



FLIGHT BOOKING JADE APPLIACTION

Report

ITC606 Object Oriented Databases
Assignment 1
Sem 2 2024

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NAMES: _____

☐ This assignment is completely my own or my team's original work.

STUDENT SIGNATURE: _____

Marking Schedule

Section	Components	Marks
Database	Classes (Flight, Passengers, Tickets, ...)	5
	Properties (attributes/references)	5
	Relationships	5
	Encapsulation (full)	5
	Methods	5
	Collections	5
	Report and files	10
	Comments/Layout	
	Complete reports and files	5
	Extra feature (using functions not covered in class)	50
Interface	Total	
	Main page	5
	Login function (level of access)	5
	Menus function	5
	Search function	5
	Printing ticket	5
	Backup (user log file)	5
	Form layout/formatting	10
	Extra content (using controls not covered in class)	5
	Presentation	5
	Live demonstration of a random task	
	Good handling of Q&A	
Total Points		100

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Introduction

For this project, our group decided to create the “Flight Booking” application using the JADE IDE. The Flight Booking application was made for a travel store to make the process of booking flights for customers streamlined and to allow customers to easily apply for tickets. The travel store is based in New Zealand and only deals with domestic flight between the major cities of Auckland, Wellington, Christchurch, Dunedin, and Invercargill. We have named the travel store Collective Travel Store.

To be considered completed we have determined that the application needs the below functionality:

- Multi-level login with different user permissions
- Forms for CRUD operations
- Add and edit passengers
- View and search available flights
- View and create tickets
- Print tickets once paid for

Task Allocation

The group team consisted of three members:

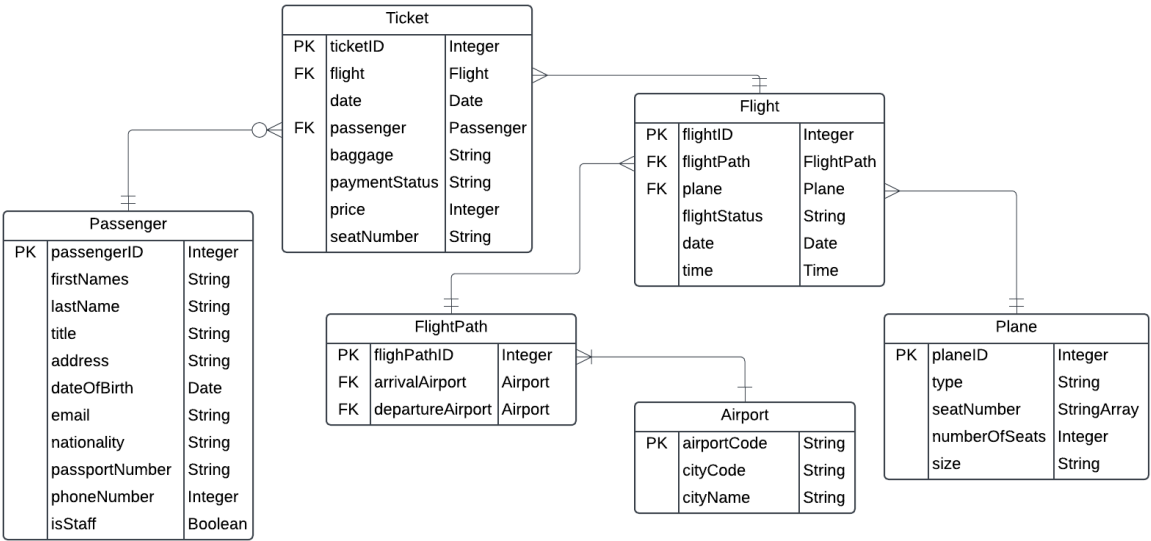
- Paige Clay (Project Manager)
- Bilee Billyard
- Alia Haizat

As this class was the first time any of us had encountered JADE, during the planning stage of the project we determined that we would send the schema files in a weekly rotation and just work on what we could while using the labs and modules as references.

Below is a list of who ended up doing which task:

- Alia
 - Skeleton for the application and its forms
 - Planned out each class and its attributes
 - Created Log Files
 - Created form navigation
 - Implemented security within UI
 - Designed form UI
- Bilee
 - Created the classes and attributes
 - Implemented the multi-level authentication functionality
 - Created the links between forms
 - Helped create Log files
 - Helped with development of populating tables with the relevant information
 - Helped with the development of JadeScript Methods used within the application
- Paige
 - Implemented the create methods for each class
 - Implemented relationships between objects
 - Created input forms for tickets and passengers
 - Implemented the back navigation with user-level flow
 - Helped with the development of JadeScript Methods used within the application

Entity Relationship Diagram



Application Manual

When the application first loads the user is greeted by a main menu with a “search for flights” form and their authorisation level is guest. There are also options to register or log in. The search form takes the user input arrival and departure airports and then displays the flights based on the user input. From there the user can either return to the main menu or go to the login form.

