

MATRIC NO. :

QIUP-202004-003855



FACULTY OF SCIENCE & TECHNOLOGY
School of Computing

Bachelor of Computer Science (Hons)

November 2020 Semester
Mini Project

Date:

Time:

Duration: 7 Days

BCS 1105 Object Oriented Programming

Instructions to candidates:

TOTAL MARKS: 100

1. Please check that this question paper consists of **THREE (3)** pages of printed material including the cover page before you begin the Mini Project.
2. Answer the questions and store the Java program in a folder and the screenshot of the execution in a document file. The Java program folder and the document file should be compressed into a zip file.
3. You may submit your screenshot document either in Word *.docx format or PDF *.pdf format and Java program as entire project folder which include all the files.
4. There is a total of **ONE (1)** question which carries 100 marks.

Task (100 marks)

In this Mini-Project, you are required to write a Java Console Application to simulate Automated Teller Machine (ATM), a machine that belongs to Banks which dispenses money based on user requested amount, the money availability in the respective user's bank account and the minimum account balance value set by the respective Banks. Some ATMs do accept deposit money to the account as well.

This console application should contain various functions generally found in ATM which include Account statement, withdrawing money, depositing money, transferring money and changing the pin.

For a user who first time uses the system, the user needs to sign up with the system with the account holder's name and initial depositing amount (minimum RM 50.00). The unique account number (in 12 digits) and the pin number (in 6 digits) will be automatically generated by the program. The account registration information will then be displayed to the user and upon confirmation, the account registration information will then be stored in a text file which is named after the unique account number for each of the users. The purpose of using text file, so that the program could store the account information, transactions and retrieve the relevant information for processing every time the program restarts.

Normally, the ATM will take in an ATM card and will request for a pin before proceed with any transaction, but since you are simulating this scenario, you are required to replace the ATM card insert feature with enter account number.

Hence, at first the user has to enter an existing account number and the program will retrieve the information of the account from the respective text file. When the account number matches, the system proceeds next by asking for pin number. When a user passes all the sign-in procedures, the user can use all the features of ATM. A menu should be presented to the user which consist of all the required features of ATM.

If the account number does not exist in the system, the program should prompt the user either to sign up for a new account (as described in Paragraph 3 above), or re-enter the account number, or quit the system.

The required features of ATM are as follows:

- 1) Sign Up (store the account registration information in a text file)

- 2) Sign In (pin must be 6 digits and must not be visible when keyed-in)
 - pin values must contain numbers only, exactly 6 digits.
 - pin entered is either replaced by other character like asterisks (*) or nothing displayed during pin entry.
- 3) Account Statement (Account Number, Current Balance, Transaction History)
 - the statement must have timestamp (Date and Time).
- 4) Withdraw Money (Maximum RM 4,500.00 per day, RM 1,500.00 per withdrawal)
 - amount and timestamp (Date and Time) must be recorded.
- 5) Deposit Money (Maximum RM 3,000.00 per transaction, 3 times per day allowed)
 - amount and timestamp (Date and Time) must be recorded.
- 6) Transfer Money (Maximum RM 2,000.00 per transaction, 4 times per day allowed)
 - amount and timestamp (Date and Time) must be recorded.
- 7) Change Pin (2 unsuccessful attempts allowed)
 - after 3 unsuccessful attempts, "Your Account is locked" should be displayed.

Each of the requirement above should be written as a class, therefore your solution should have minimum classes SignUp, SignIn, AccountStatement, WithdrawMoney, DepositMoney, TransferMoney, ChangePin and a main program to execute all the classes. Additional classes can be added if needed.

Solution should include Object-Oriented Programming concept like Encapsulation, Inheritance and Polymorphism as well as File access and Exception Handling.

Testing should be conducted by creating multiple accounts through sign up. All the program execution steps for each requirement should be captured as screenshot and stored in a word document. All feature workings (inputs and outputs) should be demonstrated clearly on the screenshot.

(100 marks)

END OF QUESTION PAPER

BCS1105 – OOP Mini Project

Program execution steps

```
Microsoft Windows [Version 10.0.18363.1440]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\user>javac Main.java

C:\Users\user>java Main
***** A T M *****
How may I help you ?
 1 - Sign In
 2 - Sign Up
 3 - Exit program
*****

Enter option : 1
Enter account number: 123123123123

* Account number does not exist in the system
 1 - Sign up for new account
 2 - Re-enter the account number
Any other option - Quit the system

Enter your option: 1
Enter name: Chung Yau Kit
Enter initial deposit amount (Minimum RM 50.00): 100

Registration information
-----
Account holder's name : Chung Yau Kit
Account number       : 084828992426
Pin number          : 206059
Available balance(RM) : 100

* Confirm register account ? (Y/N) : y

Personal account record is created...
Rerun the program to Sign In

C:\Users\user>_
```

