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AIRLINE RESERVATION PROJECT

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AIRLINE RESERVATION PROJECT

PROGRAM DESCRIPTION

This program is an Airline Reservations System for a small airline. The airline only operates a single 40 seat plane, and only flies one route.

The program allows people to make a reservation on a flight and select the seat they would like to occupy.

There is also a “standby” list of people who would like a seat if the plane is full. If a seat holder cancels their flight, the next person on the standby list will be allocated the cancelled seat.

If there are people on the standby list when a reservation is cancelled, the user is asked if they would like to give the vacated seat to the first person on that list.

There is an option to view the existing waiting list, and to add people to the waiting list, even if there are seats available.

The program specifications provided do not require a standby person to be advised of getting a seat.

PROGRAM IPO CHARTS

OVERVIEW

An overview of the basic program requirements, with their relevant input, processing and output needs.

INPUT (FUNCTION)	PROCESS	OUTPUT
Add Passenger	<ol style="list-style-type: none"> 1. Get passenger name 2. Display seating chart 3. If seat exists, allow passenger to choose seat 4. If no seats, add passenger to waiting list 	<ul style="list-style-type: none"> • Passenger added to flight <p>OR</p> <ul style="list-style-type: none"> • Passenger added to waiting list • Update flight and waiting list files
Remove Passenger	<ol style="list-style-type: none"> 1. Get passenger name 2. Search for passenger in seating chart, and remove them 3. If waiting list is empty, clear passenger's seat 4. If waiting list not empty, get first passenger on waiting list and add to flight 	<ul style="list-style-type: none"> • Passenger removed from flight • Reserve passenger added to flight • Update flight and waiting list files
Quit		Exit program

ADD PASSENGER IPO CHART

INPUT	PROCESSING	OUTPUT
Get passenger name		
Display seating chart	Loop through array, displaying seating as either available or filled	Table representing seating chart
	If seats are available on flight, allow passenger to select seat	Seat number passenger selects
	If no seats available	Add passenger end to reserve list

