ESKISEHIR TECHNICAL UNIVERSITY

FACULTY OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EEM 480 HOMEWORK 3

ALGORITHM AND COMPLEXİTY

Selin Akalın
40444602194

Purpose

The purpose of this assignment is to create a database and add data to it, pull it, display it, etc. In this assignment, an array list is created and customer information is kept in this list. From each customer information, the item list belonging to that customer is accessed. This item list is linked to the relevant customer as a linked list. Thanks to this assignment, we experience the use of array lists and linked lists. In addition, we can practice performing calculations with the captured data and extracting data from a text file.

Algorithm

addCustomer(Customer newCustomer):

1. Takes a `Customer` object (`newCustomer`) as a parameter.
2. Appends the `newCustomer` to the customers list

listItems(int ID):

1. Calls the `search_Customer` method to find the customer with the specified ID.
2. If the customer is found:

    - Prints the customer's name, surname, and ID.
    - Iterates through the linked list of items associated with the customer and prints details such as item name, date, and price.
    - If no items are found, prints a message indicating that no items exist for this customer.

3. If the customer is not found, prints a message indicating that the customer was not found

getNewCustomer(String Name, String Surname, int ID):

1. The purpose of this method is to create a new customer with name, surname and ID number information and return this `Customer` object. The linked list of the created `Customer` object is initially assigned null.

addNewItem (Integer ID, String ItemName, String Date, float Price):

1. Calls the `search_Customer` method to find the customer with the specified ID.
2. If the customer is found:

    - Creates a new `Item` object with the provided information.
    - Adds the new item to the start of the linked list associated with the customer.

3. If the customer is not found, throws an `IDNotFoundException` with an appropriate message.

getTotalTradeofCustomer(int ID):

1. Calls the `search_Customer` method to find the customer with the specified ID.
2. If the customer is found:

    - Iterates through the linked list of items associated with the customer and calculates the total trade.
    - Returns the total trade.

3. If the customer is not found, prints a message indicating that the customer was not found and returns null.

getTotalTrade():

1. Iterates through all customers in the `customers` list.
2. For each customer, iterates through the linked list of items and calculates the total trade for that customer.
3. Returns the overall total trade for the entire company.

readFromFile(String path):

1. It reads data line by line from a file called "`mydata.txt`". It splits each line according to space characters and performs different operations according to the resulting parts.
    - If the first element in the row is an integer, it subtracts those elements and creates a new element (Id, ItemName, Date, Price).
    - If the first element in the row is not an integer, it creates a new customer by removing those elements (Name, SurName, Id).

❖ I create a new method for `readFromFile`. Its name is `checkInt`. `checkInt` method checks whether the value in an array is an integer.

search_Customer(int ID):

1. Iterates through the `customers` list.
2. If a customer with the specified ID is found, returns the `Customer` object.
3. If no customer is found, returns null.

Referances

[1] https://www.geeksforgeeks.org/different-ways-reading-text-file-java/

[2] https://www.geeksforgeeks.org/javascript-number-parseint-method/

[3] https://www.geeksforgeeks.org/split-string-java-examples/

[4] https://www.w3schools.com/java/java_arrays_loop.asp