The user can then click on the sign in button, which displays a form for logging in, or click on the create new account for creating a new passenger. The user will fill in the form and the `isStaff` field will determine if the user has the privileges of a passenger or manager. For admin, if the user signs in with the already-created admin account then they will have the same privileges as the manager. These privileges are shown as below. Each user level has a different menu to ensure privileges are correctly given. All forms have back navigation, and the user menus have logout buttons.

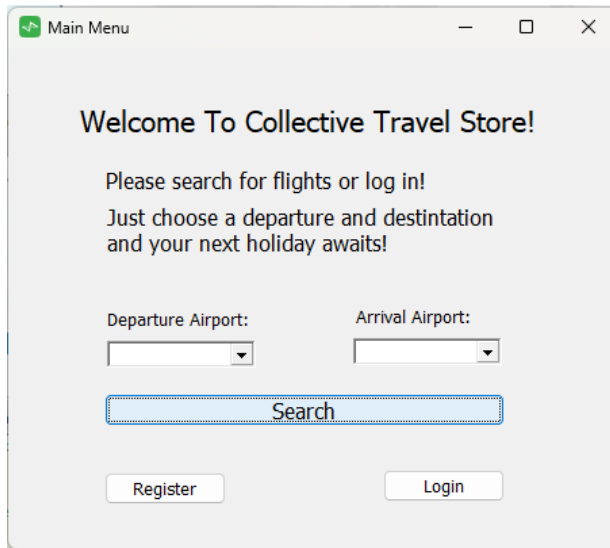
The user, once signed in as a passenger will be able to create an application for a ticket by clicking on the “apply for ticket” button. The user can view all their tickets’ information by clicking on the “view my tickets” button and then print it if the `paymentStatus` field equals “Paid”. The user will also be able to change their account information by clicking on the “change account” button in the menu.

The user, once signed in as a manager or admin will be able to view all tickets in the database by clicking on the “view tickets” button in the menu, as well as print the paid for tickets. They can also view all the unpaid tickets by clicking on the “process payment” button in the menu and if needed, change the `paymentStatus` field in a ticket to Paid. They can also view all passengers, and then edit or delete passenger by clicking on the “manage passenger” button. They can also click on the “manage flights” in the menu to view all flights”. The admin has an extra privilege for doing logs and backups.

Interface Design

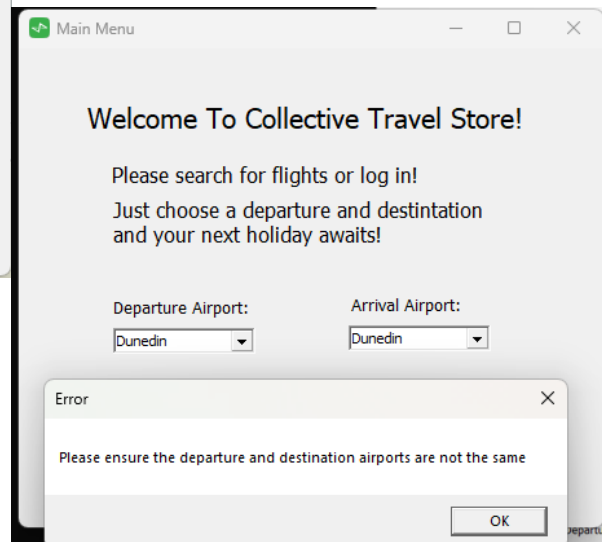
For the design of the interface, we went for a minimalistic design, with varying shades of grey. If we were more prepared and had a better understanding of JADE forms, we would have better planned our interface and created wireframes. One feature we do have is that for each of our menus for the different user levels there are picture icons instead of plain text links.

There is also plenty of error prevention and warning messages to prevent the user from adding incorrect or incomplete data. Below are some screenshots of our application.