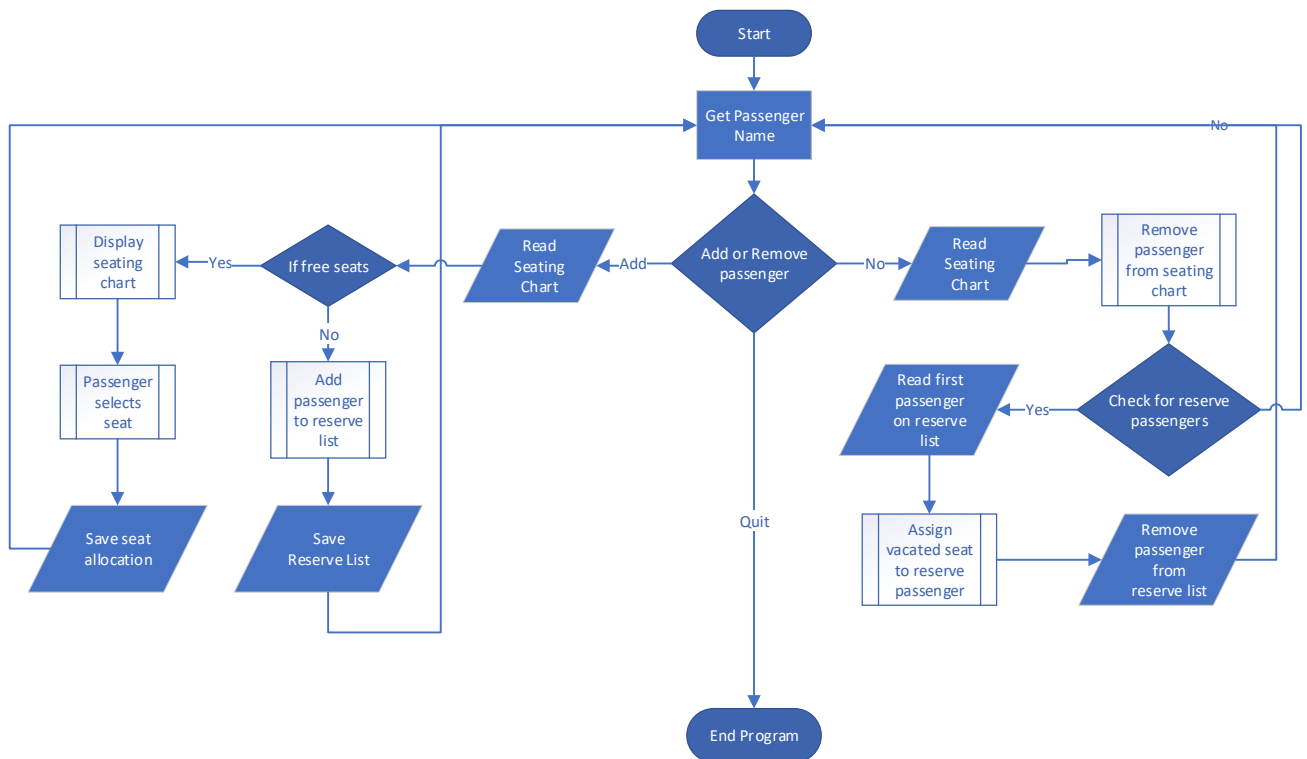
REMOVE PASSENGER IPO CHART

INPUT	PROCESSING	OUTPUT
Get Passenger Name		
	Search for passenger in seating chart	True or False, depending on if passenger found
If Passenger found is true	<ol style="list-style-type: none"> 1. Remove passenger from seat 2. Get first name from reserve list 3. Add reserve to flight in vacated seat 	

ADD TO WAITING LIST IPO

INPUT	PROCESSING	OUTPUT
Get Passenger Name	<ol style="list-style-type: none"> 1. Add to Waiting List 2. Update waiting list file 3. Update waiting list view 	

PROGRAM FLOWCHART



SCREEN DESIGNS

MAIN PROGRAM SCREEN

Wireframe of proposed screen.

The Seating Chart area will be populated with the seats, and display green to indicate seat is available, and red to indicate seat is reserved.

To add a reservation, the user will enter the person's name, and select the desired seat (if any are available). The seat selected will show in the Seat Number area. Clicking on "Add Reservation" will save the reservation to a file and update the seating chart.

To cancel a reservation, the user will select the person's name from the existing reservations list and click "Cancel Reservation". This will remove the existing reservation from the file, assign the vacated seat to the next person on the waiting list, update both the reservations and waiting list files, and update the seating chart accordingly.

The "Display Waiting List" button will bring up a separate form showing the current waiting list for the flight.

Airline Reservation System

Add Reservation

First Name:

Last Name:

Seating Chart

Available Seat

Reserved Seat

Cancel existing Reservation

ListBox1

WAITING LIST SCREEN

The Waiting List screen will show the people currently waiting for a seat and allow a selected person to be removed from the waiting list. Removing a person from the waiting list will update the waiting list file

ListBox1

ADD TO WAITING LIST SCREEN

This screen allows a new person to be added to the waiting list without affecting existing reservations

Add a new person to the Waiting List

First Name:

Last Name:

ACTUAL PROGRAM SCREENS

MAIN SCREEN

Airline Reservations System - Written by Steve Teece

Airline Reservation System

To make a reservation, enter your name and select your preferred seat from those available. If no seat is selected, your name will be added to the flight waiting list.

Add Reservation

First Name: Seat Number:

Last Name:

Cancel existing Reservation

Search for passenger name, or select from list below to cancel a reservation

Current reservations:

Passenger Name	Seat
Susan Foreman	A2
Ian Chesterton	A3
Rose Tyler	A4
John Kenedy	B1
Jimmy Novak	B2
Mickey Smith	B3
Harry Sullivan	B4
James Potter	C1
Lily Potter	C2
Rory Williams	C3
Amy Pond-Williams	C4
Bill Potts	D1
Clara Oswald	D2
Lois Lane	D3

To cancel a reservation, select the passenger and click "Cancel Reservation". When a reservation is cancelled, the next person on the waiting list will be given the vacated seat.

