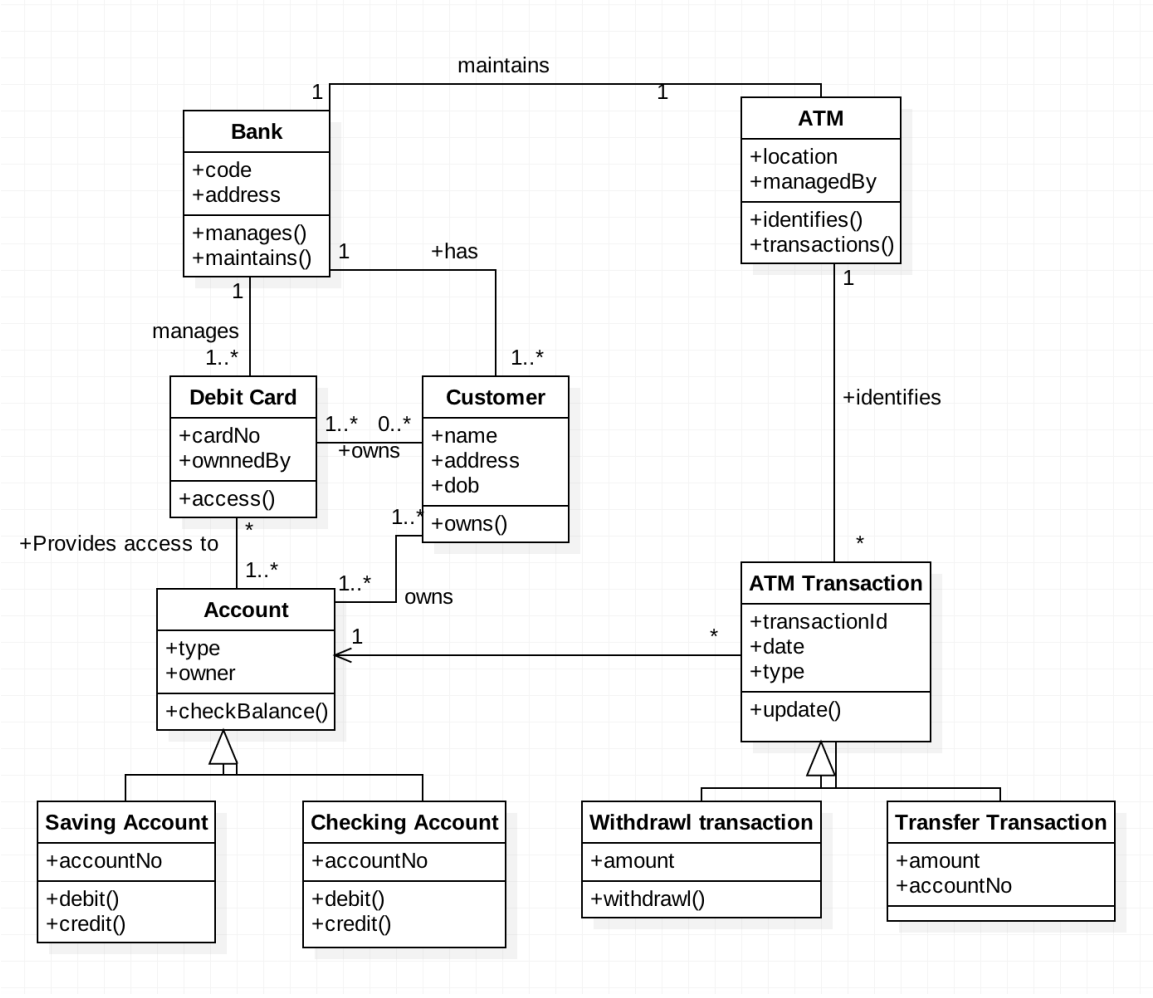
Sample of UML Diagrams for ATM System

For Data: Class diagram

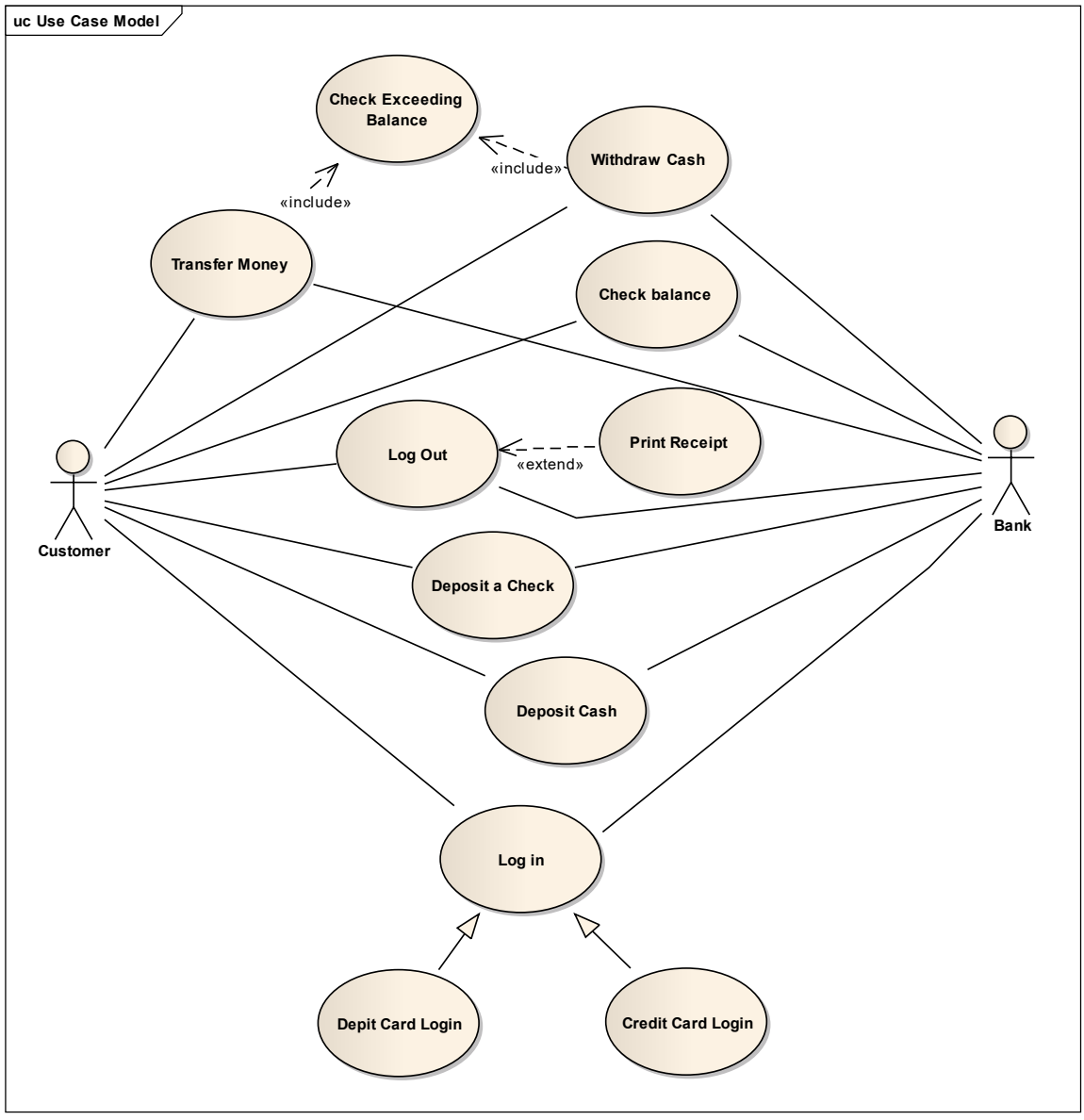
Class Diagram:- Class diagrams describe the static structure of a system, or how it is structured rather than how it behaves.
These diagrams contain the following elements:
1. Classes , which represent entities with common characteristics or features. These features include
attributes, operations, and associations.
2. Associations , which represent relationships that relate two or more other classes where the relationships
have common characteristics or features. These features include attributes and operations.



