

CS101- Algorithms and Programming I

Lab 10

Lab Objectives: Classes and Objects.

IMPORTANT:

- For all labs in CS 101, your solutions must conform to the CS101 style guidelines (rules!).
 - You should not use break statements in your solution.
 - Before implementing your programs, you should analyse the problem and plan and write the algorithm you will use to solve the problem.
1. For this lab, you will use your solution from Lab 07, and update to make the application a more object-oriented application. Modify your code according to the following.
 - **Create** a class, `Customer`. Each customer has a name and a phone number. All attributes should be private with appropriate getters and setters. You should also implement the `toString()` method.
 - **Create** a class, `Reservation`. The information stored about each reservation is the date/time (`LocalDateTime` object) and the customer (`Customer` object). All attributes should be private with appropriate getters and setters. You should also implement the `toString()` method.
 - **Modify** the `ReservationGenerator` class to return one single `ArrayList` containing the given number of random `Reservations`. You should modify the class given, do not create your own class.
 - **Modify** your application class from Lab 07, by renaming it `ReservationApplication`. Update the application to make use of a single `ArrayList` of random `Reservations` (generated using the `ReservationGenerator` functionality), instead of 3 separate `ArrayLists`.
 - **Add** a method, `bubbleSort()`, that takes the list of `Reservations` as a parameter, and sorts the list by the reservation date.
 - **Modify** the menu shown in the sample run, to use the list of `Reservations`. Add an item to the menu, Sort Restaurants and implement the necessary functionality.

Sample Run:

```
1)Search reservations by date
2)Cancel Reservation
3)Display all reservations
4)Sort Reservations
5)Exit
Enter choice: 3
ALL RESERVATIONS
-----
Derin (530) 776 33 32: 18 MAY 18:30
Fikret (531) 542 33 32: 16 MAY 20:30
Ela (598) 394 33 32: 18 MAY 19:30
Zana (521) 762 33 32: 19 MAY 21:30
Birce (521) 762 33 32: 16 MAY 19:0
Kaya (532) 544 33 32: 18 MAY 18:0
```

Timur (511) 617 34 32: 17 MAY 20:0
Engin (531) 542 33 32: 16 MAY 21:30
Ela (504) 872 33 32: 16 MAY 21:0
Aylin (503) 542 22 32: 16 MAY 19:0

1)Search reservations by date
2)Cancel Reservation
3)Display all reservations
4)Sort Reservations
5)Exit
Enter choice: 4

1)Search reservations by date
2)Cancel Reservation
3)Display all reservations
4)Sort Reservations
5)Exit
Enter choice: 3

ALL RESERVATIONS

Birce (521) 762 33 32: 16 MAY 19:0
Aylin (503) 542 22 32: 16 MAY 19:0
Fikret (531) 542 33 32: 16 MAY 20:30
Ela (504) 872 33 32: 16 MAY 21:0
Engin (531) 542 33 32: 16 MAY 21:30
Timur (511) 617 34 32: 17 MAY 20:0
Kaya (532) 544 33 32: 18 MAY 18:0
Derin (530) 776 33 32: 18 MAY 18:30
Ela (598) 394 33 32: 18 MAY 19:30
Zana (521) 762 33 32: 19 MAY 21:30

1)Search reservations by date
2)Cancel Reservation
3)Display all reservations
4)Sort Reservations
5)Exit
Enter choice:5