Project Report

CSE2025

This is a code for a banking simulation that works by reading the data from text files then storing it in linked lists to eventually compute the paid commission that every customer in all branches should pay.

Our code is constructed from 3 main functions "enqueue", "read .txt file" & "print data stored in linked lists". Each one of the structs has its own function of these 3 functions.

Enqueue function: -

In the function "enqueue", We started by assigning the struct variables as parameters of the function. By creating the node using malloc function, we started implement the linked list that we need to store the data of the "operation_types.txt" file. Then we check whether the "startptr" is NULL or not. Then, we declared a "currentptr" and assigned it to the "startptr". The "while" loop checks that if the "nextptr" is empty then it starts creating the linked list we need.

We did the same concept with the other 4 structs except that we added within "customers" & "transactions" functions, we declared a variable to 1 for "cno" and "tno".

Read functions: -

To read the text files & store the data in the linked list created before, we created functions for every text file. We started by creating a char array to input the file we need. By declaring the same struct variable, while loop is created to scan the operator's name & commission. Then, the scanned variables are implemented

from the text file to store it to linked list created in the "enqueue" function. Then, the "optnum" is incremented by 1.

The same concept is applied multiple times to read the data from the different text files with slight to changes to adapt to read the file properly. Except with the "readCustomers" function we called the function "checkName" to check whether first & last are spelled correct or not.

Print functions: -

In the "printPaidCommission" function, 5 pointers of the type of all 5 structs are declared at the beginning of the function. In the outer "while" loop the branches' names are printed, along with the customers who performed an operation in every specific branch. According to the commission rate, we used the formula (amount/100).

In the other "print" functions, the stored data in the implemented linked lists is printed using a "while" loop that takes the data in every node.

```
option: 1

please enter the name of the input file: operation_types.txt
--1 Money_Order 0.20
--2 EFT 15.60
--3 Deposit 0.00
--4 Withdraw 0.90
--5 Loan_Application 20.80
```

```
option: 2

please enter the name of the input file: branches.txt
Branch : 1 KADIKOY
Branch : 2 ARNAVUTKOY
Branch : 3 MALTEPE
Branch : 4 BESIKTAS
Branch : 5 USKUDAR
```

```
option: 3

please enter the name of the input file: customers.txt
Branch : 1 KADIKOY
  --1 Ali Kaya
  --2 Derya Demir
  --3 Ahmet Yilmaz
  --4 Sema Uzun
  --5 Serdar Caliskan
  --6 Kaan Ulu
Branch : 2 ARNAVUTKOY
  --1 Veli Bulut
  --2 Mehmet Uslu
  --3 Ece Kara
  --4 Murat Ak
  --5 Esra Yigit
Branch : 3 MALTEPE
  --1 Serpil Kara
  --2 Burak Marangoz
Branch : 4 BESIKTAS
Branch : 5 USKUDAR
  --1 Asli Orman
  --2 Fatma Cesur
```

```
option: 4

please enter the name of the input file: transactions.txt
Branch : 1 KADIKOY
  --1 Ali Kaya
          ++tno 4 operation type (optype) 4 amount 800.00
          ++tno 1 operation type (optype) 1 amount 551.00
          ++tno 3 operation type (optype) 3 amount 852.00
          ++tno 2 operation type (optype) 2 amount 10000.00
          ++tno 5 operation type (optype) 5 amount 810.00
          ++tno 2 operation type (optype) 2 amount 5500.40
          ++tno 4 operation type (optype) 4 amount 964.00
  --2 Derya Demir
  --3 Ahmet Yilmaz
  --4 Sema Uzun
  --5 Serdar Caliskan
  --6 Kaan Ulu
Branch : 2 ARNAVUTKOY
  --1 Veli Bulut
  --2 Mehmet Uslu
  --3 Ece Kara
          ++tno 3 operation type (optype) 3 amount 250000.00
  --4 Murat Ak
  --5 Esra Yigit
Branch : 3 MALTEPE
  --1 Serpil Kara
          ++tno 5 operation type (optype) 5 amount 2000.50
  --2 Burak Marangoz
          ++tno 2 operation type (optype) 2 amount 1500.00
          ++tno 3 operation type (optype) 3 amount 500.00
Branch : 4 BESIKTAS
Branch : 5 USKUDAR
  --1 Asli Orman
  --2 Fatma Cesur
```

Main function: -

Finally, in the main function the menu is printed, the switch case is created that when an option is selected, the program asks for the file name that is needed to be inputted. This text file is read by the program and stored in the implemented linked lists, then it prints the data of the text file to the screen. The switch case loops until the option input is a number out of bounds.

```
option: 5

Branch : KADIKOY
--> cust id 1 Ali Kaya
  --tno 1 optype 4 commission rate 0.90 amount 800.00 paid commission 7.20 total commission 7.20
  --tno 2 optype 1 commission rate 0.20 amount 551.00 paid commission 1.10 total commission 8.30
  --tno 3 optype 3 commission rate 0.00 amount 852.00 paid commission 0.00 total commission 8.30
  --tno 4 optype 2 commission rate 15.60 amount 10000.00 paid commission 1560.00 total commission 1568.30
  --tno 5 optype 5 commission rate 20.80 amount 810.00 paid commission 168.48 total commission 1736.78
  --tno 6 optype 2 commission rate 15.60 amount 5500.40 paid commission 858.06 total commission 2594.84
  --tno 7 optype 4 commission rate 0.90 amount 964.00 paid commission 8.68 total commission 2603.52
  ** paid commission 2603.52

--> cust id 2 Derya Demir
  --(customer has no transaction)
  ** paid commission 0.00

--> cust id 3 Ahmet Yilmaz
  --(customer has no transaction)
  ** paid commission 0.00

--> cust id 4 Sema Uzun
  --(customer has no transaction)
  ** paid commission 0.00

--> cust id 5 Serdar Caliskan
  --(customer has no transaction)
  ** paid commission 0.00

--> cust id 6 Kaan Ulu
  --(customer has no transaction)
  ** paid commission 0.00

Branch : ARNAVUTKOY
--> cust id 1 Veli Bulut
  --(customer has no transaction)
  ** paid commission 0.00

--> cust id 2 Mehmet Uslu
  --(customer has no transaction)
  ** paid commission 0.00

--> cust id 3 Ece Kara
  --tno 1 optype 3 commission rate 0.00 amount 250000.00 paid commission 0.00 total commission 0.00
  ** paid commission 0.00

--> cust id 4 Murat Ak
  --(customer has no transaction)
  ** paid commission 0.00

--> cust id 5 Esra Yigit
  --(customer has no transaction)
  ** paid commission 0.00

Branch : MALTEPE
--> cust id 1 Serpil Kara
  --tno 1 optype 5 commission rate 20.80 amount 2000.50 paid commission 416.10 total commission 416.10
  ** paid commission 416.10

--> cust id 2 Burak Marangoz
  --tno 1 optype 2 commission rate 15.60 amount 1500.00 paid commission 234.00 total commission 234.00
  --tno 2 optype 3 commission rate 0.00 amount 500.00 paid commission 0.00 total commission 234.00
  ** paid commission 234.00

Branch : BESIKTAS
Branch : USKUDAR
--> cust id 1 Asli Orman
  --(customer has no transaction)
  ** paid commission 0.00

--> cust id 2 Fatma Cesur
  --(customer has no transaction)
  ** paid commission 0.00
```