<endl;
            outf<<"Customer Name:"<<Details::name<<endl;
            outf<<"Customer Gender:"<<Details::gender<<endl;
            outf<<"\tDescription"<<endl<<endl;

            if(registration::choice==1)
            {
                destination="Dubai";
            }

            else if(registration::choice==2)
            {
                destination="Canada";
            }
            else if(registration::choice==3)
            {
                destination="UK";
            }
            else if(registration::choice==4)
            {
                destination="USA";
            }
            else if(registration::choice==5)
            {
                destination="Australia";
            }
            else if(registration::choice==6)
            {
                destination="Europe";
            }

            outf<<"Destination\t\t"<<destination<<endl;
        }
    }
}

```

[illegible]

```

cin>>lchoice;
Details d;
registration r;
ticket t;

switch(lchoice){

case 1:
    {
        cout<<"_____Customers_____"<<endl;
        d.information();
        break;
    }

    case 2:
        {
            cout<<"_____Book a flight using this system
            _____"<<endl;
            r.flights();
            break;
        }

    case 3:
        {

            cout<<"_____GET YOUR TICKET_____"<<endl;
            t.Bill();

            cout<<"Your ticket is printed, you can collect it "<<endl;
            cout<<"Press 1 to display your ticket ";
            cin>>back;

            if(back==1)
            {
                cout<<"YOUR TICKET:";
                t.dispBill();

                break;
            }
        }

    case 4:
        {
            cout<<"\n\n\t_____Thank-you_____"<<endl;

```

```

        exit(4);
    }

    default :
    {
        cout<<"Invalid input, Please try again!\n"<<endl;

        break;
    }
}

}

}

int main()
{
    Management Mobj;
    return 0;
}

```

CODE DESCRIPTION:

- The code Displays a menu with options to add customer details, book a flight, generate a ticket, or exit the system. Allows users to input customer information such as ID, name, age, address, and gender.

Flight Booking:

- Provides a list of flights to various destinations.
- Allows users to select a destination and choose a specific flight.
- Calculates charges based on the selected flight.

Ticket Generation:

- Generates a ticket with customer details and flight information.
- Writes ticket details to a file.

Ticket Display:

- Allows users to view the generated ticket.

File Handling:

- Utilizes file handling to store and retrieve ticket information.

OUTPUT:

```

                XYZ Airlines

            _____
            | Main Menu |
            |_____
            |             |
            | Press 1 to add the Customer Details |
            | Press 2 for Flight Registration      |
            | Press 3 for Ticket and Charges       |
            | Press 4 to Exit                      |
            |_____
Enter the choice : 2
            Book a flight using this system _____

1.flight to Dubai
2.flight to Canada
3.flight to UK
4.flight to USA
5.flight to Australia
6.flight to Europe

Welcome to the Airlines!
Press ther number of the country of which you want to book the flight:2
```

```

                XYZ Airlines

            _____
            | Main Menu |
            |_____
            |             |
            | Press 1 to add the Customer Details |
            | Press 2 for Flight Registration      |
            | Press 3 for Ticket and Charges       |
            | Press 4 to Exit                      |
            |_____
Enter the choice : 2
            Book a flight using this system _____

1.flight to Dubai
2.flight to Canada
3.flight to UK
4.flight to USA
5.flight to Australia
6.flight to Europe

Welcome to the Airlines!
Press ther number of the country of which you want to book the flight:2
```



```
1. CA - 198
    09-01-2022 2:00PM 20hrs Rs. 34000
2. CA - 158
    11-01-2022 6:00AM 23hrs Rs. 29000
3. CA - 208
    14-01-2022 12:00AM 21hrs Rs. 40000
```

```
Select the flight you want to book :1
```

You have successfully booked the flight CA - 198

You can go back to menu and take the ticket

```
Press any number to go back to the main menu:
```

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XYZ Airlines

Main Menu

Press 1 to add the Customer Details

Press 2 for Flight Registration

Press 3 for Ticket and Charges

Press 4 to Exit

```
Enter the choice : 3
```

GET YOUR TICKET

Your ticket is printed, you can collect it

```
Press 1 to display your ticket 1
```

YOUR TICKET: _____ XYZ Airlines

Ticket

Customer ID:87645

Customer Name:Thanya

Customer Gender:Female

Description

Destination	Canada
-------------	--------

```
Flight cost :      34000
```

XYZ Airlines

Main Menu

Press 1 to add the Customer Details

Press 2 for Flight Registration

Press 3 for Ticket and Charges

Press 4 to Exit

```
Enter the choice : 4
```

Thank-you