SESSION 7: MODULARIZATION (II)

GOAL:

- To strengthen the concepts studied in theory about modular programming (organizing the code into methods).

EXERCISE:

Implement a modularized program to manage the sale of airline tickets for a low-cost airline for one route. The program must allow the sale and cancellation of tickets, as well as checking the availability of seats.
The characteristics of the route are:

- The flight has **F** rows of seats, with 4 seats per row.
- The route has a base price **P** (integer value).

This data (number of rows and base price of the route) will be read from the keyboard at the beginning of the execution of the application.

Ticket sales
The program will allow the user to buy **N (<=10)** tickets, with the following characteristics:
The user will choose the seat (row and seat in that row) for each of the **N** seats among the available seats. For this purpose, the program will previously display the status of the airplane so as to visualize which seats are available and which ones are taken.
The total price will take into account the number of tickets purchased and the ticket price for each seat, which will be the base price set at the start of the execution, except in the following case:

- If a complete row is purchased (the 4 seats corresponding to a row) a 5% discount is applied to the total price.

Check availability of seats
The user will be asked to enter the row and column of the seat they wish to check and the program will tell him/her whether it is available or taken.

Cancellation of tickets
The user can cancel tickets. The program will request the position (row and column) of the seat, and, if it is occupied, it will be available again.

Other considerations:

- The number of tickets to be purchased must be less than the number of available seats and greater than 0.
- When purchasing tickets, it is not possible to choose a taken seat. In this case a message will be displayed and the current seating status of the airplane will be shown again.
- When cancelling tickets, it is not possible to cancel an available seat.

The methods developed in Practice 6 must be used.
The program must be properly documented and formatted according to the Java style guide.
The interaction with the user should be as explicit as possible.
The use of global variables should be avoided.

EXAMPLE OF EXECUTION:

```
** Welcome to the ticket sales system **
Enter the number of rows of the airplane: 5
Enter the single ticket price: 36
0. Exit
1. Ticket sales
2. Check available seats
3. Cancel tickets
Choose an option from the menu(value in range [0, 3]) 1
How many tickets do you want to buy?: (value in range [1, 10]) 2
Row 0: true  true  true  true
Row 1: true  true  true  true
Row 2: true  true  true  true
Row 3: true  true  true  true
Row 4: true  true  true  true
Enter row for requested seat1: (value in range [0, 4]) 0
Enter row for requested seat 1:(value in range [0, 3]) 1
You have bought the seat 1 in row 0
Enter row for requested seat2: (value in range [0, 4]) 1
Enter row for requested seat 2:(value in range [0, 3]) 3
You have bought the seat 3 in row 1
The final price (discount does not apply) is: 72,00
0. Exit
1. Ticket sales
2. Check available seats
3. Cancel tickets
Choose an option from the menu(value in range [0, 3]) 1
How many tickets do you want to buy?: (value in range [1, 10]) 5
Row 0: true  false  true  true
Row 1: true  true  true  false
Row 2: true  true  true  true
Row 3: true  true  true  true
Row 4: true  true  true  true
Enter row for requested seat1: (value in range [0, 4]) 2
Enter row for requested seat 1:(value in range [0, 3]) 0
You have bought the seat 0 in row 2
Enter row for requested seat2: (value in range [0, 4]) 2
Enter row for requested seat 2:(value in range [0, 3]) 1
You have bought the seat 1 in row 2
Enter row for requested seat3: (value in range [0, 4]) 2
Enter row for requested seat 3:(value in range [0, 3]) 2
You have bought the seat 2 in row 2
Enter row for requested seat4: (value in range [0, 4]) 2
Enter row for requested seat 4:(value in range [0, 3]) 3
You have bought the seat 3 in row 2
Enter row for requested seat5: (value in range [0, 4]) 1
Enter row for requested seat 5:(value in range [0, 3]) 0
You have bought the seat 0 in row 1
The final price, including the discount for buying a whole row is: 171,00
0. Exit
1. Ticket sales
2. Check available seats
3. Cancel tickets
Choose an option from the menu(value in range [0, 3])
```