UNIFIED MODELING LANGUAGE

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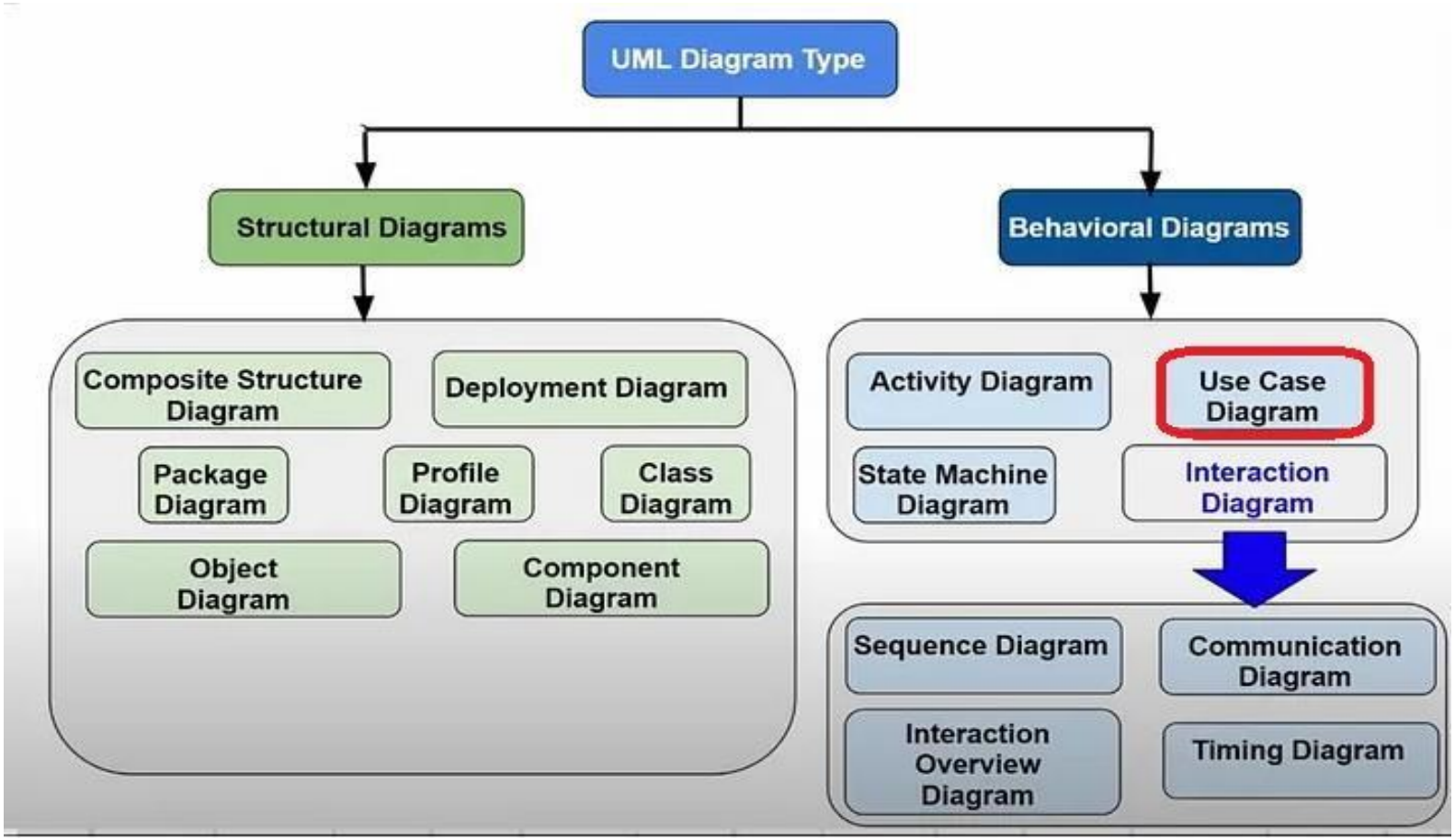
Agenda

- Use case diagram
  - System
  - Actors
  - Use Cases
  - Relationships
- Examples

Part1: Use Case Diagram



Use Case Diagram

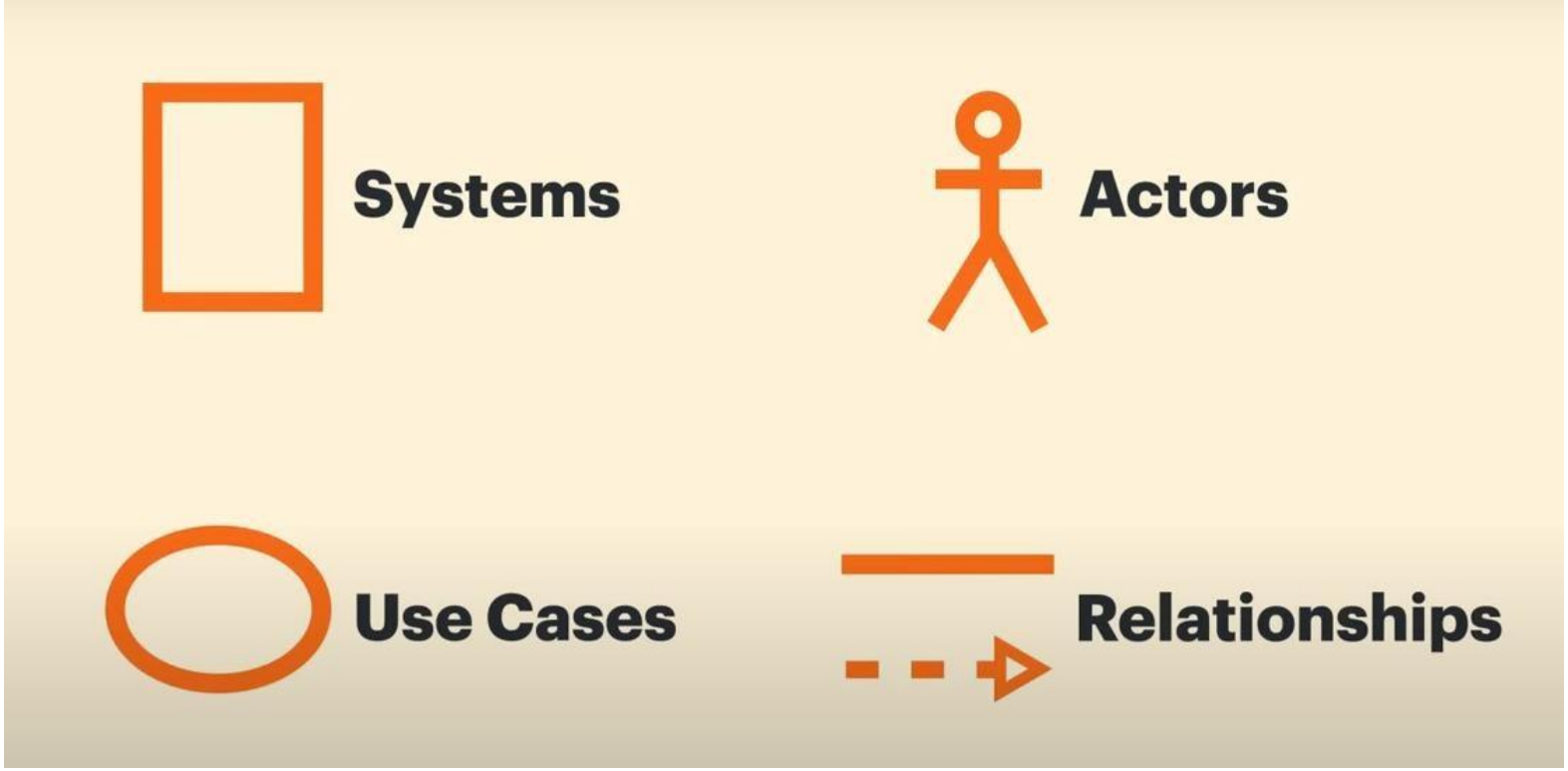
A **UML** use case diagram is the primary form of system/ software requirements for a new software program underdeveloped. Use cases specify the expected behavior (what), and not the exact method of making it happen (how). Use cases once specified can be denoted both textual and visual representation (i.e. use case diagram). A key concept of use case modeling is that it helps us design a system from the end user's perspective. It is an effective technique for communicating system behavior in the user's terms by specifying all externally visible system behavior.

Use case diagram elements

There are four element to create use case diagram:

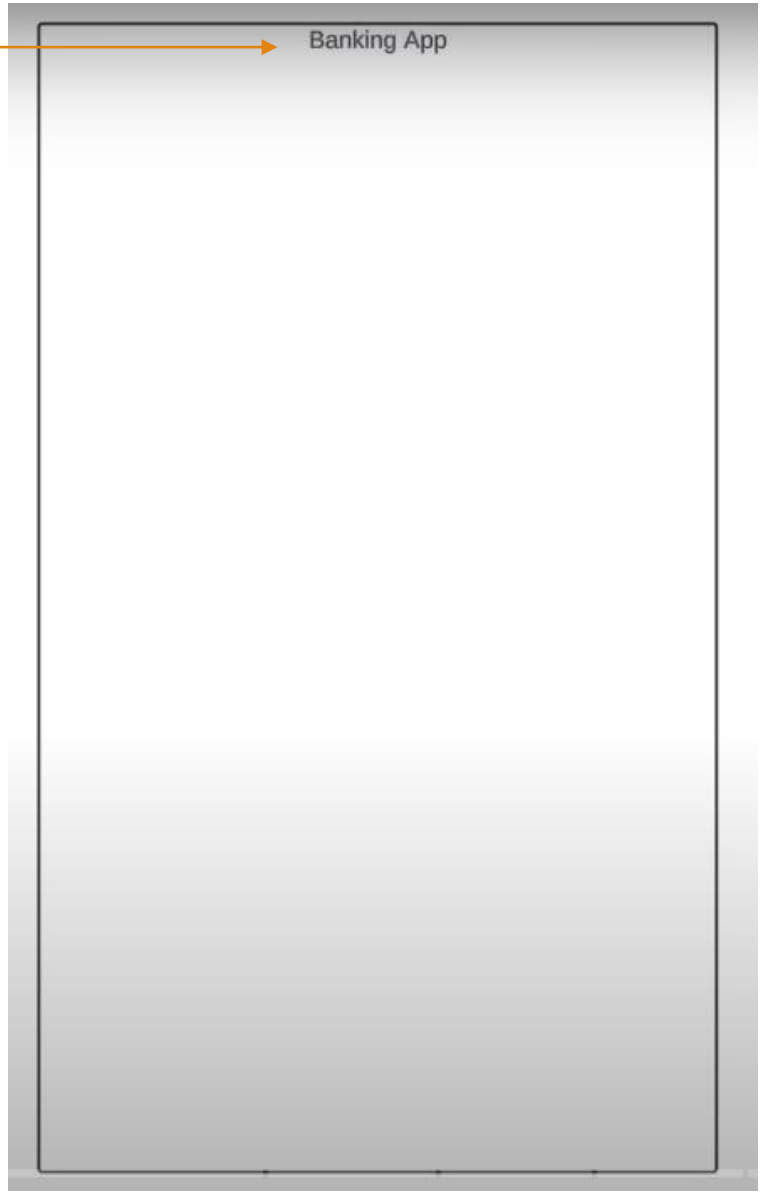
- Systems
- Actors
- Use Cases
- Relationships

