LAB 4: Interaction Diagram - UML Sequence Diagram
In-Class Exercise Answer Sheet

In-Class Exercise on <<System Sequence Diagram>>

Model a scenario of the Withdraw Money use case of a Bank ATM system. The user is able to make withdrawal of money. The system employs a standard procedure of validating the card and account holder's password.

- Describe the main objects (2 in this case):
  - Cardholder (or Customer)
  - ATM System

- Describe the main flow of events in this scenario. The first 2 events are listed below:
  - Customer arrives at the ATM machine and inserts a bank card.
  - The system requests for user authentication (password).

- Translate the flows into corresponding system events (input and response).

- Construct a SSD based on the information above.

ANSWER

Main Objects:

User / Customer / Cardholder
ATM System

Ideal Main Flow of Events:

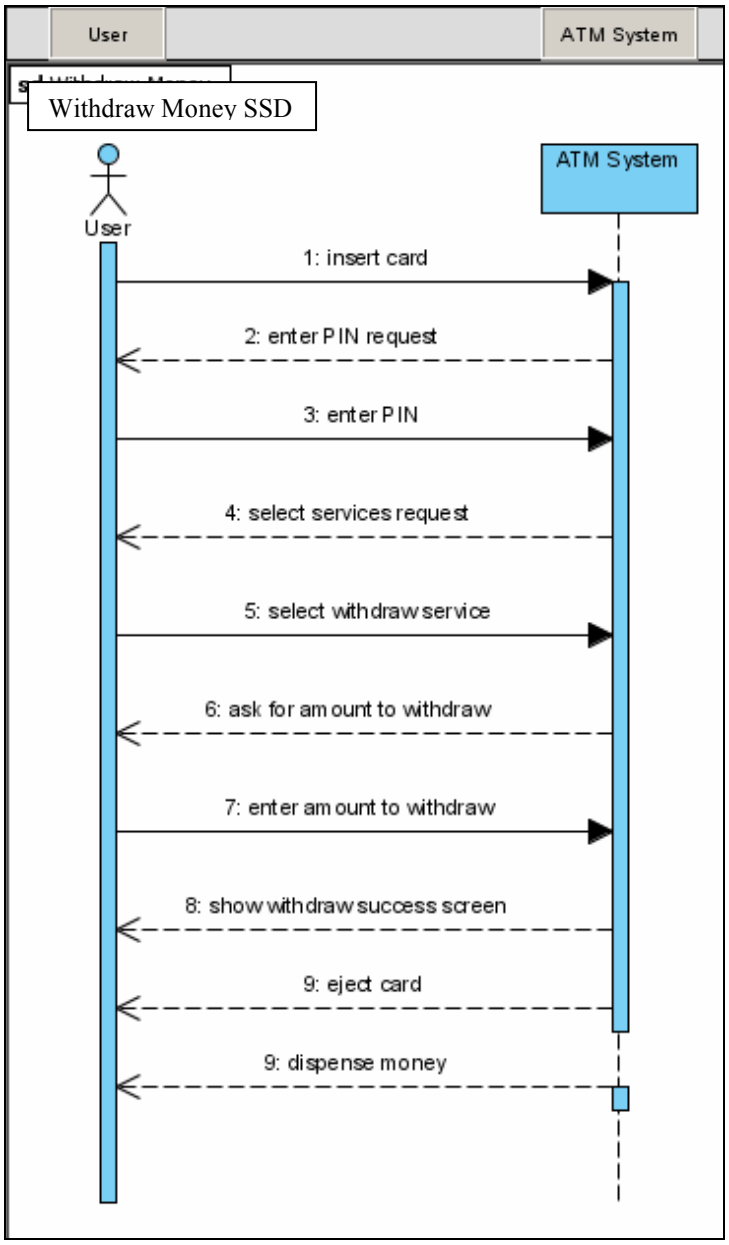
Customer arrives at the ATM machine and inserts a bank card.
The system requests for user authentication (request PIN number).
Customer inserts PIN number.
System prompts user to select services.
Customer request withdrawal of money.
System prompts the amount of withdrawal.
Customer enters withdrawal amount.
System displays success of request message, ejects card and dispense money.
User collects card and money.

Input and Responses:

Actor	System Response
User inserts card	
	System prompts user to enter PIN
User inserts PIN	
	System prompts user to select service
User request withdraw money	
	System prompts user to enter withdrawal amount
User enter withdrawal amount	
	System displays successful withdrawal message
	Eject cards and money
User collects card and money	

System Sequence Diagram for Withdraw Money

Listed on next page.



In-Class Exercise on <<Sequence Diagram>>

Now model the scenario of the Withdraw Money use case in more detail. The SSD is elaborated in more detail by including new internal objects of the withdraw money use case such as Card Controller (to control card management) and Bank (the issuing bank).

- Describe the main objects (few are given below):
  - User / Customer / Cardholder
  - ATM System
  - Card Controller
  - Bank

- Describe the main flow of events in this scenario. The first 2 events are listed below:
  - Customer arrives at the ATM machine and inserts a bank card.
  - The card is verified by the Card Controller.

- Translate the flows into corresponding system events (input and response).

- Construct a Sequence Diagram based on the information above.

ANSWER

Main Objects:

User / Customer / Cardholder
ATM System
Cash Dispenser
Card Controller
Bank
Account

Ideal Main Flow of Events:

User arrives at the ATM machine and inserts a bank card.
The card is verified by the Card Controller.
The issuing bank is contacted to verify its validity.
The ATM system issues pin request to user.
User enters pin number.
ATM system verifies account with issuing bank.
ATM system prompts for service.
User request withdrawal with amount indicated.
Withdrawal request forwarded to issuing bank.
ATM system indicates successful withdrawal.
ATM system ejects card and dispense cash.

Input and Responses:

Actor	**System Response**
User arrives at the ATM machine and inserts a bank card.	
	The card is verified by the Card Controller.
	The issuing bank is contacted to verify its validity.
	The ATM system issues pin request to user.

User enters pin number.	
	ATM system verifies account with issuing bank.
	ATM system prompts for service.
User request withdrawal with amount indicated.	
	Withdrawal request forwarded to issuing bank.
	Issuing bank process withdrawal from account.
	ATM system indicates successful withdrawal.
	ATM system ejects card and dispense cash.
User collects card and cash.	

Sequence Diagram:

Listed on next page.

Sequence Diagram: