

2016 JAVA Homework 5

● Notice

1. Please use JAVA 8 and Eclipse in this homework.
2. **Do not copy homework of others.** If it happened, you will get **ZERO** whether you are either the owner of the homework or the copycat.
3. You have to deeply understand what your program do because TA will ask you something about your program during the demo.
4. If you have any question, please send email to java_ta@net.nsysu.edu.tw or come to **EC5018**, but TA does not help to debug.
5. If you do not submit your assignment on time, you will not hand in the delayed homework and get ZERO as well. If you have trouble, please advise in advance by email. Moreover, time and place for demo will be announced later.

● Upload

1. Please compress your homework into **zip** or tar **archive**.
2. Naming rules: “**StudentID_HW5.zip**”.
For example: M033040001_HW5.zip
3. Upload your homework to **National Sun Yat-sen Cyber University**.
4. **Deadline: 2016/04/18(Mon.) 23:59.**

● Hint

Any element (+, -, #, _, etc.) in UML are meaningful.

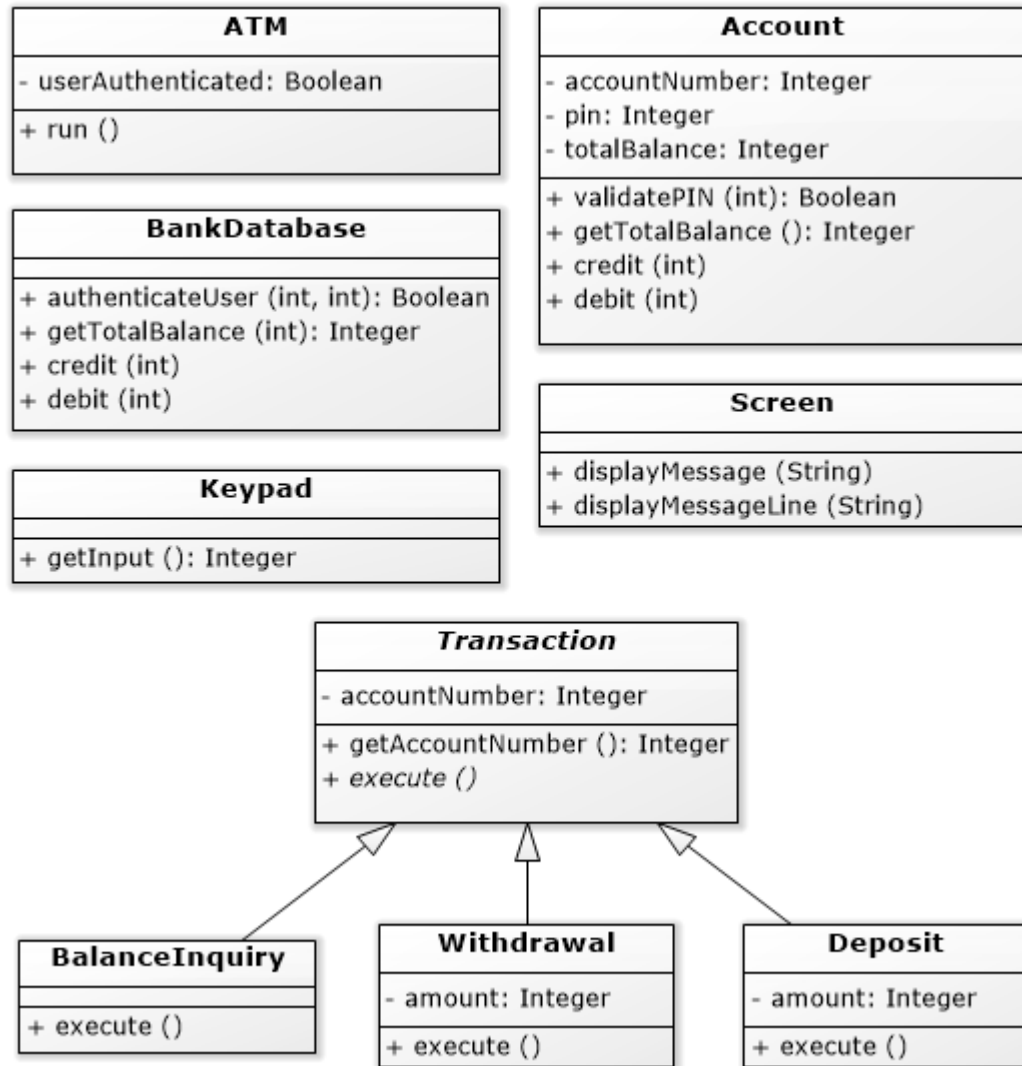
Reference: **Class diagram (Wikipedia)**.