For Function: Use case, Sequence, Collaboration/Communcation

Use Case Diagram: Use case diagrams describe the functionality of a system and users of the system. They contain the
following elements:
1. Actors , which represent users of a system, including human users and other systems
2. Use cases , which represent functionality or services provided by a system to users

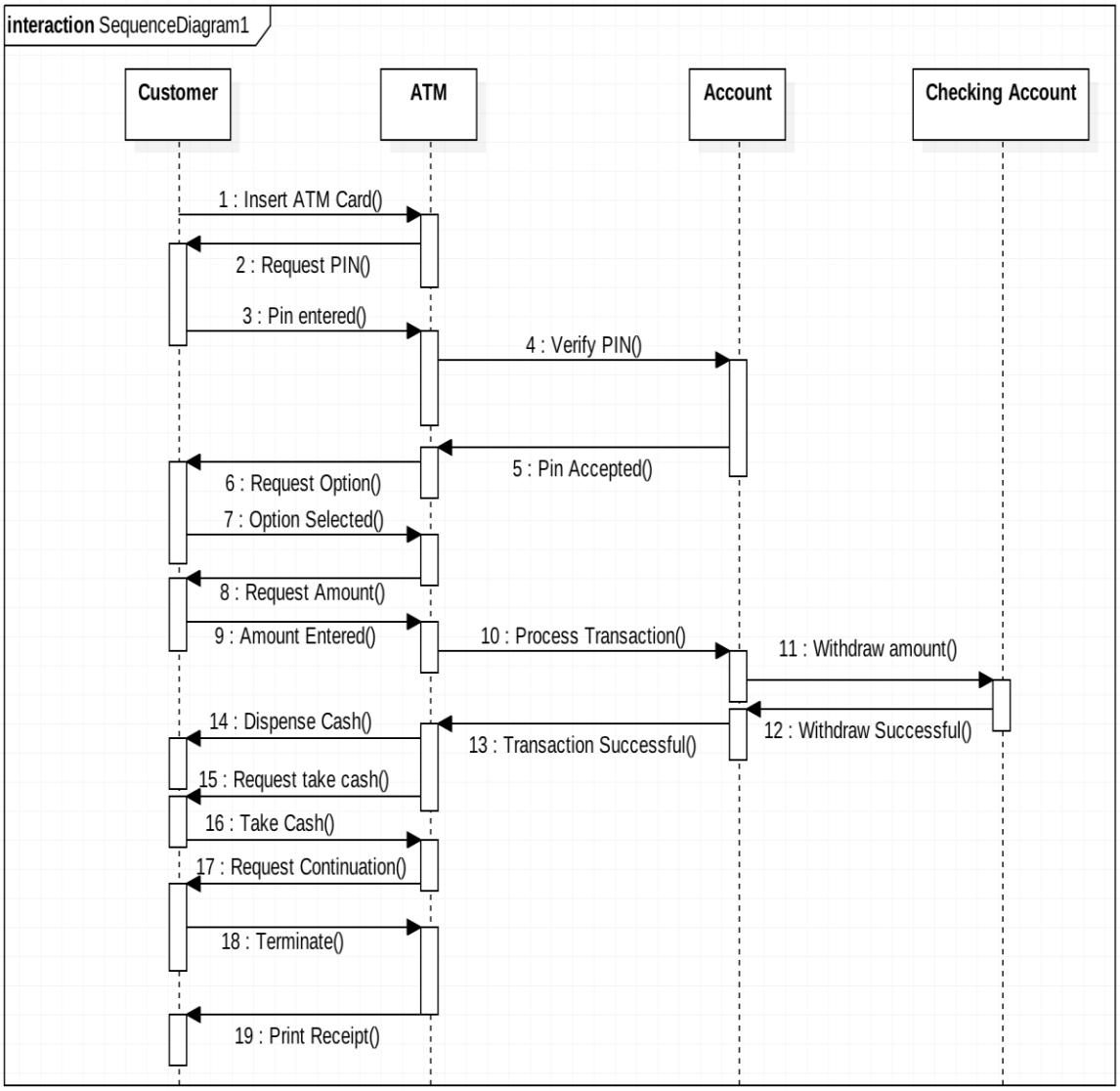
Here, is a use case diagram for the ATM System.



