

# 159.352 2025/S1 – Assignment 2 Brief

## Online booking system for a fictitious airline

You have been commissioned to design a Web application that implements an online booking system for a new airline that operates out of Dairy Flat Airport (just north of Albany).

The airline provides a highly specialized point-to-point service with Dairy Flat as its hub. It operates a number of light jet planes. The pride of the fleet is a SyberJet SJ30i which can carry 6 passengers in luxury. Other aircraft are: two Cirrus SF50 jets that take 4 passengers each and two HondaJet Elite planes that can take 5 passengers each.

You may make your own choices of frameworks, libraries, and tools in Python and/or JavaScript. Your application should also use a suitable database.

## Routes description

The airline operates a weekly timetable with the following routes from Dairy Flat.

- A weekly “prestige” service to Melbourne using the SyberJet aircraft. The outbound flight departs Dairy Flat on Friday mid-morning with the return inbound flight departing Melbourne on Sunday mid-afternoon (their time).
- A shuttle service to Rotorua using one of the Cirrus jets. These operate twice every weekday Monday–Friday. The first flight departs Dairy Flat early morning with the return flight departing from Rotorua soon after. After turnaround, the next flight departs Dairy Flat late afternoon, with the return flight departing Rotorua in the evening.
- A three times weekly service to Claris airport in Great Barrier Island using the other Cirrus. The outbound flight departs Dairy Flat in the morning every Monday, Wednesday, and Friday. The return flight departs Great Barrier Island in the morning every Tuesday, Thursday, and Saturday.
- A twice weekly service to Tuuta Airport in the Chatham Islands using one of the HondaJets. The outbound flights depart Dairy Flat on Tuesday and Friday, with the return flights departing Tuuta on Wednesday and Saturday.
- A weekly service to Lake Tekapo in the South Island using the other HondaJet. Departs Dairy Flat on Monday with the return flight departing Tekapo on Tuesday.

## Note

- You are free to decide on the prices of the various legs of these flights.
- You can also decide on how to allocate flight numbers.
- You will need to decide on flight times between the end points. Just decide on any reasonable values. Note that, in this part of the world, westbound flights usually take longer than eastbound flights.
- You will need to allow for the different timezones involved: mainland New Zealand (GMT+12), the Chatham Islands (GMT+12:45), and Melbourne (GMT+10).
- For the airports given here, you may find the 4-letter ICAO codes useful as unique identifiers: NZNE (Dairy Flat), YMML (Melbourne), NZRO (Rotorua), NZCI (Tuuta), Claris (NZGB), and Lake Tekapo (NZTL).
- For reference: the Great Circle Mapper, <http://www.gcmap.com> has a nice tool for drawing great circle routes



## Requirements

### Required features

You will need to decide on a suitable design for the front and back ends to meet the following requirements. Your application should ...

- ...feature a landing page that functions as the entry point for your application
- ...provide a feature to search for flights
- ...provide a service to allow a user to select a scheduled flight and make a booking
- ...have the capability for a user to cancel a booking

## Marking Scheme

This assignment is worth 25 marks (25% towards your final grade).

### Business logic and functionality

You will need to decide on a suitable data model to organize user/customer and flight information according to the airline description and requirements. Also, you will need to decide on suitable URI patterns for the back end.

The user should be provided with a unique booking reference. A booking should not be allowed on scheduled flights that are full up.

Your application should work with real calendar dates and not just the named days of the week.

[9 marks]

### Ease of use

The front end should provide as much guidance to the user as possible. In particular, it should allow the user to **conveniently** search for desired flights.

On making a booking, the user should be presented with an invoice page summarizing the details of the flight, i.e. price, departure date and time, arrival time, etc.

[6 marks]

### Presentation

The front end output should be displayed in an attractive manner—you should do more than just show plain text and vanilla HTML. Feel free to make use of the appropriate front end tools. However, do not overdo the graphics to the point where your application becomes difficult to use (as with some real sites).

[6 marks]

### Deployment

Your application should be packaged as a Docker image and be deployable in a Docker container.

[4 marks]

**Due date:** 2025 May 30, 11:55pm.