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CS151- OOD
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<p align="center">Programming Assignment #2 Hard Copy</p>

1. A set of use cases

Use Case: Withdraw Money from an ATM

Step	User's Action	System's Response
1		Prompt user to choose an ATM
2	User choose the ATM	
3		Show information of ATMs along with how much a card can withdraw per transaction
4		Prompt user to enter Cash Card
5	User enters Cash Card	
6		Prompt user to enter password
7	User enters password	
8		Prompt user to enter amount to withdraw
9	User enters amount	
10		Display confirmation message and remaining balance
11		Ask if user want to make another transaction
12	Enter amount to withdraw or exit	

Variation #1

1.1 In step 5, user enters Cash Card that is not supported by the ATM or from an account that does not exist in the system.

1.2 System display error message, return the card, and prompt user to reenter the card
```
This card is not supported by this ATM.
Enter your card:
```
1.3 Continue with step 6 until user enter a valid card.

Variation #2

2.1 In step 5, user enters Cash Card that is expired

2.2 System displays error message, return the card, and prompts user to reenter the card
```
This card is expired and returned to you.
Enter your card:
```
2.3 Continue with step 6 until user enters a valid card.

Variation #3

3.1 In step 7, user enters Cash Card that is expired

3.2 System displays error message, and prompts user to reenter the password

```
This is a wrong password. Enter your password.
```

3.3 Continue with step 8 until user enters a valid password.

Variation #4

4.1 In step 9, user enters amount exceed the ATM withdraw limit per transaction.

4.2 System displays error message and prompts user to reenter amount.

```
This amount exceeds the maximum amount you can withdraw per
transaction. Please enter the amount or quit.
```

4.3 Continue with step 10 until user enters a valid amount.

Variation #5

5.1 In step 9, user enters amount exceed the amount available in account

5.2 System displays error message and prompts user to reenter amount

```
The amount exceeds the current balance. Enter another
amount or quit.
```

5.3 Continue with step 10 until user enters a valid amount.

2. A set of CRC cards

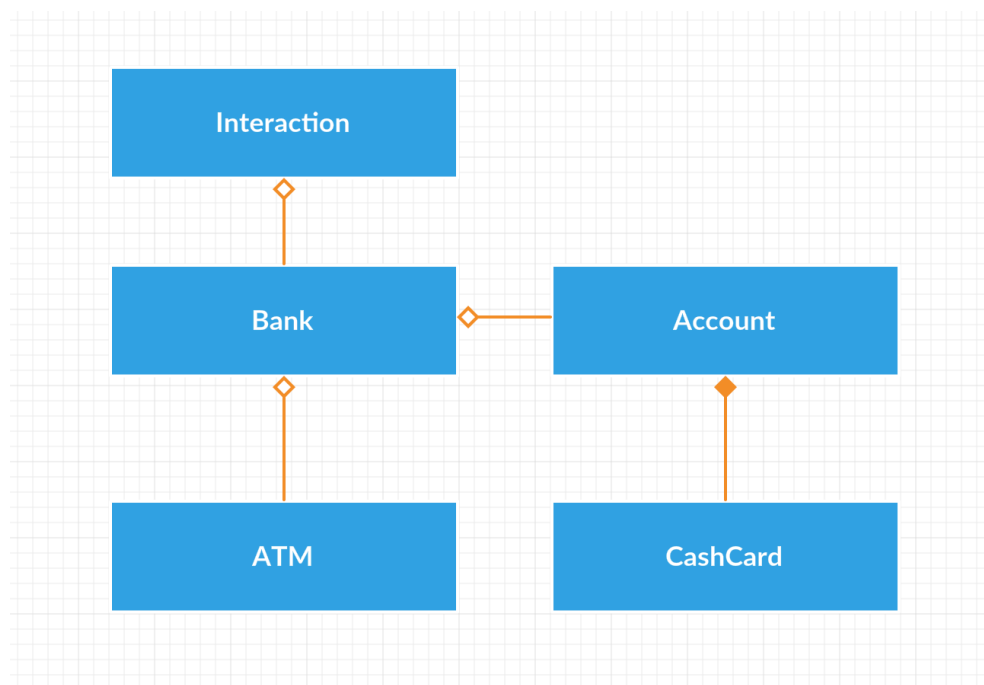| Interaction	
Create ATMNetworkSystem Display all Cash Card Display all ATMs Manage interaction between user and system	Bank

Bank	
Create/Manage/Display Accounts Create/Manage/Display Cash Cards Create/Manage/Display ATMs	Account CashCard ATM

Account	
Create/Manage/Display CashCard Deduct balance after withdrawal Check balance before withdrawal	CashCard

CashCard	
Validate password Validate expiration date	

ATM	
Check withdrawal limit before withdrawal Display ATM information	

3. UML class diagram (simple version)

4. Copy all prompts, inputs, and outputs of your program execution from the console window and paste them into a file called "results". Submit the print-out of the results. A checklist for the results file is as follows:
    1. Show a list of cards associated with an account at a bank with their expiration dates and passwords

```
States of 2 Banks

BankofA (2 customer(s))
Customer with Cash Card(Bank ID: A, Account #: 100, Expiration Date: 09/09/2022, Password: 0000)
Customer with Cash Card(Bank ID: A, Account #: 101, Expiration Date: 01/01/2010, Password: 0001)

BankofB (2 customer(s))
Customer with Cash Card(Bank ID: B, Account #: 200, Expiration Date: 09/09/2022, Password: 0002)
Customer with Cash Card(Bank ID: B, Account #: 201, Expiration Date: 04/12/2010, Password: 0003)
```

2. Show a list of ATMs for each bank along with how much a card can withdraw per transaction from each ATMSystem

```
States of 4 ATMs

ATM1_A: (ATM1 from BankofA)
    The maximum amount of cash a card can widthraw per transaction: $1000

ATM2_A: (ATM2 from BankofA)
    The maximum amount of cash a card can widthraw per transaction: $2000

ATM1_B: (ATM1 from BankofB)
    The maximum amount of cash a card can widthraw per transaction: $3000

ATM2_B: (ATM2 from BankofB)
    The maximum amount of cash a card can widthraw per transaction: $4000
```

3. Prompt user for their desired ATM

```
Enter your choice of ATM:
atmasdf
ATM does not exist!

Enter your choice of ATM:
atm1-a

ATM1_A: (ATM1 from BankofA)
    The maximum amount of cash a card can widthraw per transaction: $1000
```

4. Prompt user for their card

```
Enter your card:
a100
The card is accepted. Please enter your password.
```

5. Show the ATM response when the card is somehow invalid (expired, wrong bank)

```
Enter your card:
b100
This card is not supported by this ATM.

Enter your card:
a200
This card is not supported by this ATM.

Enter your card:
a101
This card is expired and returned to you.
```

6. Show the ATM response when the card is valid

```
Enter your card:
a100
The card is accepted. Please enter your password.
|
```

7. Prompt user for the password

```
Enter your card:
a100
The card is accepted. Please enter your password.
|
```

8. Show the ATM response when the password is invalid

```
The card is accepted. Please enter your password.
2211
This is a wrong password. Enter your password.
```

9. Show the ATM response when the password is valid

```
0000
Authorization is accepted. Start your transaction by entering the amount to withdraw.
```

10. Prompt user for the amount to withdraw

```
Authorization is accepted. Start your transaction by entering the amount to withdraw.
100
```

11. Show the ATM response when the desired withdrawal amount is above that specific ATM's withdrawal limit per transaction

```
Authorization is accepted. Start your transaction by entering the amount to withdraw.
2000
This amount exceeds the maximum amount you can withdraw per transaction. Please enter the amount or quit.
600
The amount exceeds the current balance. Enter another amount or quit.
```

12. Show the ATM response when the desired withdrawal amount is under or at the limit

```
$400 is withdrawn from  your account. The remaining balance of this account is $100.
If you have more transactions, enter the amount or quit.
```

13. Show the remaining balance of the account after a successful withdrawal

```
$400 is withdrawn from  your account. The remaining balance of this account is $100.
If you have more transactions, enter the amount or quit.
```

14. Prompt the user for more withdrawals or quit

```
$400 is withdrawn from  your account. The remaining balance of this account is $100.
If you have more transactions, enter the amount or quit.
10
$10 is withdrawn from  your account. The remaining balance of this account is $90.
If you have more transactions, enter the amount or quit.
20
$20 is withdrawn from  your account. The remaining balance of this account is $70.
If you have more transactions, enter the amount or quit.
quit
Thank you for choosing us. Have a great day!
```

```
States of 2 Banks

BankofA (2 customer(s))
Customer with Cash Card(Bank ID: A, Account #: 100, Expiration Date: 09/09/2022, Password: 0000)
Customer with Cash Card(Bank ID: A, Account #: 101, Expiration Date: 01/01/2010, Password: 0001)

BankofB (2 customer(s))
Customer with Cash Card(Bank ID: B, Account #: 200, Expiration Date: 09/09/2022, Password: 0002)
Customer with Cash Card(Bank ID: B, Account #: 201, Expiration Date: 04/12/2010, Password: 0003)


States of 4 ATMs

ATM1_A: (ATM1 from BankofA)
    The maximum amount of cash a card can widthraw per transaction: $1000

ATM2_A: (ATM2 from BankofA)
    The maximum amount of cash a card can widthraw per transaction: $2000

ATM1_B: (ATM1 from BankofB)
    The maximum amount of cash a card can widthraw per transaction: $3000

ATM2_B: (ATM2 from BankofB)
    The maximum amount of cash a card can widthraw per transaction: $4000

_____

Enter your choice of ATM:
atm1-a

ATM1_A: (ATM1 from BankofA)
    The maximum amount of cash a card can widthraw per transaction: $1000

Enter your card:
b100
This card is not supported by this ATM.

Enter your card:
a200
This card is not supported by this ATM.

Enter your card:
a101
This card is expired and returned to you.

Enter your card:
a100
The card is accepted. Please enter your password.
2211
This is a wrong password. Enter your password.
0000
Authorization is accepted. Start your transaction by entering the amount to withdraw.
2000
This amount exceeds the maximum amount you can withdraw per transaction. Please enter the amount or quit.
600
The amount exceeds the current balance. Enter another amount or quit.
400
$400 is withdrawn from  your account. The remaining balance of this account is $100.
If you have more transactions, enter the amount or quit.
10
$10 is withdrawn from  your account. The remaining balance of this account is $90.
If you have more transactions, enter the amount or quit.
20
$20 is withdrawn from  your account. The remaining balance of this account is $70.
If you have more transactions, enter the amount or quit.
quit
Thank you for choosing us. Have a great day!
```