Sequence Diagram: Sequence diagrams typically show the flow of functionality through a use case, and consist of the following components:

1. Actors , involved in the functionality
2. Objects , that a system needs to provide the functionality
3. Messages , which represent communication between objects

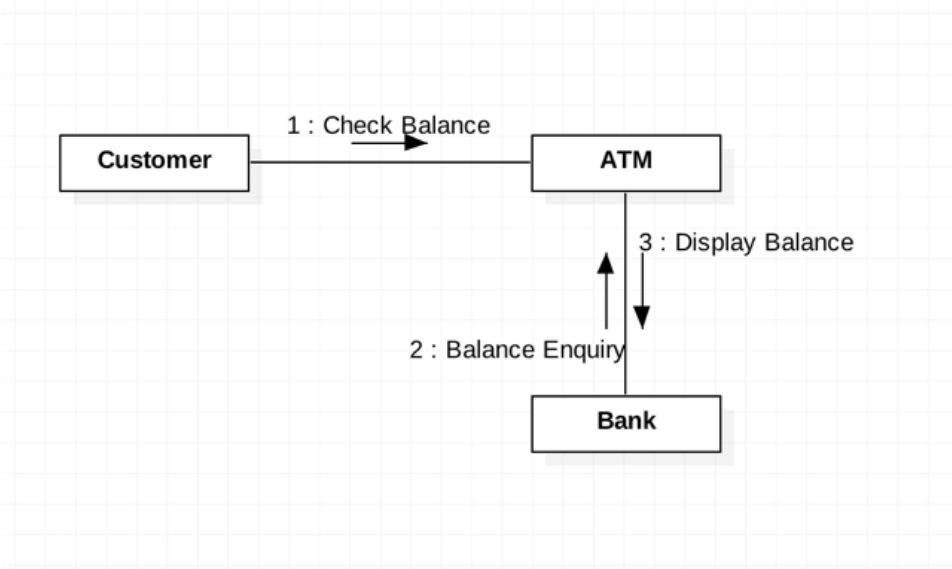
Here, is an example of Sequence diagram for withdrawing amount from ATM.



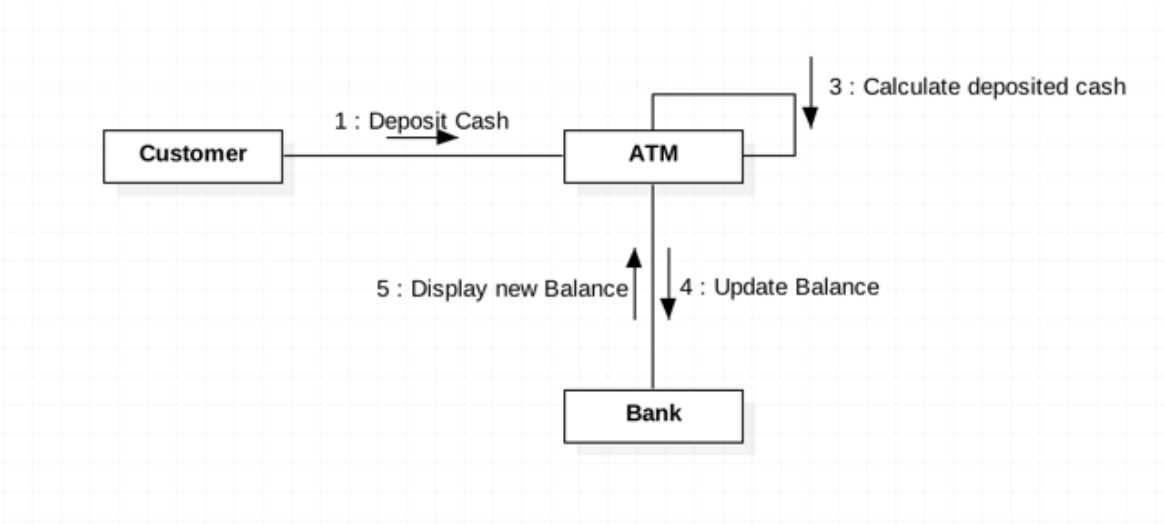
Communication/Collaboration Diagrams

A Communication or Collaboration diagram, as shown is a directed graph that uses objects and actors as graph nodes. The focus of the collaboration diagram is on the roles of the objects as they interact to realize a system function. Directional links are used to indicate communication between objects. These links are labeled using appropriate messages. Each message is prefixed with a sequence number indicating the time ordering needed to realize the system function.