First run the program it will lead user to menu interface

User input option

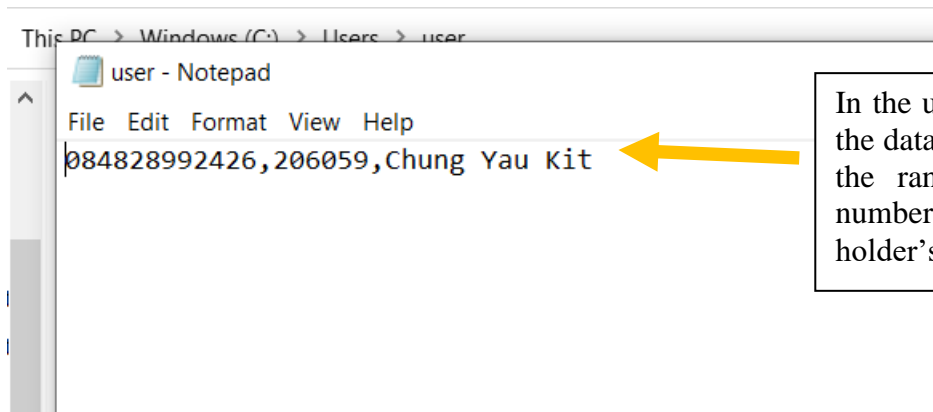
When the account number is doesn't exist, it will show a prompt

User input option 1 to sign up new account

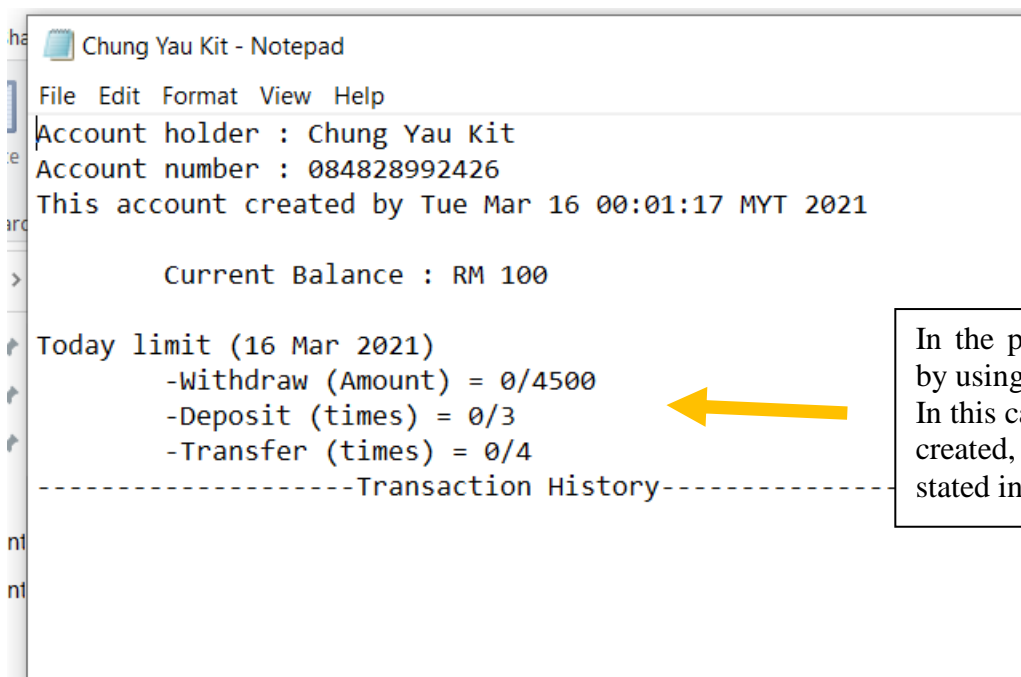
After that user required to key in the name and initial deposit amount

System will prompt to user ask for confirmation with all the details generated.
(Random 12 digits account number and 6 digits pin number)

Program will stop execute, in order to create the personal record file for the user. If the program is keep running, it will only create the file after user stop the program



In the user.txt, it is used to store the data for each user. Which are the random generated account number, pin number and account holder's name.



In the personal file, it is named by using user name. In this case, Chung Yau Kit.txt is created, and all the information stated inside

```
***** A T M *****
How may I help you ?
1 - Sign In
2 - Sign Up
3 - Exit program
*****

Enter option : 2
Enter name: Chung Yau Kit

* The name is already exists
* Please try again

Enter name: Nelson
Enter initial deposit amount (Minimum RM 50.00): 5000

Registration information
-----
Account holder's name : Nelson
Account number       : 097696563056
Pin number           : 342876
Available balance(RM) : 5000

* Confirm register account ? (Y/N) : n
---Back to menu---

***** A T M *****
How may I help you ?
1 - Sign In
2 - Sign Up
3 - Exit program
*****

Enter option : 2
Enter name: Nelson
Enter initial deposit amount (Minimum RM 50.00): 6000

Registration information
-----
Account holder's name : Nelson
Account number       : 828029002498
Pin number           : 681052
Available balance(RM) : 6000

* Confirm register account ? (Y/N) : y

Personal account record is created...
Rerun the program to Sign In
```

After that we re-run the program, and select option 2 to straight away sign up an account.

If we keyed in the name that already exists in user.txt, it will appear the prompt.

Fill up the information

User can also reject the confirmation, then it will not create any file for it and back to menu

After that, we try to create a new account with initial deposit RM 6000

Nelson.txt is created

SignUp	3/16/2021 2:35 PM	JAVA File	7 KB
TransferMoney	3/15/2021 3:35 PM	JAVA File	17 KB
WithdrawMoney	3/15/2021 3:35 PM	JAVA File	11 KB
Chung Yau Kit	3/17/2021 2:35 PM	Text Document	1 KB
Nelson	3/17/2021 2:35 PM	Text Document	2 KB
user	3/16/2021 2:22 AM	Text Document	1 KB

```
user - Notepad
File Edit Format View Help
084828992426,206059,Chung Yau Kit
828029002498,681052,Nelson
```

The info of Nelson also
store in the user.txt

```
Nelson - Notepad
File Edit Format View Help
Account holder : Nelson
Account number : 828029002498
This account created by Tue Mar 16 00:56:41 MYT 2021

    Current Balance : RM 6000

Today limit (16 Mar 2021)
    -Withdraw (Amount) = 0/4500
    -Deposit (times) = 0/3
    -Transfer (times) = 0/4
-----Transaction History-----
```

Details in Nelson.txt

```
C:\Users\user>java Main
***** A T M *****
How may I help you ?
1 - Sign In
2 - Sign Up
3 - Exit program
*****

Enter option : 1
Enter account number: 123asd

* Alert
* Total length of account number must be only 12 digits
* Only in digits, cannot contain any characters

Enter account number: 828029002498
Enter pin number:*****

* Alert
* Pin number's length must only 6 digits and shouldn't contains any characters

Enter pin number:*****
Logged in as --- Nelson

*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option :
```

After that we input option 1 to sign in

Enter a wrong account number

A prompt will come out to show the error

Input the account number of Nelson

Intentionally keyed in a wrong password, and it will show the error prompt

Input a correct pin number to log in

A menu after sign in will appear in order to allow user use the function in ATM

Logged in as --- Nelson

```
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****
```

Enter option 2 to withdraw money

Enter option : 2

```
----- Withdraw Money -----
* Be aware that Maximum RM 4,500.00 per day, RM 1,500.00 per withdrawal.
  Enter the amount to withdraw : 1600
```

```
* Alert
* Cannot withdraw more than RM 1500 in each withdrawal
```

Enter the amount more than limit

Enter the amount to withdraw : 1000

Enter the normal range of amount

Withdrawal Details

```
-----
Account holder's name : Nelson
Account number       : 828029002498
Amount withdraw (RM) : 1000
```

```
* Confirm withdraw from account ? (Y/N) : y
Money withdrawn successfully
Back to menu...
```

A confirmation prompt will come out, to ask user confirm

```
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****
```

To show transaction successfully

```
Money withdrawn successfully
Back to menu...
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option : 2

----- Withdraw Money -----
* Be aware that Maximum RM 4,500.00 per day, RM 1,500.00 per withdrawal.
Enter the amount to withdraw : 500

Withdrawal Details
-----
Account holder's name : Nelson
Account number       : 828029002498
Amount withdraw (RM) : 500

* Confirm withdraw from account ? (Y/N) : n
Back to menu...
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option :
```

Try to withdraw RM500, but reject the confirmation, then it will not store the data

```
Nelson - Notepad
File Edit Format View Help
Account holder : Nelson
Account number : 828029002498
This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 5000
Today limit (16 Mar 2021)
-Withdraw (Amount) = 1000/4500
-Deposit (times) = 0/3
-Transfer (times) = 0/4
-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021      Withdraw      RM6000 - RM1000
```

The record will store inside the personal file.

```
Back to menu...
*****
Hi Nelson! What would you like to perform?
 1 - Account Statement
 2 - Withdraw Money
 3 - Deposit Money
 4 - Transfer Money
 5 - Change Pin
 6 - Log out
*****

Enter option : 3

----- Deposit Money -----
* Be aware that Maximum RM 3,000.00 per transaction, 3 times per day allowed.
  Enter the amount to deposit : 4000

* Alert
* Cannot deposit more than RM 3000 in each transaction

  Enter the amount to deposit : 2500

          Deposit Details
          -----
Account holder's name : Nelson
Account number       : 828029002498
Amount deposit (RM)  : 2500

* Confirm deposit to account ? (Y/N) : y
Money deposited successfully
```

Enter option 3 to deposit money

Test on what happened if input more than limit

Deposit RM2500

Confirmation

```
Back to menu...
*****
Hi Nelson! What would you like to perform?
  1 - Account Statement
  2 - Withdraw Money
  3 - Deposit Money
  4 - Transfer Money
  5 - Change Pin
  6 - Log out
*****

Enter option : 3

----- Deposit Money -----
* Be aware that Maximum RM 3,000.00 per transaction, 3 times per day allowed.
  Enter the amount to deposit : 1500

      Deposit Details
      -----
      Account holder's name : Nelson
      Account number       : 828029002498
      Amount deposit (RM)  : 1500

* Confirm deposit to account ? (Y/N) : y
Money deposited successfully
Back to menu...
*****
Hi Nelson! What would you like to perform?
  1 - Account Statement
  2 - Withdraw Money
  3 - Deposit Money
  4 - Transfer Money
  5 - Change Pin
  6 - Log out
*****

Enter option : 3

----- Deposit Money -----
* Be aware that Maximum RM 3,000.00 per transaction, 3 times per day allowed.
  Enter the amount to deposit : 3000

      Deposit Details
      -----
      Account holder's name : Nelson
      Account number       : 828029002498
      Amount deposit (RM)  : 3000

* Confirm deposit to account ? (Y/N) : y
Money deposited successfully
```

Repeat the step to deposit in order to reach deposit money limit.

Back to menu...

Hi Nelson! What would you like to perform?

- 1 - Account Statement
- 2 - Withdraw Money
- 3 - Deposit Money
- 4 - Transfer Money
- 5 - Change Pin
- 6 - Log out

Enter option : 3

- * Alert
- * Has reach the limit of making Deposit type of transaction
- * Try it tomorrow


Back to menu...

Hi Nelson! What would you like to perform?

- 1 - Account Statement
- 2 - Withdraw Money
- 3 - Deposit Money
- 4 - Transfer Money
- 5 - Change Pin
- 6 - Log out

Enter option :

After 3 times of deposit, the fourth time to select Deposit Money option will prompt an error

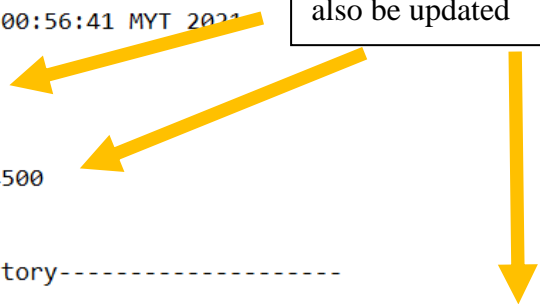


```
Nelson - Notepad
File Edit Format View Help
Account holder : Nelson
Account number : 828029002498
This account created by Tue Mar 16 00:56:41 MYT 2021

    Current Balance : RM 12000

Today limit (16 Mar 2021)
    -Withdraw (Amount) = 1000/4500
    -Deposit (times) = 3/3
    -Transfer (times) = 0/4
-----Transaction History-----
Tue Mar 16 01:12:48 MYT 2021      Withdraw      RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021      Deposit       RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021      Deposit       RM7500 + RM1500
Tue Mar 16 01:21:22 MYT 2021      Deposit       RM9000 + RM3000
```

The record in personal file will also be updated



```
Back to menu...
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option : 4

----- Transfer Money -----
* Be aware that Maximum RM 2,000.00 per transaction, 4 times per day allowed.
  Enter target account number : 123123123123

* Alert
* Target account not available.

  Enter target account number : 828029002498

* Alert
* Cannot transfer money to own account

  Enter target account number : 084828992426
  Enter amount(RM) : 4000

* Alert
* Cannot transfer more than RM 2000 in each transaction

  Enter amount(RM) : 2000

  Transfer Details
  -----
  Target account holder's name : Chung Yau Kit
  Target account number       : 084828992426
  Amount transfer (RM)        : 2000

  * Confirm transfer to account ? (Y/N) : y
Transaction Successful

Back to menu...
*****
```

Select transfer money option

Input the account number that is not exist

Input the self-account number

Input correct account number but input amount that exceed limit

Re-enter amount

Confirmation prompt

Nelson - Notepad

File Edit Format View Help

Account number : 828029002498

This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 10000

Today limit (16 Mar 2021)

- Withdraw (Amount) = 1000/4500
- Deposit (times) = 3/3
- Transfer (times) = 1/4

-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021	Withdraw	RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021	Deposit	RM5000 + RM2000
Tue Mar 16 01:21:11 MYT 2021	Deposit	RM7500 - RM1500
Tue Mar 16 01:21:22 MYT 2021	Deposit	RM10000 + RM3000
Tue Mar 16 01:25:59 MYT 2021	Transfer	RM12000 - RM2000 (To Chung Yau Kit : 084828992426)

Because this is transfer function, it will update both 2 file.
(Own account and target account)

Chung Yau Kit - Notepad

File Edit Format View Help

Account holder : Chung Yau Kit

Account number : 084828992426

This account created by Tue Mar 16 01:01:17 MYT 2021

Current Balance : RM 2100

Today limit (16 Mar 2021)

- Withdraw (Amount) = 0/4500
- Deposit (times) = 0/3
- Transfer (times) = 0/4

-----Transaction History-----

Tue Mar 16 01:25:59 MYT 2021	Transfer	RM100 + RM2000 (From Nelson: 828029002498)
------------------------------	----------	--

Back to menu...

Hi Nelson! What would you like to perform?

- 1 - Account Statement
- 2 - Withdraw Money
- 3 - Deposit Money
- 4 - Transfer Money
- 5 - Change Pin
- 6 - Log out

Enter option : 4

----- Transfer Money -----

* Be aware that Maximum RM 2,000.00 per transaction, 4 times per day allowed.

Enter target account number : 500

* Alert

* Total length of account number must be only 12 digits

* Only in digits, cannot contain any characters

Enter target account number : 084828992426

Enter amount(RM) : 500

Transfer Details

Target account holder's name : Chung Yau Kit

Target account number : 084828992426

Amount transfer (RM) : 500

* Confirm transfer to account ? (Y/N) : y

Transaction Successful

Back to menu...

Hi Nelson! What would you like to perform?

- 1 - Account Statement
- 2 - Withdraw Money
- 3 - Deposit Money
- 4 - Transfer Money
- 5 - Change Pin
- 6 - Log out

Enter option : 4

----- Transfer Money -----

* Be aware that Maximum RM 2,000.00 per transaction, 4 times per day allowed.

Enter target account number : 084828992426

Enter amount(RM) : 300

Transfer Details

Target account holder's name : Chung Yau Kit

Target account number : 084828992426

Amount transfer (RM) : 300

* Confirm transfer to account ? (Y/N) : y

Transaction Successful

Now, we try to repeat the steps in order to make Transfer Money is full of attempts.

```

Back to menu...
*****
Hi Nelson! What would you like to perform?
  1 - Account Statement
  2 - Withdraw Money
  3 - Deposit Money
  4 - Transfer Money
  5 - Change Pin
  6 - Log out
*****

Enter option : 4

----- Transfer Money -----
* Be aware that Maximum RM 2,000.00 per transaction, 4 times per day allowed.
  Enter target account number : 084828992426
  Enter amount(RM) : 1000

      Transfer Details
  -----
Target account holder's name : Chung Yau Kit
Target account number       : 084828992426
Amount transfer (RM)        : 1000

* Confirm transfer to account ? (Y/N) : y
Transaction Successful

```

After 4 times of Transfer Money, it will reach the limit of the day and show a prompt

```

Back to menu...
*****
Hi Nelson! What would you like to perform?
  1 - Account Statement
  2 - Withdraw Money
  3 - Deposit Money
  4 - Transfer Money
  5 - Change Pin
  6 - Log out
*****

Enter option : 4

* Alert
* Has reach the limit of making Transfer type of transaction
* Try it tomorrow

Back to menu...
*****
Hi Nelson! What would you like to perform?
  1 - Account Statement
  2 - Withdraw Money
  3 - Deposit Money
  4 - Transfer Money
  5 - Change Pin
  6 - Log out
*****

Enter option :

```

Nelson - Notepad

File Edit Format View Help

Account holder : Nelson

Account number : 828029002498

This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 8200

Today limit (16 Mar 2021)

-Withdraw (Amount) = 1000/4500

-Deposit (times) = 3/3

-Transfer (times) = 4/4

-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021	Withdraw	RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021	Deposit	RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021	Deposit	RM7500 + RM1000
Tue Mar 16 01:21:22 MYT 2021	Deposit	RM9000 + RM3000
Tue Mar 16 01:25:59 MYT 2021	Transfer	RM12000 - RM2000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:23 MYT 2021	Transfer	RM10000 - RM500 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:36 MYT 2021	Transfer	RM9500 - RM300 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:48 MYT 2021	Transfer	RM9200 - RM1000 (To Chung Yau Kit : 084828992426)

In both personal file, it is updated

Chung Yau Kit - Notepad

File Edit Format View Help

Account holder : Chung Yau Kit

Account number : 084828992426

This account created by Tue Mar 16 01:17 MYT 2021

Current Balance : RM 3900

Today limit (16 Mar 2021)

-Withdraw (Amount) = 0/4500

-Deposit (times) = 0/3

-Transfer (times) = 0/4

-----Transaction History-----

Tue Mar 16 01:25:59 MYT 2021	Transfer	RM100 + RM2000 (From Nelson: 828029002498)
Tue Mar 16 02:03:23 MYT 2021	Transfer	RM2100 + RM500 (From Nelson: 828029002498)
Tue Mar 16 02:03:36 MYT 2021	Transfer	RM2600 + RM300 (From Nelson: 828029002498)
Tue Mar 16 02:03:48 MYT 2021	Transfer	RM2900 + RM1000 (From Nelson: 828029002498)

Back to menu...

Hi Nelson! What would you like to perform?

- 1 - Account Statement
- 2 - Withdraw Money
- 3 - Deposit Money
- 4 - Transfer Money
- 5 - Change Pin
- 6 - Log out

Enter option : 2

----- Withdraw Money -----

* Be aware that Maximum RM 4,500.00 per day, RM 4,500.00 per withdrawal.

Enter the amount to withdraw : 1500

Withdrawal Details

Account holder's name : Nelson
Account number : 828029002498
Amount withdraw (RM) : 1500

* Confirm withdraw from account ? (Y/N) : y

Money withdrawn successfully

Back to menu...

Hi Nelson! What would you like to perform?

- 1 - Account Statement
- 2 - Withdraw Money
- 3 - Deposit Money
- 4 - Transfer Money
- 5 - Change Pin
- 6 - Log out

Enter option : 2

----- Withdraw Money -----

* Be aware that Maximum RM 4,500.00 per day, RM 4,500.00 per withdrawal.

Enter the amount to withdraw : 1500

Withdrawal Details

Account holder's name : Nelson
Account number : 828029002498
Amount withdraw (RM) : 1500

* Confirm withdraw from account ? (Y/N) : y

Money withdrawn successfully

After that, we will try to withdraw money and reach a total RM 4000 out of RM 4500 limit of a day

Nelson - Notepad

File Edit Format View Help

Account holder : Nelson

Account number : 828029002498

This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 5200

Today limit (16 Mar 2021)

-Withdraw (Amount) = 4000/4500

-Deposit (times) = 3/3

-Transfer (times) = 4/4

-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021	Withdraw	RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021	Deposit	RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021	Deposit	RM7500 + RM1500
Tue Mar 16 01:21:22 MYT 2021	Deposit	RM9000 + RM3000
Tue Mar 16 01:25:59 MYT 2021	Transfer	RM12000 - RM2000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:23 MYT 2021	Transfer	RM10000 - RM500 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:36 MYT 2021	Transfer	RM9500 - RM300 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:48 MYT 2021	Transfer	RM9200 - RM1000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:08:54 MYT 2021	Withdraw	RM8200 - RM1500
Tue Mar 16 02:09:00 MYT 2021	Withdraw	RM6700 - RM1500