Seating Chart

A1	A2	A3	A4
B1	B2	B3	B4
C1	C2	C3	C4
D1	D2	D3	D4
E1	E2	E3	E4
F1	F2	F3	F4
G1	G2	G3	G4
H1	H2	H3	H4
I1	I2	I3	I4
J1	J2	J3	J4

Available Seat

Reserved Seat

Seats remaining: 2

WAITING LIST SCREEN

The screenshot shows a window titled "Current passenger waiting list". At the top, there is a search bar with the placeholder text "Search for passenger name, or select from list below to remove a passenger from the waiting list" and a magnifying glass icon. Below the search bar, the text "Current reservations:" is followed by a list of passenger names: "Passenger Name", "Donald Trump", "Melania Trump", "Malcolm Turnbull", and "Bill Shorten". To the right of the list, there are three buttons: "Add new person to the Waiting List", "Remove selected Passenger", and "Close".

Passenger Name
Donald Trump
Melania Trump
Malcolm Turnbull
Bill Shorten

ADD TO WAITING LIST SCREEN

The screenshot shows a window titled "Add to Waiting List". It contains the instruction "Add a new person to the Waiting List". Below this, there are two input fields: "First Name:" and "Last Name:". At the bottom, there are two buttons: "Add to Waiting List" and "Close".

TEST DATA

To test all functions of the program, two testing data files were created.

The first test data file contains data on Existing reservations. Two seats were left empty so testing or adding a reservation could occur.

TEST METHODOLOGY

Action	Expected Results	Actual results
Add New Reservation	<ul style="list-style-type: none"> Selected seat changes colour Reservations file is appended 	As expected
Add reservation without selecting seat	If all seats reserved: Ask user if they want to be added to waiting list	As expected
	If seats still available: Ask user to select a seat	As expected
Add reservation leaving either first name or last name empty	Add Reservation button is disabled until both fields contain data. No other validation is specified in program requirements	As expected
Cancel Reservation	If there is someone on the waiting list: Asks user if they would like to give the vacated seat to the first person on the waiting list. If yes, remove person from waiting list, add to reservations list and update seating chart	As expected
Search for passenger to cancel	Passenger is selected in the list of reservations, ready to be deleted.	As Expected
Add person to Waiting List	Person is added to the end of the current waiting list.	As expected

WAITINGLIST.CSV

The waiting list, or reserve passenger list, is a simple two column text file.

If the file does not exist when the program runs, a message is displayed to the user and a new empty file is created.

A copy of the test data file is included in the project and will be copied to the output folder when the program is compiled.

First Name	Last Name
Donald	Trump
Melania	Trump
Malcolm	Turnbull
Bill	Shorten

RESERVATIONS.CSV

The reservations file is included with the completed program and will be copied to the output directory on compilation if no newer file exists.

The file is a simple Comma Separated Values file consisting of 4 columns:

First Name	Last Name	Seat Row	Seat Column
Susan	Foreman	0	1
Ian	Chesterton	0	2
Rose	Tyler	0	3
John	Kenedy	1	0
Jimmy	Novak	1	1
Mickey	Smith	1	2
Harry	Sullivan	1	3
James	Potter	2	0
Lily	Potter	2	1
Rory	Williams	2	2
Amy	Pond-Williams	2	3
Bill	Potts	3	0
Clara	Oswald	3	1
Lois	Lane	3	2
Jimmy	Olsen	3	3
Ginney	Weasley	4	0
Harry	Potter	4	1
Ron	Weasley	4	2
Hermione	Granger	4	3
Bruce	Wayne	5	0
Jodie	Mills	5	1
Sam	Winchester	5	2
Dean	Winchester	5	3
Kate	Stewart	6	0
Alistair	Lethbridge Stewart	6	1
Bobby	Singer	6	2
Perry	White	6	3
Homer	Simpson	7	0
Janto	Jones	7	1
Rubeus	Hagrid	7	2
Clark	Kent	7	3
Minerva	McGonagle	8	0
Jack	Harkness	8	2
Martha	Jones	8	3
Severus	Snape	9	0
Albus	Dumbledore	9	1
George	Weasley	9	2
Fred	Weasley	9	3

USEABILITY AND USER INSTRUCTIONS

This application has been designed with simplicity in mind. There are no complicated menus, and all functions are accessible via clearly labelled buttons.

Descriptions of various functions and expected input are either on screens themselves, or as a dialog box advising the user what they need to do to accomplish their task.