Here is an example of the Check Balance communication diagram:



Here is an example of the Deposit Cash communication diagram:



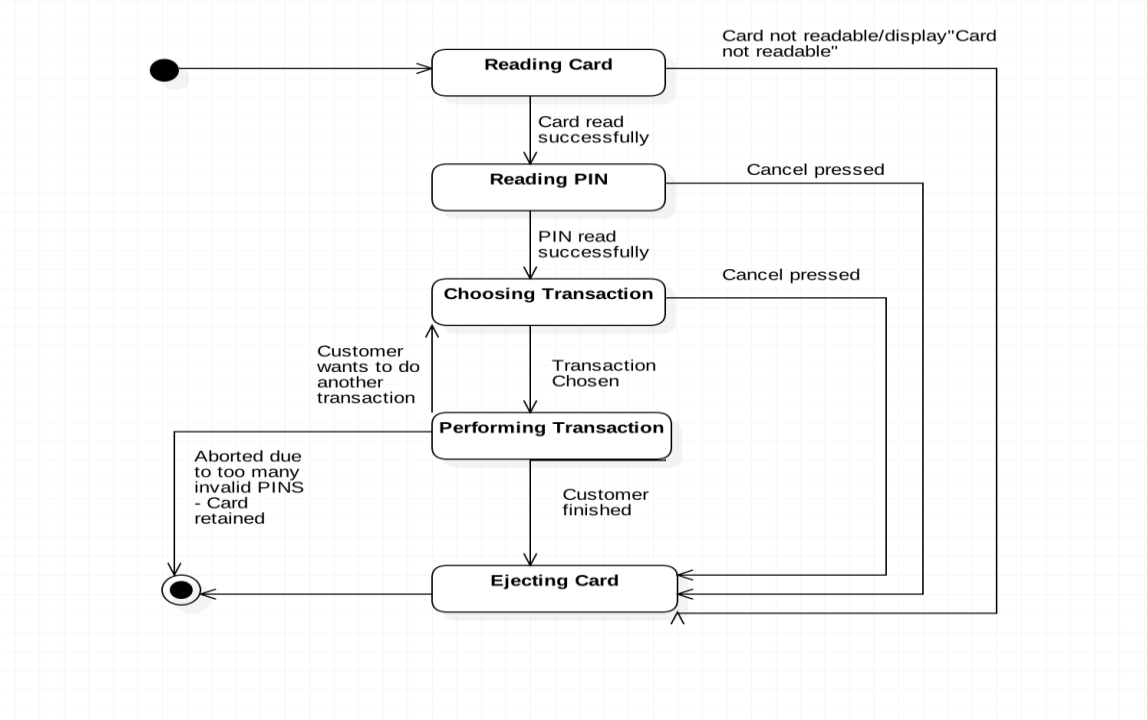
For behavior: State, Activity Diagram

State Diagram:- State transition diagrams provide a way to model the various states in which an object can exist. While the class diagram show a static picture of the classes and their relationships, state transition diagrams model the dynamic behavior of a systen in response to extermal events (stimuli). State transition diagrams consist of the following:

