Question: Write a program to read lines of input from file, process the data, and out the results to a file.

1. Plan.txt

Program will have:

Main Method:

Global variables:

. employeeDetail dictionary

. customerDetail dictionary

. tranactionDetail dictionary

. transactionLog dictionary

Functions:

1. ReadDataOfFile function
   - Read whole content of the data.txt
2. CreateEmployeeDictionary function
   - Append data of employee read from the file data.txt to employeeDetail dictionary.
3. CreateCustomerDictionary function
   - Append data of customer read from the file data.txt to customerDetail dictionary.
4. CreateTransactionDictionary function
   - Append transaction data read from the file data.txt to transactionDetail dictionary.
5. Transaction function
   - Process deposit and withdraw
6. Deposit function
   - Read customer details and employee details.
   - Calculate new account balance after deposit.
   - Append deposited transaction details to the transactionLog dictionary
7. Withdraw function
   - Read customer details and employee details.
   - Calculate new account balance after withdraw.
   - Append withdrawn transaction details to the transactionLog dictionary
8. WriteTransactionLogToFile Function

-Write 12345678901234567890123456789012345678901234567890123456789012345678901234567890 in the first line of file

- Write the data of transactionLog dictionary in format:
  customerName employeeName deposited(+)/withdrawn(-)$Amount $ customerNewAccountBalance

Task, Time, LinesOfCode
Main Method, 15, 15
ReadDataOfFile function, 5, 3
CreateEmployeeDictionary function, 10, 15
CreateCustomerDictionary function, 10, 15
CreateTransactionDictionary function, 15, 15
Transaction function, 5, 8
Deposit function, 20, 20
Withdraw function, 20, 20
WriteTransactionLogToFile function, 10, 5
Error Fixing, 20, 0

2. Task.log

Timestamp	Activity	Status	Duration	Lines of Code
06-10-2020-11:49	Coding	Writing Main Method	6	11
06-10-2020-11:57	Coding	Writing ReadDataOfFile function	3	1
06-10-2020-12:01	Coding	Writing CreateEmployeeDictionary function	7	5
06-10-2020-12:08	Coding	Writing CreateCustomerDictionary function	3	7
06-10-2020-12:11	Coding	Writing CreateTransactionDictionary function	3	9

06-10-2020-12:14	Coding	Writing Transaction function	2	6
06-10-2020-12:16	Coding	Writing Deposit function	11	4
06-10-2020-12:28	Coding	Writing Withdraw function	8	4
06-10-2020-13:33	Coding	Writing WriteTransactionLogToFile function	5	3
06-10-2020-13:40	Coding	Error fixing	8	-
06-10-2020-13:36	Coding	Testing	17	-

3. Defect.log

Timestamp	Activity	Status
06-10-2020-13:40	Coding	"Output in single line"
06-10-2020-13:45	Coding	"floating value precision"