Use case diagram elements



Use case diagram elements

System Name
Banking App



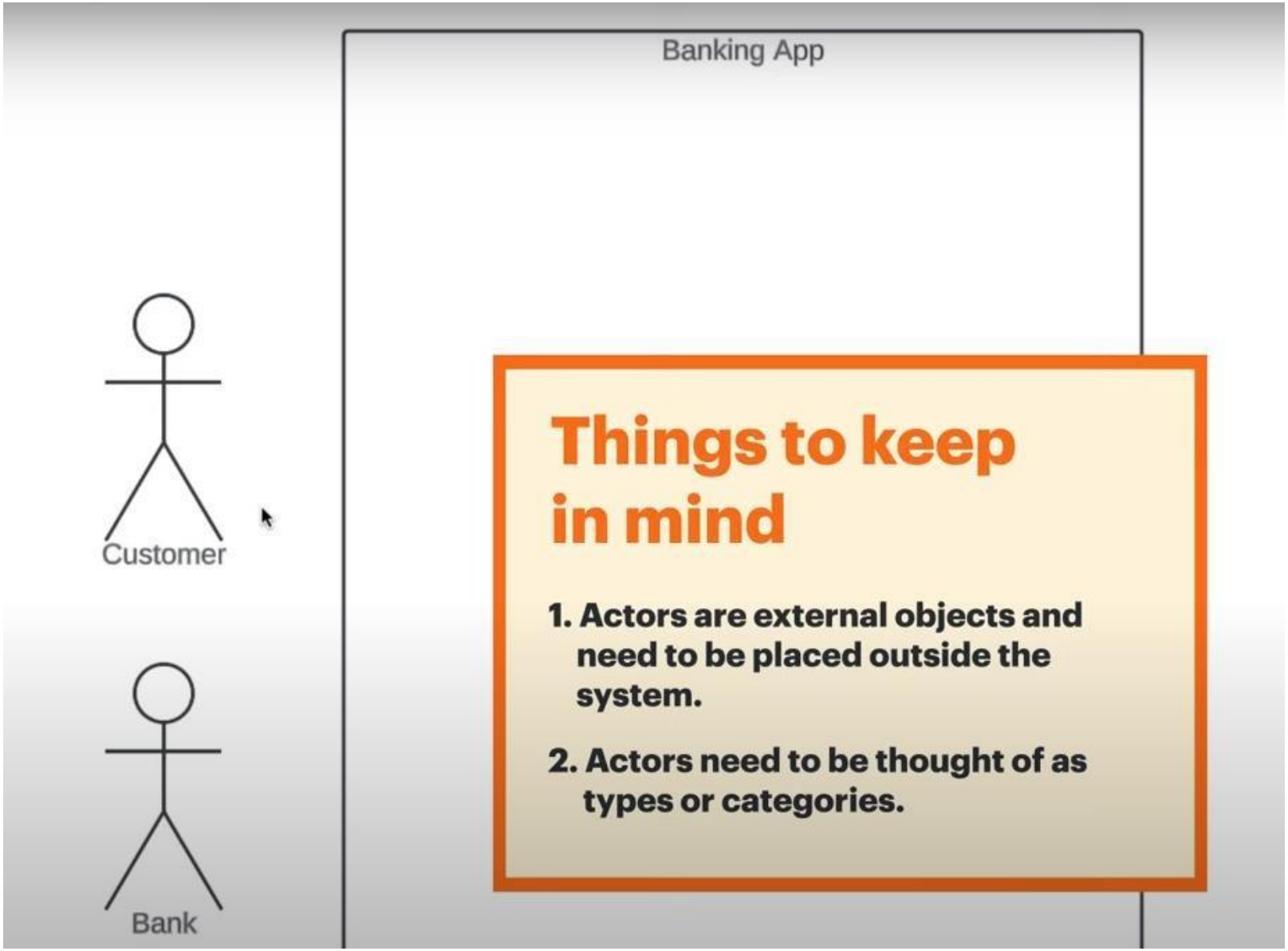
Anything happen inside the (Banking App) come inside the rectangle

Use case diagram elements

Actor

Someone or something that uses our system to achieve a goal.

- **Person**
- **Organization**
- **Another system**
- **An external device**


Banking App
Customer
Bank
Things to keep in mind
1. Actors are external objects and need to be placed outside the system.
2. Actors need to be thought of as types or categories.

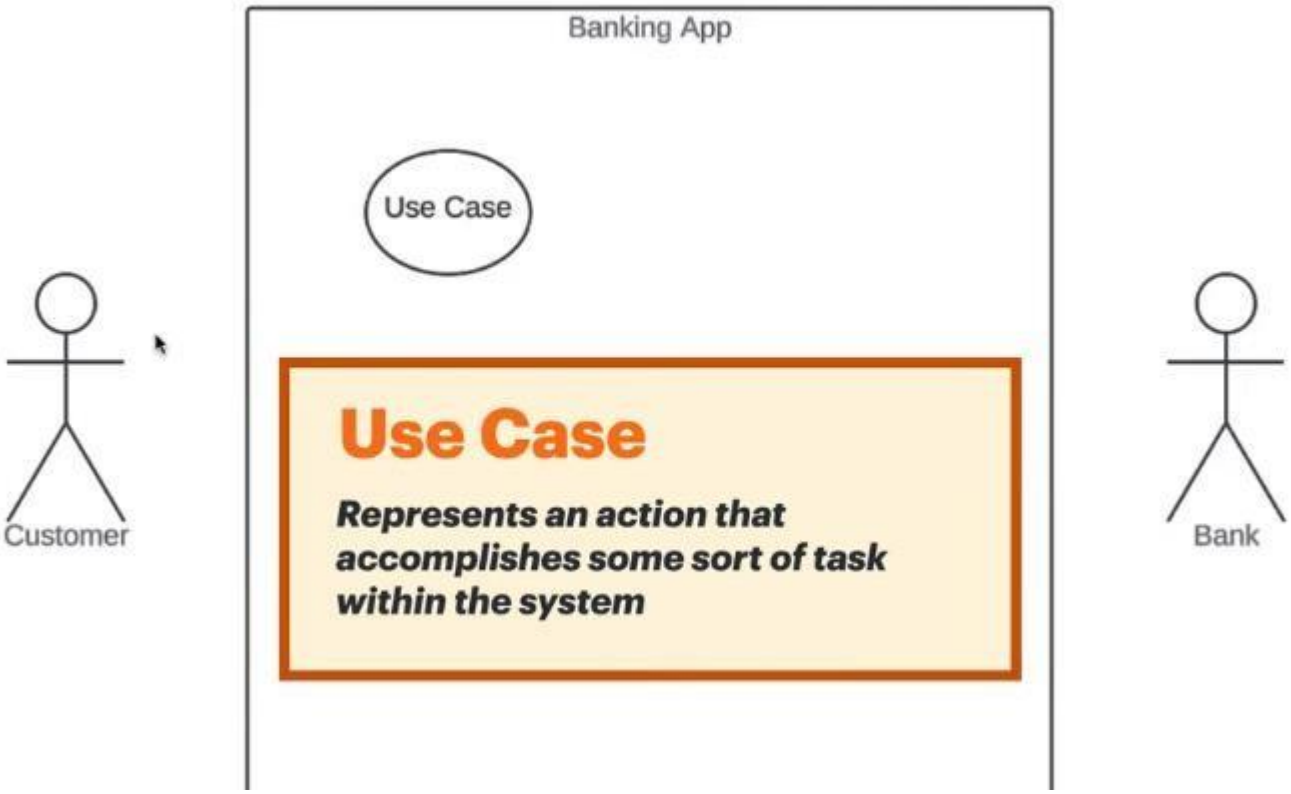
Primary Actors

Initiates the use of the system

Secondary Actors

Reactionary

Use case diagram elements



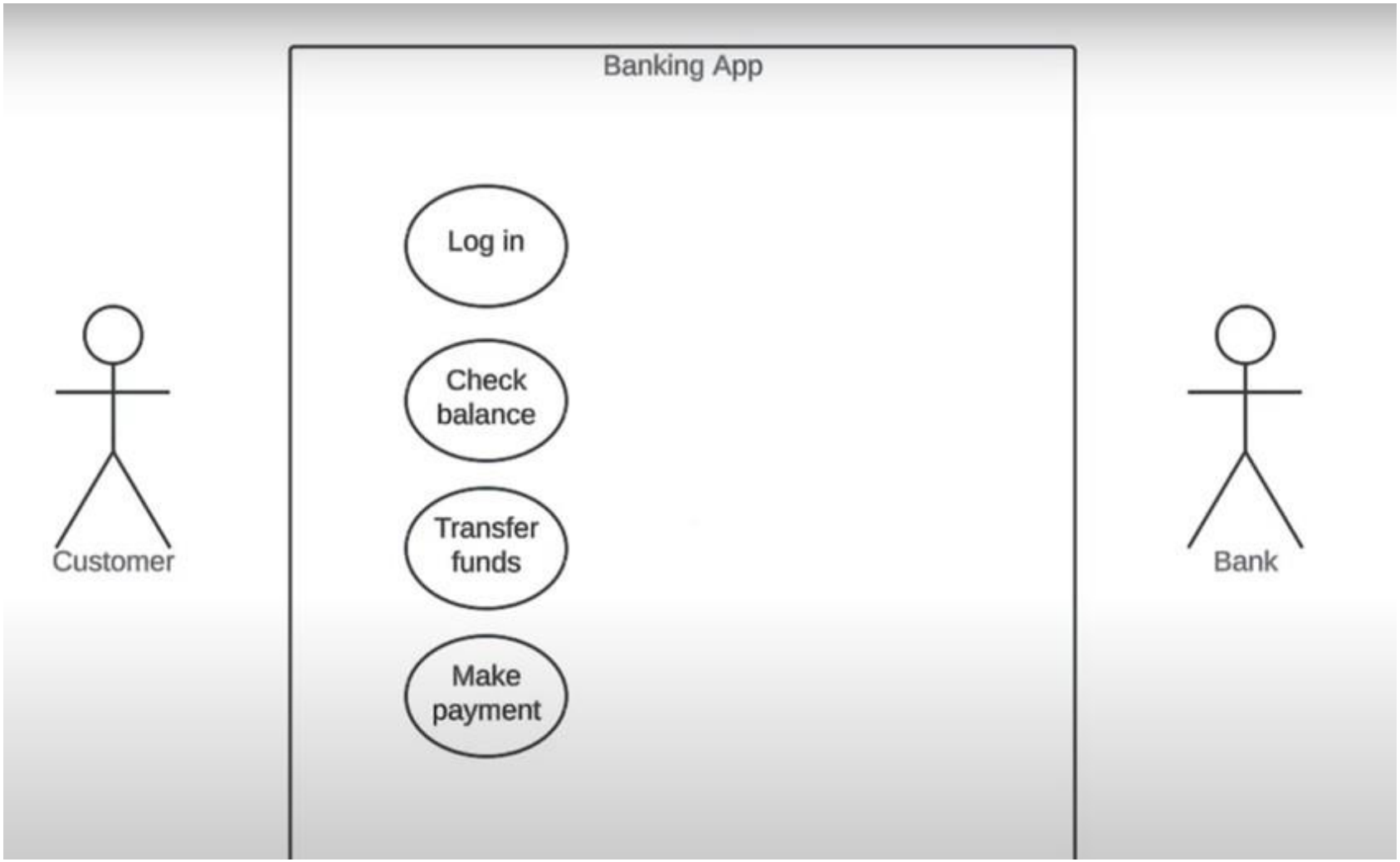
Banking App allow customer to :

log in

check balance

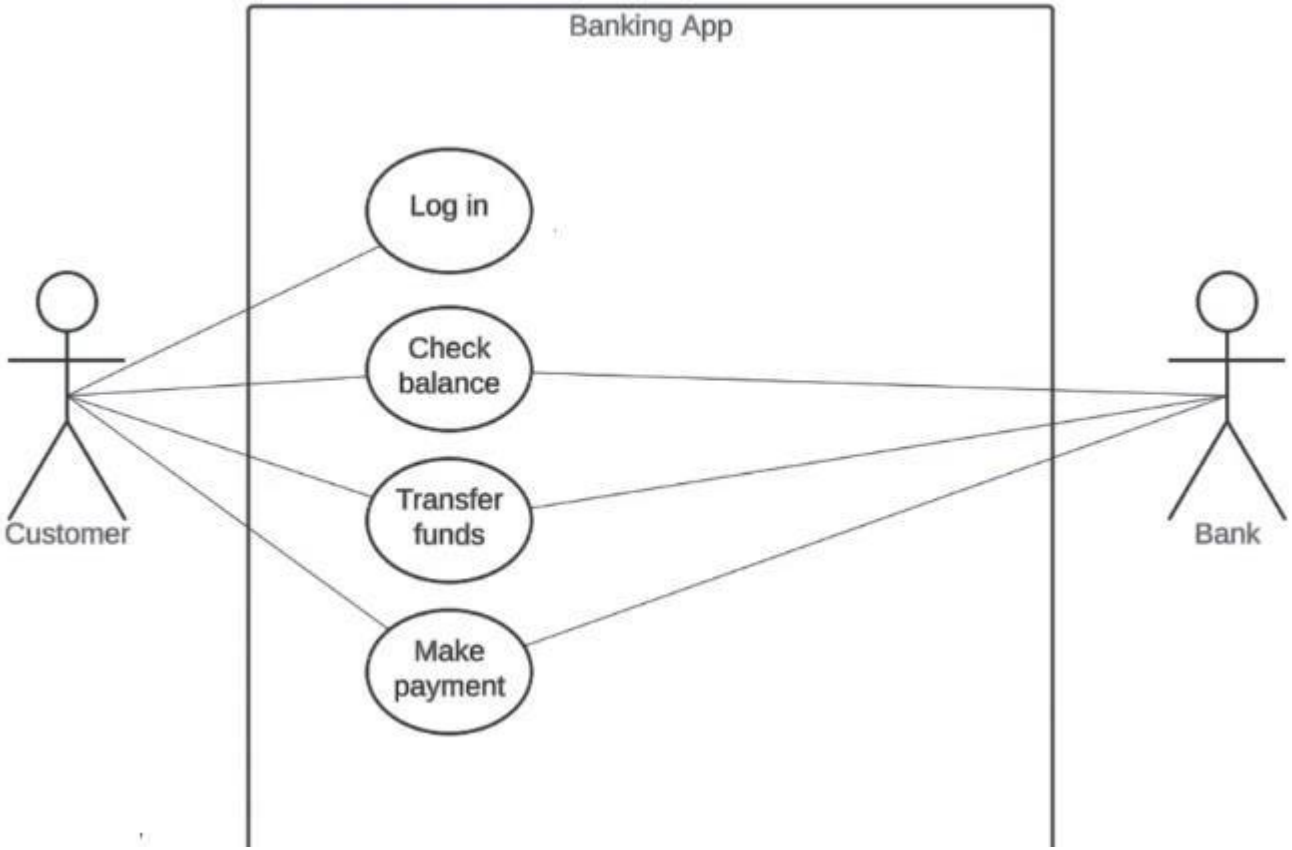
Transfer Funds

Make Payment for bills

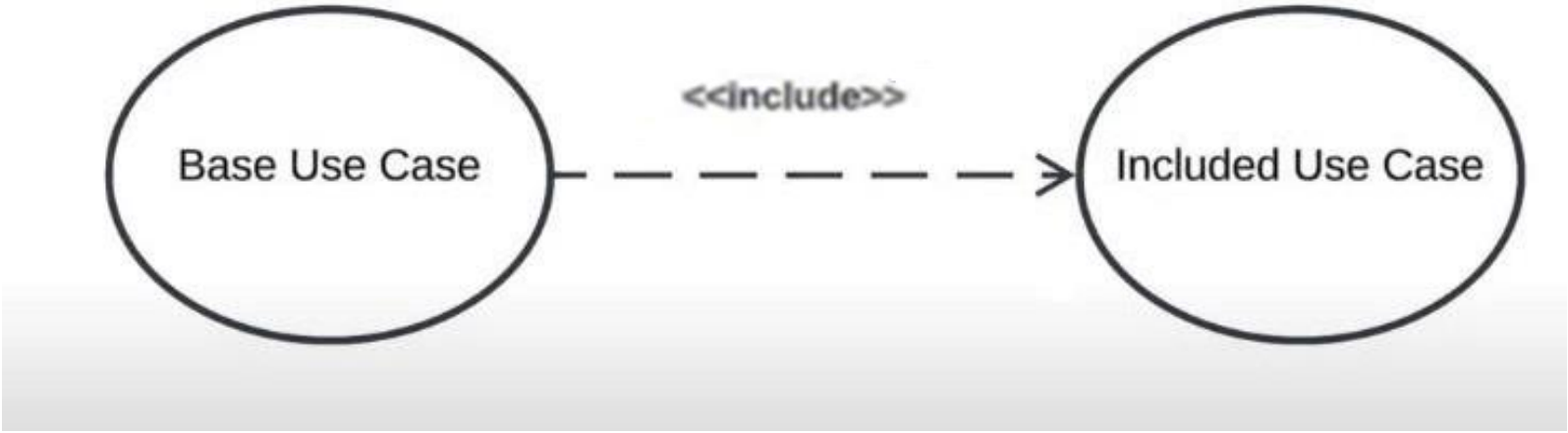

Banking App