所有例外情況都必須處理，程式不得在使用者任意輸入的狀況下意外結束，否則將斟酌扣分。

- **Introduction**

Implement the ATM system from its UML design and practice to use inheritance, polymorphism, abstract class and abstract method.

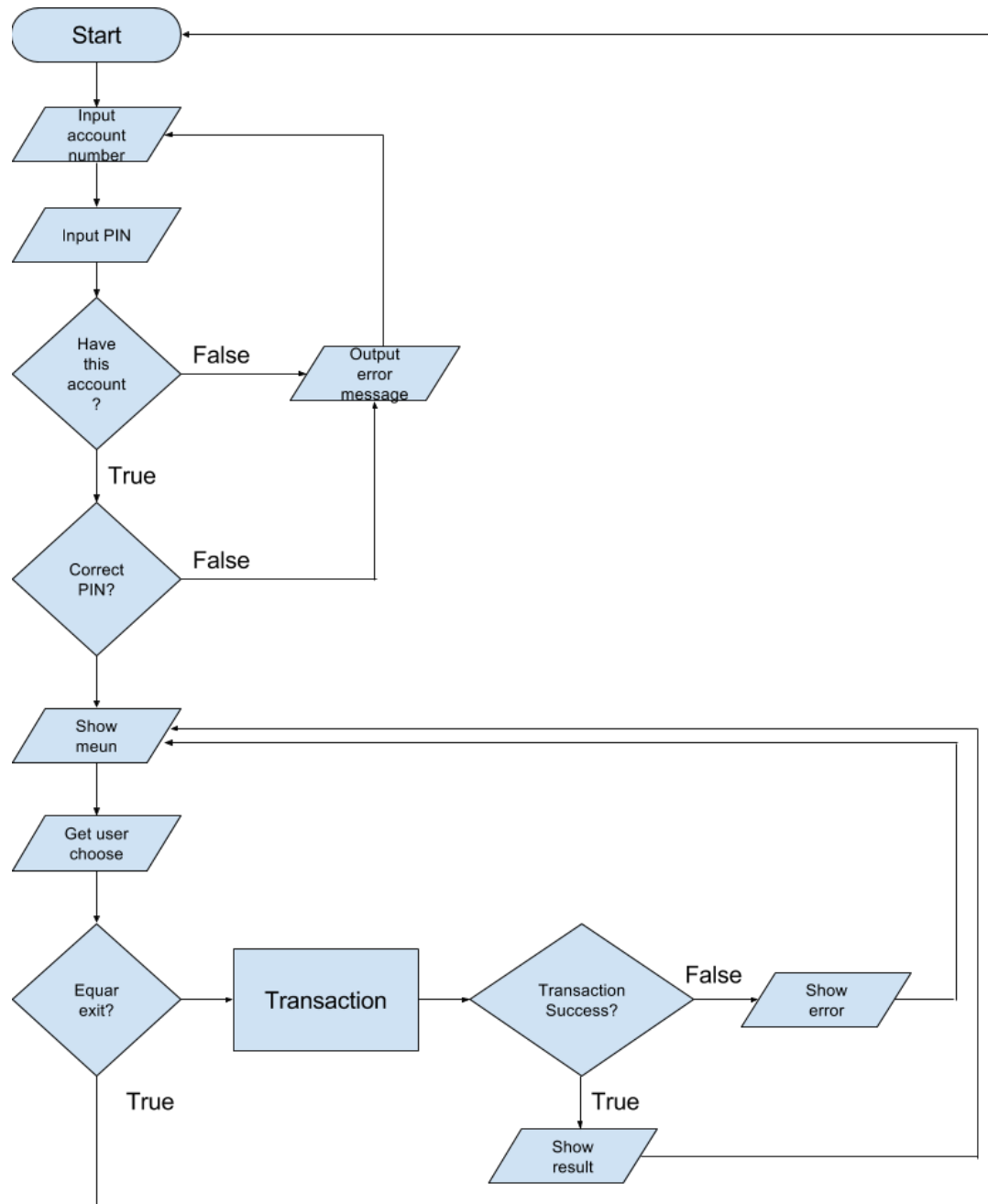
- **UML**



- **Program Flow**

ATM method run uses an infinite loop to repeatedly welcome a user, attempt to authenticate the user and, if authentication succeeds, allow the user to perform transactions. After an authenticated user performs the desired transactions and choose to exit, the ATM resets itself, displays a goodbye message to the user and restarts the process. We use an infinite loop to simulate the fact an ATM appears to run continuously. An ATM user has the option to exit the system but not the ability to turn off the ATM completely.

ATM 中的 run 方法會使用無窮迴圈來重複歡迎使用者及認證使用者，若成功認證，則使用者可以繼續進行交易，使用者完成所需要的交易動作後選擇離開，ATM 會重設帳戶參數，再重新開始上述流程，請使用無窮迴圈模擬 ATM，使用者可以離開系統，但不會關閉 ATM。



● Hint

10 files which are provided can be used. In each class, if you want, you can add any attributes and methods; otherwise, you cannot ignore anything in the UML diagram.

提供 10 個參考檔案，可直接複製使用，每個類別中，除了 UML 所示的屬性及方法外，皆可自行增加所需要的屬性及方法。

● Sample Output

```
Welcome!
Please enter your account number: 54321
Enter your PIN: aaa
Invalid account or PIN. Please try again.
Welcome!
Please enter your account number: 12345
Enter your PIN: 54321
```

```
Main menu:
1. View my balance
2. Withdraw
3. Deposit
4. Exit
```

```
Enter a choice: 1
Balance Unformation:
Total balance: 1000
```

```
Main menu:
1. View my balance
2. Withdraw
3. Deposit
4. Exit
```

```
Enter a choice: 2
How much do you want to withdraw: 123
Success!
```

```
Main menu:
1. View my balance
2. Withdraw
3. Deposit
4. Exit
```

```
Enter a choice: 1
Balance Unformation:
Total balance: 877
```

```
Main menu:
1. View my balance
2. Withdraw
3. Deposit
4. Exit
```

```
Enter a choice: 2
How much do you want to withdraw: 1234
Insufficient funds in your account!
```

```
Main menu:
1. View my balance
2. Withdraw
3. Deposit
4. Exit
```

```
Enter a choice: 1
Balance Unformation:
Total balance: 877
```

```
Main menu:
1. View my balance
2. Withdraw
3. Deposit
4. Exit
```

```
Enter a choice: 3
How much do you want to deposit: 456
Success!
```

```
Main menu:
1. View my balance
2. Withdraw
3. Deposit
4. Exit
```

```
Enter a choice: 1
Balance Unformation:
Total balance: 1333
```

```
Main menu:
1. View my balance
2. Withdraw
3. Deposit
4. Exit
```

```
Enter a choice: 7
You did not enter a valid selection. Try again.
```

```
Main menu:
1. View my balance
2. Withdraw
3. Deposit
4. Exit
```

```
Enter a choice: 4
EXIT.
Thank you! Goodbye!
```