Withdraw RM1000 + RM1500 + RM1500 = RM4000

Therefore, user withdraw money more than RM500 it will reach the limit of RM4500 so should prompt an error to user

```
Back to menu...
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option : 2

----- Withdraw Money -----
* Be aware that Maximum RM 4,500.00 per day, RM 1,500.00 per withdrawal.
Enter the amount to withdraw : 1000

Withdrawal Details
-----
Account holder's name : Nelson
Account number       : 828029002498
Amount withdraw (RM) : 1000

* Confirm withdraw from account ? (Y/N) : y

* Alert
* Will reach the limit of making Withdraw type of transaction if proceed
Back to menu...

*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****
```

Thus, user withdraw RM1000

The error prompt will show to user, and it will not store in personal

```
Nelson - Notepad
File Edit Format View Help
Account holder : Nelson
Account number : 828029002498
This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 5200

Today limit (16 Mar 2021)
-Withdraw (Amount) = 4000/4500
-Deposit (times) = 3/3
-Transfer (times) = 4/4
-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021      Withdraw      RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021      Deposit       RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021      Deposit       RM7500 + RM1500
Tue Mar 16 01:21:22 MYT 2021      Deposit       RM9000 + RM3000
Tue Mar 16 01:25:59 MYT 2021      Transfer      RM12000 - RM2000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:23 MYT 2021      Transfer      RM10000 - RM500 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:36 MYT 2021      Transfer      RM9500 - RM300 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:48 MYT 2021      Transfer      RM9200 - RM1000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:08:54 MYT 2021      Withdraw      RM8200 - RM1500
Tue Mar 16 02:09:00 MYT 2021      Withdraw      RM6700 - RM1500
```

```

Back to menu...

*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option : 2

----- Withdraw Money -----
* Be aware that Maximum RM 4,500.00 per day, RM 1,500.00 per withdrawal.
Enter the amount to withdraw : 500

Withdrawal Details
-----
Account holder's name : Nelson
Account number       : 828029002498
Amount withdraw (RM) : 500

* Confirm withdraw from account ? (Y/N) : y
Money withdrawn successfully
Back to menu...

*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

```

But it is still can withdraw RM500 since it is not exceed the limit of RM4500

```

Nelson - Notepad
File Edit Format View Help
Account holder : Nelson
Account number : 828029002498
This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 4700

Today limit (16 Mar 2021)
-Withdraw (Amount) = 4500/4500
-Deposit (times) = 3/3
-Transfer (times) = 4/4
-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021      Withdraw      RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021      Deposit      RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021      Deposit      RM7500 + RM1500
Tue Mar 16 01:21:22 MYT 2021      Deposit      RM9000 + RM3000
Tue Mar 16 01:25:59 MYT 2021      Transfer      RM12000 - RM2000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:23 MYT 2021      Transfer      RM10000 - RM500 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:36 MYT 2021      Transfer      RM9500 - RM300 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:48 MYT 2021      Transfer      RM9200 - RM1000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:08:54 MYT 2021      Withdraw      RM8200 - RM1500
Tue Mar 16 02:09:00 MYT 2021      Withdraw      RM6700 - RM1500
Tue Mar 16 02:12:48 MYT 2021      Withdraw      RM5200 - RM500

```

```

Back to menu...
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****
Enter option : 1

*****
Account holder : Nelson
Account number : 828029002498
This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 4700

Today limit (16 Mar 2021)
-Withdraw (Amount) = 4500/4500
-Deposit (times) = 3/3
-Transfer (times) = 4/4
-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021      Withdraw      RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021      Deposit       RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021      Deposit       RM7500 + RM1500
Tue Mar 16 01:21:22 MYT 2021      Deposit       RM9000 + RM3000
Tue Mar 16 01:25:59 MYT 2021      Transfer      RM12000 - RM2000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:23 MYT 2021      Transfer      RM10000 - RM500 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:36 MYT 2021      Transfer      RM9500 - RM300 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:48 MYT 2021      Transfer      RM9200 - RM1000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:08:54 MYT 2021      Withdraw      RM8200 - RM1500
Tue Mar 16 02:09:00 MYT 2021      Withdraw      RM6700 - RM1500
Tue Mar 16 02:12:48 MYT 2021      Withdraw      RM5200 - RM500
*****
Back to menu...

```

User can input option 1 to show the account statement. It will show everything in the personal text file


```

*****
Hi Nelson! What would you like to perform?
 1 - Account Statement
 2 - Withdraw Money
 3 - Deposit Money
 4 - Transfer Money
 5 - Change Pin
 6 - Log out
*****

Enter option : 5

Enter old pin number : 681052
Enter new pin number : abc1235

* Alert
* Total length of account number must be only 6 digits
* Only in digits, cannot contain any characters

Enter new pin number : 123123
Confirm new pin number : asdlmk

* Alert
* Total length of account number must be only 6 digits
* Only in digits, cannot contain any characters

Enter new pin number : 123123
Confirm new pin number : 123123
The pin number is changed
Back to menu...

