

CSE212: SOFTWARE DEVELOPMENT METHODOLOGIES

YEDITEPE UNIVERSITY

SPRING 2022

ASSIGNMENT 4 – DUE DATE MAY 8TH, 2022

This semester, you will be implementing a *Fuel Station Management System* as part of your assignment series. In this context, you are a large corporate fuel company that wants to streamline management on its fuel stations.

For the fourth assignment, you are asked to use **Comparable** and **Comparator** to sort the sold services according to various parameters.

The **default sorting** should be done according to the **prices** for the sold services. Also, you should also implement a sorting mechanism (**Comparator**) according to **car plates** for the sold services.

The sorting should be in ascending order for both prices and car plates, where the plate should be treated as string and sorted alphabetically.

- When the user selects the 8th option, the services should be sorted in **default** manner according to their prices.
- When the user selects the 11th option, the services should be sorted according to their car plates by the help of a **Comparator**.

Rules that you must follow

1. You are given a MainClass.java file. Here you can find the main method and the general outline of the menu structure. You can also find the necessary method calls that perform the 11th option of the menu.
 - a. `public static void displayServices2(Station[] stationArray)`
2. These methods listed above must be defined in the Station class and should be static such that you can access them from the main method directly. What they do is self explanatory as it can be understood from their name.
3. You are **not allowed** to make any changes to the MainClass.java file.
4. Your class, variable, method, etc. names should be defined as indicated in this PDF file unless stated otherwise.
5. **If your code does not compile you won't get any credit!**

6. Your program output should **match** the example given below. Keep in mind the spaces, empty lines, asking the user input in the same line, etc.
7. Write each class in a separate .java file.

Application Walkthrough

1. Create a new station
2. Add gasoline to a station inventory
3. Add diesel to a station inventory
4. Display a station inventory
5. Sell gasoline to customer
6. Sell diesel to customer
7. Sell car wash
8. Display sold services so far
9. Add personnel/manager to a station
10. Calculate net profit of a station
11. Display sold services (sorted by plate)
0. Exit

1

Please enter the name of the Station: JAVA

Please enter the Station ID: 1

1. Create a new station
2. Add gasoline to a station inventory
3. Add diesel to a station inventory
4. Display a station inventory
5. Sell gasoline to customer
6. Sell diesel to customer
7. Sell car wash
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9. Add personnel/manager to a station
10. Calculate net profit of a station
11. Display sold services (sorted by plate)
0. Exit

9

1. Add a personnel

2. Add a manager

1

Please enter the ID of the Station you want to add a person: 1

Please enter a name: A

Please enter a surname: A

1. Create a new station

2. Add gasoline to a station inventory
3. Add diesel to a station inventory
4. Display a station inventory
5. Sell gasoline to customer
6. Sell diesel to customer
7. Sell car wash
8. Display sold services so far
9. Add personnel/manager to a station
10. Calculate net profit of a station
11. Display sold services (sorted by plate)
0. Exit

9

1. Add a personnel
2. Add a manager

1

Please enter the ID of the Station you want to add a person: 1

Please enter a name: B

Please enter a surname: B

1. Create a new station
2. Add gasoline to a station inventory
3. Add diesel to a station inventory
4. Display a station inventory
5. Sell gasoline to customer
6. Sell diesel to customer
7. Sell car wash
8. Display sold services so far
9. Add personnel/manager to a station
10. Calculate net profit of a station
11. Display sold services (sorted by plate)
0. Exit

9

1. Add a personnel
2. Add a manager

2

Please enter the ID of the Station you want to add a person: 1

Please enter a name: C

Please enter a surname: C

Please enter how many years the manager is working: 3

1. Create a new station
2. Add gasoline to a station inventory

3. Add diesel to a station inventory
4. Display a station inventory
5. Sell gasoline to customer
6. Sell diesel to customer
7. Sell car wash
8. Display sold services so far
9. Add personnel/manager to a station
10. Calculate net profit of a station
11. Display sold services (sorted by plate)
0. Exit

2

Please enter the ID of the Station you want to search: 1

Please enter the origin of gasoline: Q

Please enter the price per liter: 1.4

Please enter the total shipment volume in liter: 200

The total gasoline liters in Station #1 is 200.0

The average gasoline price in Station #1 is 1.4

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3

Please enter the ID of the Station you want to search: 1

Please enter the origin of Diesel: W

Please enter the price per liter: 2.1

Please enter the total shipment volume in liter: 250

The total diesel liters in Station #1 is 250.0

The average diesel price in Station #1 is 2.1

1. Create a new station
2. Add gasoline to a station inventory
3. Add diesel to a station inventory
4. Display a station inventory

5. Sell gasoline to customer
6. Sell diesel to customer
7. Sell car wash
8. Display sold services so far
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11. Display sold services (sorted by plate)
0. Exit

4

Please enter the ID of the Station you want to display: 1

Displaying the inventory of Station #1

Gasoline...