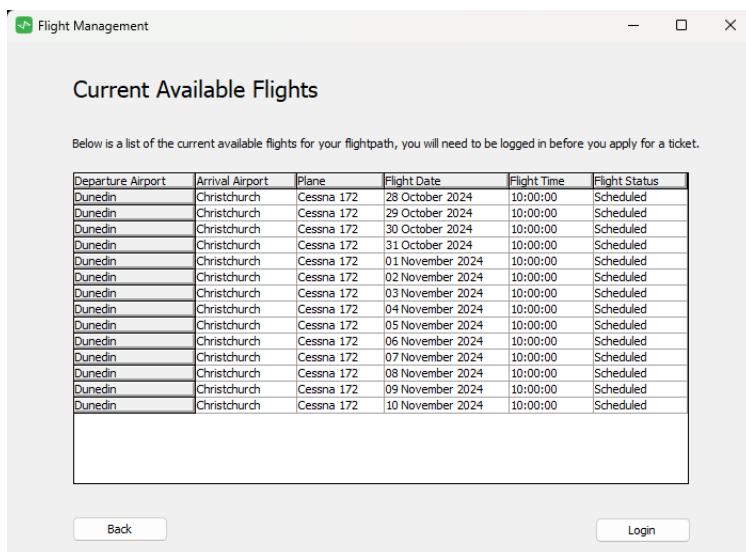
The Main Menu window has a title bar with a green icon and the text 'Main Menu'. The main content area has a light grey background. It features a welcome message: 'Welcome To Collective Travel Store!' followed by 'Please search for flights or log in! Just choose a departure and destination and your next holiday awaits!'. Below this are two dropdown menus for 'Departure Airport:' and 'Arrival Airport:'. A blue 'Search' button is centered below the dropdowns. At the bottom are two buttons: 'Register' and 'Login'.

This is the Main Menu which appears when you first load the application. As you are a guest you are limited to searching available flights and registering or logging in. Below show an error message that appears if the airports in the combo boxes are the same.



The Main Menu window is shown with an error message overlay. The error message box has a title bar with a red 'X' icon and the text 'Error'. The message inside says: 'Please ensure the departure and destination airports are not the same'. An 'OK' button is at the bottom right of the error box. The background window shows the same Main Menu as before, but with 'Dunedin' selected in both the 'Departure Airport:' and 'Arrival Airport:' dropdowns.

Once the search button is clicked with valid input, the FlightManagement form appears. As the user is currently a guest, they can only view the flights.



The Flight Management window has a title bar with a green icon and the text 'Flight Management'. The main content area has a light grey background. It features a heading 'Current Available Flights' followed by a note: 'Below is a list of the current available flights for your flightpath, you will need to be logged in before you apply for a ticket.' Below this is a table with 6 columns: 'Departure Airport', 'Arrival Airport', 'Plane', 'Flight Date', 'Flight Time', and 'Flight Status'. The table contains 14 rows of data. At the bottom are two buttons: 'Back' and 'Login'.

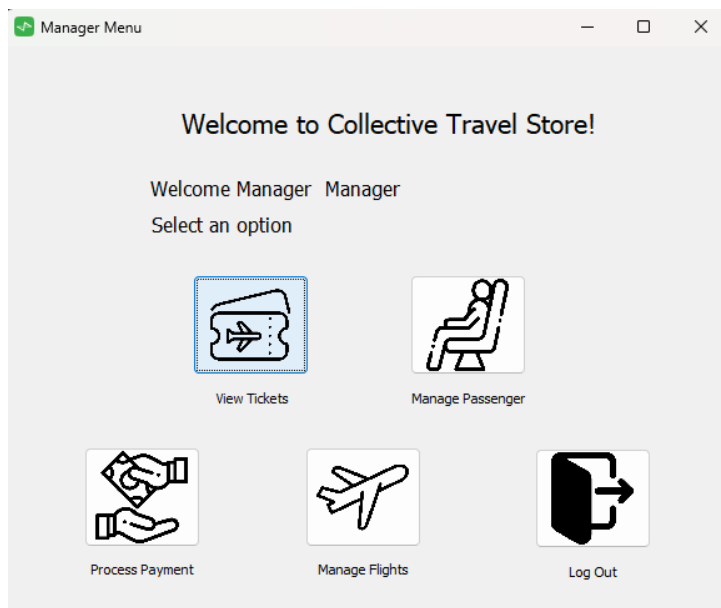
Departure Airport	Arrival Airport	Plane	Flight Date	Flight Time	Flight Status
Dunedin	Christchurch	Cessna 172	28 October 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	29 October 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	30 October 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	31 October 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	01 November 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	02 November 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	03 November 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	04 November 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	05 November 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	06 November 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	07 November 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	08 November 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	09 November 2024	10:00:00	Scheduled
Dunedin	Christchurch	Cessna 172	10 November 2024	10:00:00	Scheduled

Here are the LogIn and PassengerDetails forms. The PassengerDetails form will populate whenever a user needs to change their details.