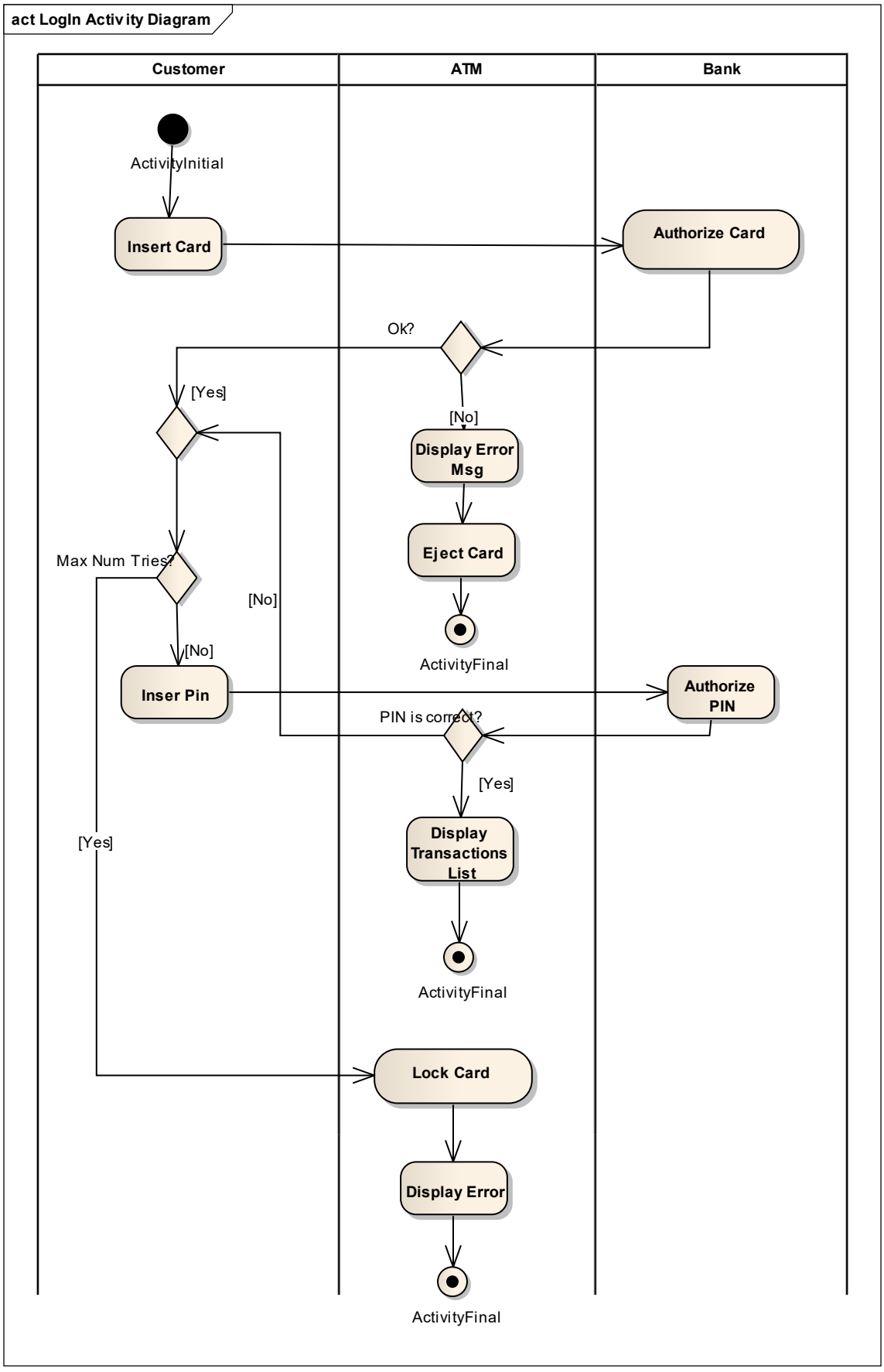
1. States , which show the possible situations in which an object can find itself

