

# SCS2204 Functional Programming

## Seat reservation problem

### Group 34

#### Group members

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We created a simple scala program for seat reservation in an airline. Assume the airline has **50 seats**. The program and its functionalities are described as bellow,

This is the first look of the system.

```
Terminal
senal@senal-Ubuntu:~$ scalac seat_reservation.scala
senal@senal-Ubuntu:~$ scala seat_reservation

***** Welcome to Flyus airline *****

----- Available seats -----
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_1  FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_2  FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_3  FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_4  FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_5  FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE

Do you want to reserve a seat? (Yes/No) :- 
```

So if a customer selects 'yes' he/she can reserve a seat as follows,

```
senal@senal-Ubuntu:~$ scalac seat_reservation.scala
senal@senal-Ubuntu:~$ scala seat_reservation

***** Welcome to Flyus air line *****

----- Available seats -----
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_3  FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_4  FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_5  FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
-----

Do you want to reserve a seat? (Yes/No) :- yes
#Enter row number :- 1
#Enter seat number:- 1

You successfully booked a seat.
Your Seat number is R1s1

----- Available seats -----
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  BOOKED   FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_3  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_4  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_5  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
-----

Do you want to reserve a seat? (Yes/No) :- yes
#Enter row number :- 2
#Enter seat number:- 3

You successfully booked a seat.
Your Seat number is R2s3

----- Available seats -----
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  BOOKED   FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_3  FREE     FREE      BOOKED   FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_4  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_5  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
-----

Do you want to reserve a seat? (Yes/No) :- yes
#Enter row number :- 2
#Enter seat number:- 11

You entered a incorrect seat number. Please check it and try again!

----- Available seats -----
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  BOOKED   FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_3  FREE     FREE      BOOKED   FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_4  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_5  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
-----

Do you want to reserve a seat? (Yes/No) :- yes
#Enter row number :- 0
#Enter seat number:- 2

You entered a incorrect row number. Please check it and try again!

----- Available seats -----
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  BOOKED   FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_3  FREE     FREE      BOOKED   FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_4  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_5  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
-----

Do you want to reserve a seat? (Yes/No) :- yes
#Enter row number :- 0
#Enter seat number:- 13

You entered incorrect row number and seat number. Please check it and try again!

----- Available seats -----
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  BOOKED   FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_3  FREE     FREE      BOOKED   FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_4  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
row_5  FREE     FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE      FREE
-----

Do you want to reserve a seat? (Yes/No) :- No

***** Thank you *****
```

If a customer selects the correct and available seat , the relevant seat is reserved and the customer receives the relevant seat number. For example if a customer selects row number as 2 and seat number as 3 , his/her seat number is R2S3. System checks that customer is going to choose the correct row number and seat number. If she/he selects an incorrect row number or seat number, the system will give an error message as above. Customers can book one or more seats. Available seats and booked seats are shown by the system.

Assume that all seats are booked. Then customers can't book seats.

```

..... Available seats .....
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED
row_3  BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED
row_4  BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED
row_5  BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED   BOOKED
.....

Do you want to reserve a seat? (Yes/No) :- yes
Sorry! Seats are not available

***** Thank you *****

```

When booked seats are available, staff should record them as available seats. Also system will check is relevant seat exists and is it a booked seat as below,

```

s Terminal 30 17:15
senal@senal-Ubuntu: ~

***** Welcome to Flyus airline *****

..... Available seats .....
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
row_3  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
row_4  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
row_5  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
.....

Do you want to reserve a seat? (Yes/No) :- yes
#Enter row number :- 1
#Enter seat number:- 1

You successfully booked a seat.
Your Seat number is R1S1

..... Available seats .....
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  BOOKED   FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
row_3  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
row_4  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
row_5  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
.....

Do you want to reserve a seat? (Yes/No) :- yes
#Enter row number :- 1
#Enter seat number:- 3

You successfully booked a seat.
Your Seat number is R1S3

..... Available seats .....
row_1  seat_no1  seat_no2  seat_no3  seat_no4  seat_no5  seat_no6  seat_no7  seat_no8  seat_no9  seat_no10
row_2  BOOKED   FREE     BOOKED   FREE     FREE     FREE     FREE     FREE     FREE     FREE
row_3  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
row_4  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
row_5  FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE     FREE
.....

Do you want to reserve a seat? (Yes/No) :- no

***** Thank you *****

..... For staff only .....

```

```
----- Available seats -----
  seat_no1    seat_no2    seat_no3    seat_no4    seat_no5    seat_no6    seat_no7    seat_no8    seat_no9    seat_no10
row_1  FREE    FREE    BOOKED    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_2  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_3  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_4  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_5  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE

-----

Do you want to remove a seat? (Yes/No) :- yes
#Enter row number :- 3
#Enter seat number:- 5

The relevent seat is not booked yet.

----- Available seats -----
  seat_no1    seat_no2    seat_no3    seat_no4    seat_no5    seat_no6    seat_no7    seat_no8    seat_no9    seat_no10
row_1  FREE    FREE    BOOKED    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_2  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_3  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_4  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_5  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE

-----

Do you want to remove a seat? (Yes/No) :- yes
#Enter row number :- 0
#Enter seat number:- -1

You entered Incorrect row number and seat number. Please check it and try again!

----- Available seats -----
  seat_no1    seat_no2    seat_no3    seat_no4    seat_no5    seat_no6    seat_no7    seat_no8    seat_no9    seat_no10
row_1  FREE    FREE    BOOKED    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_2  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_3  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_4  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_5  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE

-----

Do you want to remove a seat? (Yes/No) :- yes
#Enter row number :- 1
#Enter seat number:- 3

You Successfully Free the R1s3 seat

----- Available seats -----
  seat_no1    seat_no2    seat_no3    seat_no4    seat_no5    seat_no6    seat_no7    seat_no8    seat_no9    seat_no10
row_1  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_2  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_3  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_4  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE
row_5  FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE    FREE

-----

Do you want to remove a seat? (Yes/No) :- yes
All Seats are available.

-----
senal@senal-Ubuntu:~$
```

Finally, this is our solution for simple seat reservation in an airline.

Thank you.

Link to the code -

[https://github.com/Senal-Punsara/Assignments-19001241-/tree/master/Seat\\_reservation\\_Group-34](https://github.com/Senal-Punsara/Assignments-19001241-/tree/master/Seat_reservation_Group-34)