```

User input option 5 to change pin

Intentionally input incorrect pin after input the correct old number to show the error prompt is working.

Input correct desire pin number to change password.
It will update in the user.txt.

```

Windows (C:) > Users > user
user - Notepad
File Edit Format View Help
084828992426,206059,Chung Yau KIT
828029002498,123123,Nelson

```

```

*****
Hi Nelson! What would you like to perform?
  1 - Account Statement
  2 - Withdraw Money
  3 - Deposit Money
  4 - Transfer Money
  5 - Change Pin
  6 - Log out
*****

Enter option : 6

***** A T M *****
How may I help you ?
  1 - Sign In
  2 - Sign Up
  3 - Exit program
*****

Enter option : 1
Enter account number: 084828992426
Enter pin number:*****
Logged in as --- Chung Yau Kit

*****
Hi Chung Yau Kit! What would you like to perform?
  1 - Account Statement
  2 - Withdraw Money
  3 - Deposit Money
  4 - Transfer Money
  5 - Change Pin
  6 - Log out
*****

Enter option : 5
Enter old pin number : 111111

* Alert
* The pin number is not match!
* 2 more attempt(s)

Enter old pin number : 222222

* Alert
* The pin number is not match!
* 1 more attempt(s)

Enter old pin number : 333333

* Alert
* The pin number is not match!
* 0 more attempt(s)

* Alert
* Account 084828992426 has been locked
* Kindly please contact us to unlock your account, thank you
logging out...
***** A T M *****
How may I help you ?
  1 - Sign In
  2 - Sign Up
  3 - Exit program
*****

Enter option :

```

Now, user log out and sign in by using another account that created before.

Logged in as Chung Yau Kit

Try to lock the account by input 3 times wrong old pin number

After that it will show the account is locked

```
user - Notepad
File Edit Format View Help
084828992426,206059,Chung Yau Kit,LOCKED
828029002498,123123,Nelson
```

In the user.txt, at the last of the line of specific account will appear "LOCKED"

```
***** A T M *****
How may I help you ?
1 - Sign In
2 - Sign Up
3 - Exit program
*****

Enter option : 1
Enter account number: 084828992426

* The account has been lock
* Please contact us for more information
Back to menu...
```

When user try to key in the account of Chung Yau Kit, the system will won't allow it to sign in and stated that it is locked.

In order to test is the counter of limit will reset or not, we continue the program on next day (17 March)

```
***** A T M *****
How may I help you ?
1 - Sign In
2 - Sign Up
3 - Exit program
*****

Enter option : 1
Enter account number: 828029002498
Enter pin number:*****

Logged in as --- Nelson

*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option : 3

----- Deposit Money -----
* Be aware that Maximum RM 3,000.00 per transaction, 3 times per day allowed.
  Enter the amount to deposit : 999

          Deposit Details
          -----
Account holder's name : Nelson
Account number       : 828029002498
Amount deposit (RM)  : 999

* Confirm deposit to account ? (Y/N) : y
Money deposited successfully
Back to menu...
```

User signed in by using Nelson account

After that user select deposit option

This time it didn't appear user "Has reach the limitation of making deposit type of transaction" and allow user to key in amount to deposit

Hi Nelson! What would you like to perform?

- 1 - Account Statement
 - 2 - Withdraw Money
 - 3 - Deposit Money
 - 4 - Transfer Money
 - 5 - Change Pin
 - 6 - Log out
- *****

After that user input Account Statement option to show the account statement

Enter option : 1

Account holder : Nelson
Account number : 828029002498
This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 5699

Today limit (17 Mar 2021)

-Withdraw (Amount) = 0/4500
-Deposit (times) = 1/3
-Transfer (times) = 0/4

The date and amount is updated, the counter has reset, and the new transaction history is stored.

-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021	Withdraw	RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021	Deposit	RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021	Deposit	RM7500 + RM1500
Tue Mar 16 01:21:22 MYT 2021	Deposit	RM9000 + RM3000
Tue Mar 16 01:25:59 MYT 2021	Transfer	RM12000 - RM2000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:23 MYT 2021	Transfer	RM10000 - RM500 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:36 MYT 2021	Transfer	RM9500 - RM300 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:48 MYT 2021	Transfer	RM9200 - RM1000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:08:54 MYT 2021	Withdraw	RM8200 - RM1500
Tue Mar 16 02:09:00 MYT 2021	Withdraw	RM6700 - RM1500
Tue Mar 16 02:12:48 MYT 2021	Withdraw	RM5200 - RM500
Wed Mar 17 14:29:44 MYT 2021	Deposit	RM4700 + RM999

Back to menu...