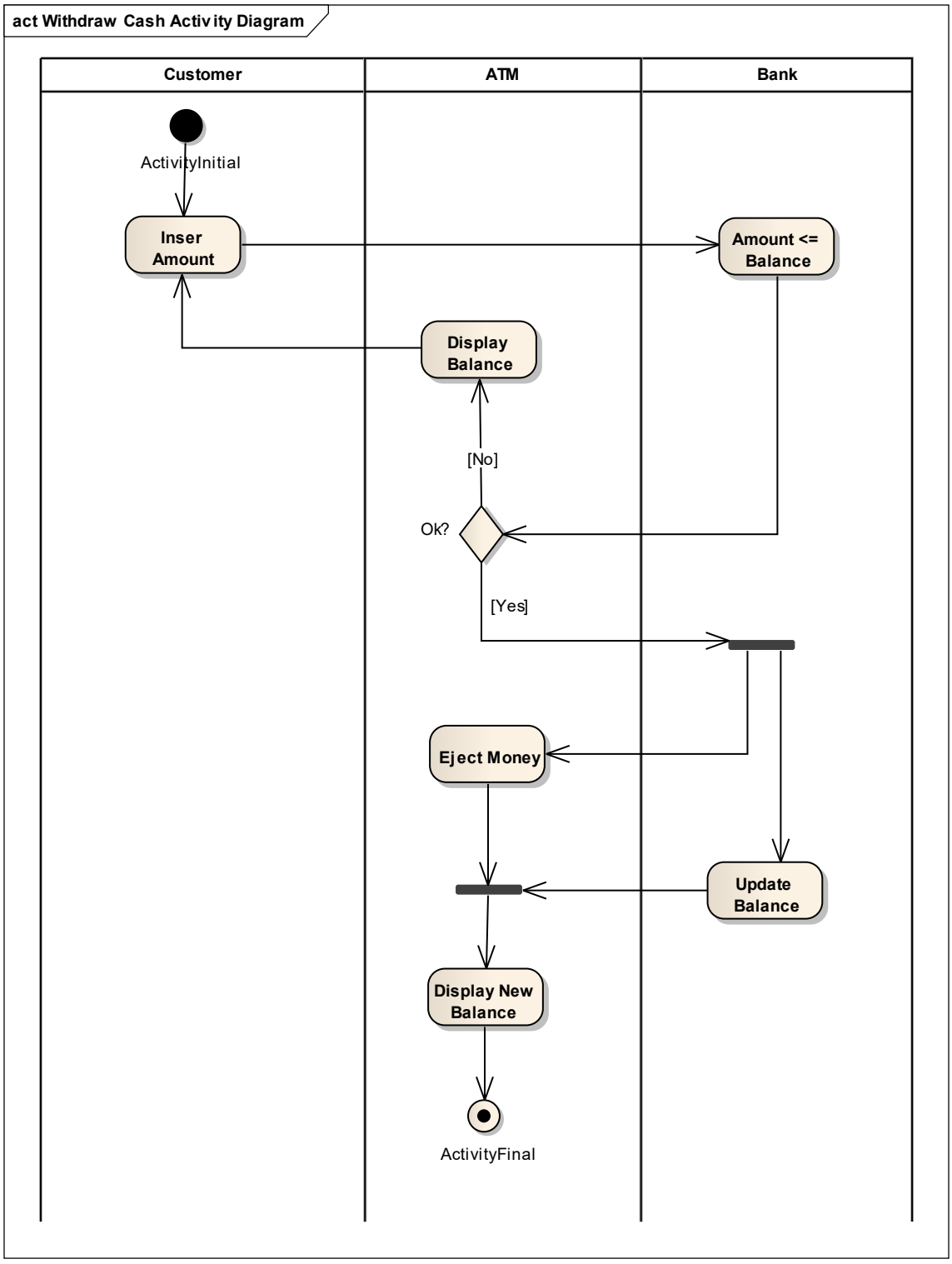
2. Transitions , which show the different events which cause a change in the state of an object.

Here, is an example of the state diagram for the session of ATM.



Activity Diagram:- Activity diagrams describe the activities of a class. They are similar to state transition diagrams and use similar conventions, but activity diagrams describe the behavior/states of a class in response to internal processing rather than external events. They contain the following elements:
1. Swimlanes , which delegate specific actions to objects within an overall activity
2. Action States , which represent uninterruptible actions of entities, or steps in the execution of an algorithm
3. Action Flows , which represent relationships between the different action states on an entity
4. Object Flows , which represent utilization of objects by action states, or influence of action states on objects.
Following are the examples of Login, Withdraw Activity Diagrams.


act LogIn Activity Diagram
Customer
ATM
Bank
ActivityInitial
Insert Card
Authorize Card
Ok?
[Yes]
[No]
Display Error Msg
Eject Card
ActivityFinal
Max Num Tries?
[No]
[No]
Inser Pin
Authorize PIN
PIN is correct?
[Yes]
[Yes]
Display Transactions List
ActivityFinal
Lock Card
Display Error
ActivityFinal


act Withdraw Cash Activity Diagram
Customer
ATM
Bank
ActivityInitial
Inser Amount
Amount <= Balance
Display Balance
[No]
Ok?
[Yes]
Eject Money
Update Balance
Display New Balance
ActivityFinal