4. data.txt

e 5 Elden

c 3 Felipe 55342.51415

e 3 Leonardo

e 1 Yong

c 9 Alessandra 8114.541862

c 6 Marnie 15287.78233

e 8 Kourtney

c 2 Lou 95053.44742

c 5 Numbers 51245.66138

e 4 Jarvis

e 9 Marlen

e 10 Florance

c 1 Devon 56442.27875

e 2 Elliott

c 8 Justina 73723.84849

c 10 Reyna 82946.53205

e 6 Antonetta

e 7 Florene

c 4 Merrill 98281.82784

c 7 Marlana 33252.21805

t 1 8 w 4924.86

t 9 6 d 3220.42

t 6 1 w 127.62

t 9 8 w 5566.7

t 9 8 d 5414.55

t 5 7 w 9422.35

t 9 10 d 1382.07

t 4 7 d 6131.07

t 8 2 w 2362.22

t 8 10 d 5834.48

t 5 4 w 5150.73

t 6 2 d 3795.96

t 1 9 w 3919.45

t 5 2 w 5037.31

t 3 9 w 8129.21

t 8 6 d 1235.67

t 2 4 d 6901.28

t 8 10 d 5599.44

t 6 9 d 1936.16

t 7 9 d 7363.98

5. testData.txt

1234567890123456789012345678901234567890123456789012345678901234567890

Devon Kourtney -$4924.86 $ 51517.42

Alessandra Antonetta +$3220.42 $ 11334.96

Marnie Yong -$127.62 $ 15160.16

Alessandra Kourtney -$5566.70 $ 5768.26

Alessandra Kourtney +$5414.55 $ 11182.81

Numbers Florene -$9422.35 $ 41823.31

Alessandra Florance +$1382.07 $ 12564.88

Merrill Florene +$6131.07 $ 104412.90

Justina Elliott -$2362.22 $ 71361.63

Justina Florance +$5834.48 $ 77196.11

Numbers Jarvis -$5150.73 $ 36672.58

Marnie Elliott +$3795.96 $ 18956.12

Devon Marlen -$3919.45 $ 47597.97

Numbers Elliott -$5037.31 $ 31635.27

Felipe Marlen -$8129.21 $ 47213.30

Justina Antonetta +$1235.67 $ 78431.78

Lou Jarvis +$6901.28 $ 101954.73

Justina Florance +$5599.44 $ 84031.22

Marnie Marlen +$1936.16 $ 20892.28

Marlana Marlen +$7363.98 $ 40616.20

6. Functions.py

```
# Variables
employeeDetail = dict()
customerDetail = dict()
transactionDetail = list()
transactionLog = list()

# Functions
def ReadDataOfFile(filename: str):
    return open(filename, "r").readlines()

def CreateEmployeeDictionary(fileData: list):
    for line in fileData:
        line = line.strip().split()
        if line[0] == "e":
            id = line[1]
            employeeDetail[id] = line[2]
```

```
def CreateCustomerDictionary(fileData: list):
    for line in fileData:
        line = line.strip().split()
        if line[0] == "c":
            id = line[1]
            customerDetail[id] = dict()
            customerDetail[id]["name"] = line[2]
            customerDetail[id]["balance"] = float(line[3])

def CreateTransactionDictionary(fileData: list):
    for line in fileData:
        line = line.strip().split()
        if line[0] == "t":
            transactionData = dict()
            transactionData["customerId"] = line[1]
            transactionData["employeeId"] = line[2]
            transactionData["type"] = line[3]
            transactionData["amount"] = float(line[4])
            transactionDetail.append(transactionData)

def Deposit(transaction: dict):
    customerName = customerDetail[transaction["customerId"]]["name"]
    employeeName = employeeDetail[transaction["employeeId"]]
    customerDetail[transaction["customerId"]]["balance"] +=
    transaction["amount"]
    transactionLog.append(f"{ customerName } { employeeName } +${
    transaction['amount'] :.2f } $ {
    customerDetail[transaction['customerId']]['balance'] :.2f }\n")

def Withdraw(transaction: dict):
    customerName = customerDetail[transaction["customerId"]]["name"]
    employeeName = employeeDetail[transaction["employeeId"]]
    customerDetail[transaction["customerId"]]["balance"] -=
    transaction["amount"]
    transactionLog.append(f"{ customerName } { employeeName } -${
    transaction['amount'] :.2f } $ {
    customerDetail[transaction['customerId']]['balance'] :.2f }\n")
```

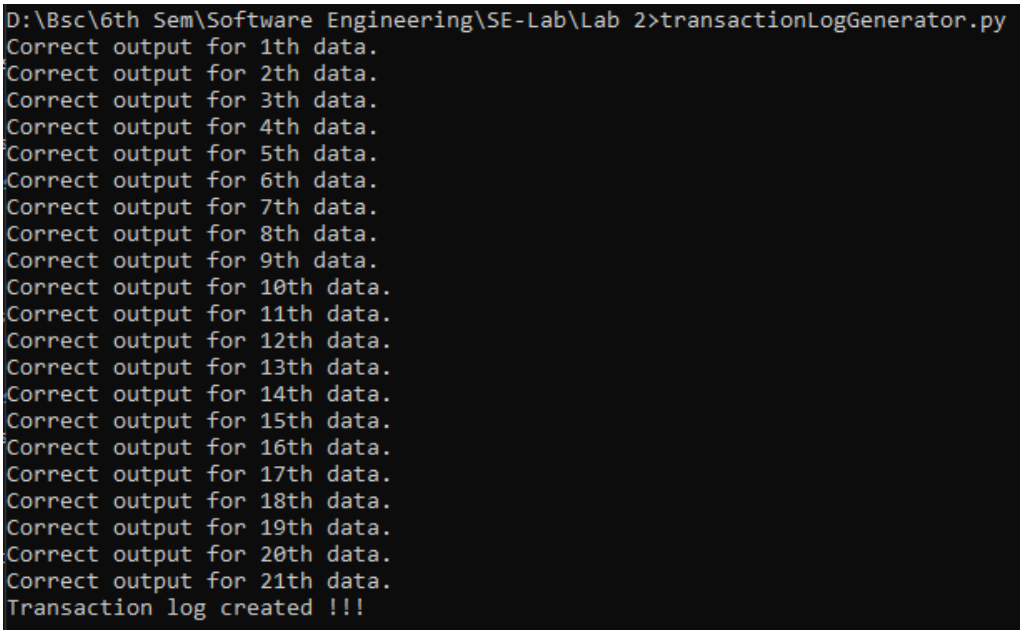
```
def Transaction():
   transactionLog.append("12345678901234567890123456789012345678901234567
   78901234567890\n")
        for transaction in transactionDetail:
            if transaction["type"] == "d":
                Deposit(transaction)
            else:
                Withdraw(transaction)


def WriteTransactionLogToFile(filename: str):
    with open(filename, "w") as fhandler:
        fhandler.writelines(transactionLog)
        print("Transaction log created !!!")

def TestResult(testData: list):
    for i in range(len(transactionLog)):
        if testData[i].strip() == transactionLog[i].strip():
            print(f"Correct output for {i + 1}th data.")
        else:
            print(f"Incorrect output for {i + 1}th data.")
```

7. transactionLogGenerator.py

```
# Start point
# Functions
import Functions as fn

fileData = fn.ReadDataOfFile("data.txt")

fn.CreateEmployeeDictionary(fileData)
fn.CreateCustomerDictionary(fileData)
fn.CreateTransactionDictionary(fileData)

fn.Transaction()
testData = fn.ReadDataOfFile("testData.txt")
fn.TestResult(testData)

fn.WriteTransactionLogToFile("transactionLog.txt")
```

8. Output

a. Command-line interface



b. transactionLog.txt

12345678901234567890123456789012345678901234567890123456789012345678901234567890

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