

# Project Assignment

A small airline company has just purchased a computer for its new automated reservations system. You have been asked to develop the new system. You are to write an application to assign seats on the airline's airplane. The Customer can choose between first class and economy class.

The airplane has 10 seats. There is also food service available on the airplane, and the customer can choose no/yes if he wants to eat food on the airplane.

## Airplane reservation

If the customer chooses first class, your application should assign a seat in the first-class section (seats 1–5). If the user chooses economy class, your application should assign a seat in the economy section (seats 6–10).

A first class ticket costs 20 000kr and an Economy ticket 5000kr.

Your application should never assign a seat that has already been assigned. If there are no available tickets in the section, ask the customer if he wants to be placed in another section.

## The food service

The customers can reserve food on the airplane. Create a list of food items and assign a price for each item. The first class travelers have a separate menu from the economy travelers. Calculate the food price for each traveler.

## The complete booking system:

Integrate the food reservation and the ticket reservation in the same system and print the total price for each passenger (food + ticket). Calculate the income for the airline company by summing up the prices of the ticket and food items for all passengers. Print the total income for the company.

Assume that 70% of the income is used to cover all the costs for the company. The total profit for the company's is then  $0.3 \times \text{income}$ . Print the profit.

**Optional Bonus assignment 1:** The airline company wants to expand its business by adding 2 more airplanes. The new airplanes have 10 seats (5 First class and 5 Economy class). Change your code so that the airplanes can be used. Make your code flexible so that planes can be added/removed and modified without breaking the code.

**Optional Bonus assignment 2:** Assume that it takes 1 minute to travel from source to destination: Add threads for simulating each airplane, when the booking desk has finished the bookings for each plane they can be sent off. When the plane is sent off simulate and print the takeoff, flight, landing and refuel for each airplane. The booking

desk should only be able to book passengers for a plane that is currently waiting at an airport.

Presentation of project: Thursday 24<sup>th</sup> of November 9-16, 10-20 minutes. Present the solution or parts of the solution on the projector, and make a short powerpoint presentation.