The image shows two overlapping windows. The 'LogIn' window on the left has a title bar with a green icon and the text 'LogIn'. It contains a 'Main Menu' button, a welcome message 'Welcome Back to the Collective Travel Store!', a login instruction, and two input fields: 'Firstname/s:' with the value 'Sarah Jane' and 'Phone Number:' with the value '021231234'. At the bottom are 'Register' and 'Login' buttons. The 'Passenger Details' window on the right has a title bar with a green icon and the text 'Passenger Details'. It contains a title 'Passenger Details', a subtitle 'Please enter your information in the below fields. All required fields are marked with a red *', and a form with the following fields: 'First Names:' (Sarah Jane), 'Last Name:' (Smith), 'Title:' (dropdown), 'Date of Birth:' (dd/mm/yyyy), 'Address:' (123 Faket Street), 'Nationality:' (New Zealand), 'Phone Number:' (0281212312), 'Email:' (sarah.jane@email.com), 'Passport Number:' (NZ123123123), and 'Staff Member:' (dropdown). At the bottom are 'Cancel' and 'OK' buttons.

The menu that appears is based on which level of user the user logs in as, this is because each level has different permissions and can only access certain forms and information. The admin is created when the application is loaded, but the passenger and manager ones can be created using the above PassengerDetails form. The isStaff value is what differentiates between the manager and passenger.

The image shows two side-by-side windows. The 'Passenger Menu' window on the left has a title bar with a green icon and the text 'Passenger Menu'. It contains a welcome message 'Welcome To Collective Travel Store!', a greeting 'Hello Passenger', and the text 'Please select an option'. It features six icons with labels: 'Apply For Ticket' (ticket icon), 'View My Tickets' (ticket icon), 'Update Account Info' (person icon with circular arrows), 'Log Out' (door icon with arrow), 'Manage Passenger' (person in chair icon), and 'Process Payment' (hand holding coin icon). The 'Admin Menu' window on the right has a title bar with a green icon and the text 'Admin Menu'. It contains a greeting 'Hello Admin, its Good to See You!' and the text 'What do you need to do today?'. It features six icons with labels: 'Manage Passenger' (person in chair icon), 'Process Payment' (hand holding coin icon), 'Manage Flights' (airplane icon), 'Manage Tickets' (ticket icon), 'View Logs' (document icon with 'LOG'), and 'Log Out' (door icon with arrow).



There is also forms to view all the flights, passenger and tickets, but that is only available to the Manager and Admin users, the Passenger can only view their own tickets. Below is the form that displays all the passengers.

PassengerManagement

Passenger Management

First Names	Last Name	Title	Address	DOB	Email	Nationality	Passport Number	Phone Number	
Admin	Admin	Miss	163 Admin Road	05 January 2005	admin@sit.nz	New Zealand	NZ123123	021111111	
Manager	Man	Miss	567891	05 April 2000	fekdfwdfwk	67890	dewkd;ewl;dew	1234	
Passenger	Pass	Mr	hvbjnkm	09 August 1960	dfghbjnk	fdcgvhbjnmk	gfvhbjnkm	123	

Back

Remove Passenger

Edit Passenger

There is also a TicketDetails form which is where a user fills in the information to apply for a ticket. If the passenger's first name, last name and phone number don't match an existing Passenger, then that error box will appear.

Ticket Details

Apply For Ticket

Departing From: Passenger First Names:

To Destination: Passenger Last Name:

Date: Passenger Phone Number:

Baggage:

Seat Number:

Price: Price: \$99

Error

Passenger not found. Please register the passenger first.

Please enter a valid date

- passenger
- printBtn
- statusLine1
- table1

Jade Interpreter Out...

File Edit Options

Ticket Details
Ticket ID 1
Passenger First Names Admin
Passenger Last Name Admin
Departure Airport Christchurch
Arrival Airport Wellington
Flight Date 07 November 2024
Flight Time 10:00:00
Plane Astra SP
Seat Number 1A

Also when a ticket is paid for the user can print it, this is the output. If the ticket doesn't have a paymentStatus of paid then the program will give a warning.

Conclusion

Our team successfully created a working deliverable of a JADE “Flight Booking” application for a travel store . This application allows for multi-level user authentication, the ability to search for flights and apply for tickets, and registration of users, which helps to streamline the travel store’s process for themselves and tickets.

Although it was a difficult process, as this was the first time any of us had encountered JADE and our knowledge base that we had access to was quite small, we are pleased that we were able to adapt and produce a basic working model.

Overall, this project has been a valuable experience and as a team we faced this quite well. A few lessons we have learnt is that we should have planned the interface navigational flow before creating the application, and we should have begun the execution stage of the project a bit earlier on.