Nelson - Notepad

File Edit Format View Help

Account holder : Nelson

Account number : 828029002498

This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 5699

Today limit (17 Mar 2021)

-Withdraw (Amount) = 0/4500
-Deposit (times) = 1/3
-Transfer (times) = 0/4

-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021	Withdraw	RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021	Deposit	RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021	Deposit	RM7500 + RM1500
Tue Mar 16 01:21:22 MYT 2021	Deposit	RM9000 + RM3000
Tue Mar 16 01:25:59 MYT 2021	Transfer	RM12000 - RM2000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:23 MYT 2021	Transfer	RM10000 - RM500 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:36 MYT 2021	Transfer	RM9500 - RM300 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:48 MYT 2021	Transfer	RM9200 - RM1000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:08:54 MYT 2021	Withdraw	RM8200 - RM1500
Tue Mar 16 02:09:00 MYT 2021	Withdraw	RM6700 - RM1500
Tue Mar 16 02:12:48 MYT 2021	Withdraw	RM5200 - RM500
Wed Mar 17 14:29:44 MYT 2021	Deposit	RM4700 + RM999

```

Back to menu...
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option : 2

----- Withdraw Money -----
* Be aware that Maximum RM 4,500.00 per day, RM 1,500.00 per withdrawal.
  Enter the amount to withdraw : 2000

* Alert
* Cannot withdraw more than RM 1500 in each withdrawal

  Enter the amount to withdraw : 50

          Withdrawal Details
-----
Account holder's name : Nelson
Account number       : 828029002498
Amount withdraw (RM) : 50

* Confirm withdraw from account ? (Y/N) : y
Money withdrawn successfully
Back to menu...
Back to menu...
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option : 4

----- Transfer Money -----
* Be aware that Maximum RM 2,000.00 per transaction, 4 times per day allowed.
  Enter target account number : 084828992426
  Enter amount(RM) : 1300

          Transfer Details
-----
Target account holder's name : Chung Yau Kit
Target account number       : 084828992426
Amount transfer (RM)        : 1300

* Confirm transfer to account ? (Y/N) : y
Transaction Successful

```

Instead of making deposit only, user also making withdraw and transfer

```
Enter option : 1
*****
Account holder : Nelson
Account number : 828029002498
This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 4349

Today limit (17 Mar 2021)
-Withdraw (Amount) = 50/4500
-Deposit (times) = 1/3
-Transfer (times) = 1/4
-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021      Withdraw      RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021      Deposit       RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021      Deposit       RM7500 + RM1500
Tue Mar 16 01:21:22 MYT 2021      Deposit       RM9000 + RM3000
Tue Mar 16 01:25:59 MYT 2021      Transfer      RM12000 - RM2000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:23 MYT 2021      Transfer      RM10000 - RM500 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:36 MYT 2021      Transfer      RM9500 - RM300 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:48 MYT 2021      Transfer      RM9200 - RM1000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:08:54 MYT 2021      Withdraw      RM8200 - RM1500
Tue Mar 16 02:09:00 MYT 2021      Withdraw      RM6700 - RM1500
Tue Mar 16 02:12:48 MYT 2021      Withdraw      RM5200 - RM500
Wed Mar 17 14:29:44 MYT 2021      Deposit       RM4700 + RM999
Wed Mar 17 14:34:34 MYT 2021      Withdraw      RM5699 - RM50
Wed Mar 17 14:35:04 MYT 2021      Transfer      RM5649 - RM1300 (To Chung Yau Kit : 084828992426)
*****
Back to menu...
```

User select option 1 to show Account Statement

The amount is updated, the counter has reset, and the new transaction history is stored.

```
Back to menu...
*****
Hi Nelson! What would you like to perform?
1 - Account Statement
2 - Withdraw Money
3 - Deposit Money
4 - Transfer Money
5 - Change Pin
6 - Log out
*****

Enter option : 6

***** A T M *****
How may I help you ?
1 - Sign In
2 - Sign Up
3 - Exit program
*****

Enter option : 3

C:\Users\user>
```

User input option 6 to log out

User input option 3 to exit the program

Nelson - Notepad

File Edit Format View Help

Account holder : Nelson

Account number : 828029002498

This account created by Tue Mar 16 00:56:41 MYT 2021

Current Balance : RM 4349

Today limit (17 Mar 2021)

-Withdraw (Amount) = 50/4500

-Deposit (times) = 1/3

-Transfer (times) = 1/4

-----Transaction History-----

Tue Mar 16 01:12:48 MYT 2021	Withdraw	RM6000 - RM1000
Tue Mar 16 01:20:42 MYT 2021	Deposit	RM5000 + RM2500
Tue Mar 16 01:21:11 MYT 2021	Deposit	RM7500 + RM1500
Tue Mar 16 01:21:22 MYT 2021	Deposit	RM9000 + RM3000
Tue Mar 16 01:25:59 MYT 2021	Transfer	RM12000 - RM2000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:23 MYT 2021	Transfer	RM10000 - RM500 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:36 MYT 2021	Transfer	RM9500 - RM300 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:03:48 MYT 2021	Transfer	RM9200 - RM1000 (To Chung Yau Kit : 084828992426)
Tue Mar 16 02:08:54 MYT 2021	Withdraw	RM8200 - RM1500
Tue Mar 16 02:09:00 MYT 2021	Withdraw	RM6700 - RM1500
Tue Mar 16 02:12:48 MYT 2021	Withdraw	RM5200 - RM500
Wed Mar 17 14:29:44 MYT 2021	Deposit	RM4700 + RM999
Wed Mar 17 14:34:34 MYT 2021	Withdraw	RM5699 - RM50
Wed Mar 17 14:35:04 MYT 2021	Transfer	RM5649 - RM1300 (To Chung Yau Kit : 084828992426)

All the information also will update.
E.g.: counter, balance and history.