

Assignment Flight Booking

You are going to write a piece of software for booking flights.

First, different airports need to be tracked in the software. For now, these are JFK, AMX, MEX and LAX.

The distances between the airports are as follows:

JFK <-> AMS	5848 km
JFK <-> MEX	3366 km
JFK <-> LAX	3975 km
AMS <-> MEX	9206 km
AMX <-> LAX	8956 km
MEX <-> LAX	2500 km

Attached to a flight is an airplane. There are two types of airplanes: private airplane and commercial airplane. Both airplanes have a code (type of license plate) and a current fuel level. Of the private plane, the number of seats must be tracked. The same applies to the commercial plane, only there are two types of seats: economy and business. You need to store the number of seats on both types of seats.

Furthermore, a flight's departure and arrival airport and departure date and time are tracked. Also, a flight has one of the following statuses: awaiting departure, boarding, departed, landed.

Luggage is also tracked. The weight of a piece of luggage is stored and whether it is hold or carry-on luggage. A private plane has no space for hold luggage.

For both types of airplanes, it is possible to retrieve how much fuel they consume for a flight. The calculation of this is as follows:

Airplane	Usage in liters
Private airplane	Amount of seats * 1,31 * distance of the flight + (Seats taken * 1,87) + (Weight of luggage * 0,4)
Commercial airplane	(Economy seats * 1,75) + (Business seats * 1,98) * distance of the flight + (Economy seats taken * 2,02) + (Business seats taken * 2,87) + (Weight of luggage * 0,3)

Before a flight can depart, it must be checked that there is sufficient fuel on board. If so, it can depart. The flight is then given the status: departed.

Furthermore, a person can book a ticket. He then specifies his departure and arrival airport. Only the person's name is kept. He can also specify luggage, at most one piece of carry-on baggage and/or several pieces of checked luggage. The system checks to see if a flight that has not departed is available. If it is available, a seat is reserved in the plane (to avoid complexity, the passenger cannot choose in the commercial plane what type of seat he wants, the first available seat is reserved for him).

Of course, the system must also be able to provide information to Flight24. Flight24 would like to be able to retrieve the information in a simple String. Flight and aircraft information must be able to be retrieved.

For a flight, it should be formatted like this:

F: AMX -> LAX. Departure 26-09-2023 12:54.

For an airplane as follows:

P: KLM124. 35235 liter fuel. 24 empty seats.

A separate class Flight24Uploader will hold all the data. There will be an upload function in there to upload (or write away to a file) the data.

Handle all invalid scenarios neatly with exceptions.

✍ Implement the following

- Create the class diagram based on the text above.
- Build the application based on your design.