The origin is: Q

Price per liter is: 1.4

Total liters of this gasoline is: 200.0

The total gasoline liters in Station #1 is 200.0

The average gasoline price in Station #1 is 1.4

Diesel...

The origin is: W

Price per liter is: 2.1

Total liters of this Diesel is: 250.0

The total diesel liters in Station #1 is 250.0

The average diesel price in Station #1 is 2.1

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5

Please enter the ID of the Station you want to sell Gasoline: 1

Please enter the car plate: 34 EE 45

Please enter the gasoline liter: 100

Please enter if you have a coupon (y/n): N

Personnel that helped during this service:

Name: B

Surname: B

1. Create a new station
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8. Display sold services so far
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10. Calculate net profit of a station
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6

Please enter the ID of the Station you want to sell Diesel: 1

Please enter the car plate: 34 AE 21

Please enter the diesel liter: 20

Please enter if you want discounted anti-freeze (y/n): N

Personnel that helped during this service:

Name: B

Surname: B

1. Create a new station
2. Add gasoline to a station inventory
3. Add diesel to a station inventory
4. Display a station inventory
5. Sell gasoline to customer
6. Sell diesel to customer
7. Sell car wash
8. Display sold services so far
9. Add personnel/manager to a station
10. Calculate net profit of a station
11. Display sold services (sorted by plate)
0. Exit

6

Please enter the ID of the Station you want to sell Diesel: 1

Please enter the car plate: 34 AE 20

Please enter the diesel liter: 40

Please enter if you want discounted anti-freeze (y/n): N

Personnel that helped during this service:

Name: A

Surname: A

1. Create a new station
2. Add gasoline to a station inventory
3. Add diesel to a station inventory
4. Display a station inventory
5. Sell gasoline to customer
6. Sell diesel to customer
7. Sell car wash
8. Display sold services so far
9. Add personnel/manager to a station
10. Calculate net profit of a station
11. Display sold services (sorted by plate)
0. Exit

7

Please enter the ID of the Station you want to sell car wash: 1

Please enter the car plate: 06 AE 12

Personnel that helped during this service:

Name: A

Surname: A

1. Create a new station
2. Add gasoline to a station inventory
3. Add diesel to a station inventory
4. Display a station inventory
5. Sell gasoline to customer
6. Sell diesel to customer
7. Sell car wash
8. Display sold services so far
9. Add personnel/manager to a station
10. Calculate net profit of a station
11. Display sold services (sorted by plate)
0. Exit

8

Please enter the ID of the Station you want to display: 1

Displaying the sold services of Station #1

Car Wash Service...

Car Plate is 06 AE 12.

The revenue from this service is 10.0.

Diesel Service...

Bought 20.0 liters.

Car Plate is 34 AE 21.

The revenue from this service is 42.0.

Diesel Service...

Bought 40.0 liters.

Car Plate is 34 AE 20.

The revenue from this service is 84.0.

Gasoline Service...

Bought 100.0 liters.

Car Plate is 34 EE 45.

The revenue from this service is 140.0.

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10

Please enter the ID of the Station you want to calculate profit: 1

Personnel: -103.0

Personnel: -103.0

Manager: -450.0

GasolineService: 140.0

DieselService: 42.0

DieselService: 84.0

CarWash: 10.0

Net profit of station is: -380.0

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9. Add personnel/manager to a station

10. Calculate net profit of a station
11. Display sold services (sorted by plate)
0. Exit

11

Please enter the ID of the Station you want to display: 1

Displaying the sold services of Station #1

Car Wash Service...

Car Plate is 06 AE 12.

The revenue from this service is 10.0.

Diesel Service...

Bought 40.0 liters.

Car Plate is 34 AE 20.

The revenue from this service is 84.0.

Diesel Service...

Bought 20.0 liters.

Car Plate is 34 AE 21.

The revenue from this service is 42.0.

Gasoline Service...

Bought 100.0 liters.

Car Plate is 34 EE 45.

The revenue from this service is 140.0.

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0. Exit

0

Submit your assignments in a zip file, which has your student number as name, through the YULEARN (<https://yulearn.yeditepe.edu.tr>) latest by the end of Sunday, May 8th, 2022.