Log in
Check balance
Transfer funds
Make payment
Customer
Bank

Use case diagram elements

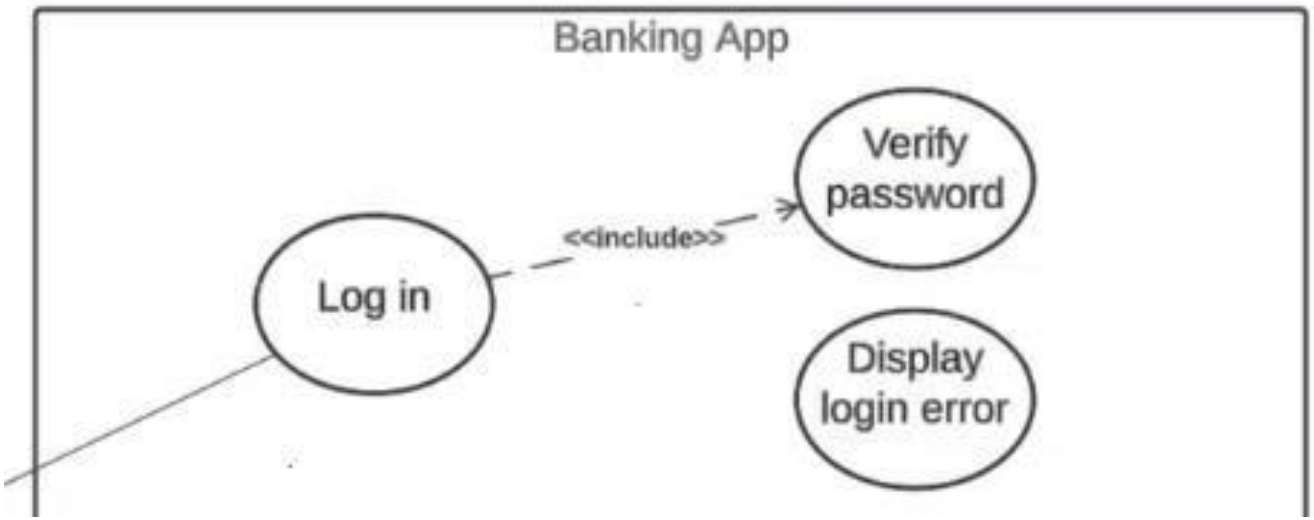
Association Relationship



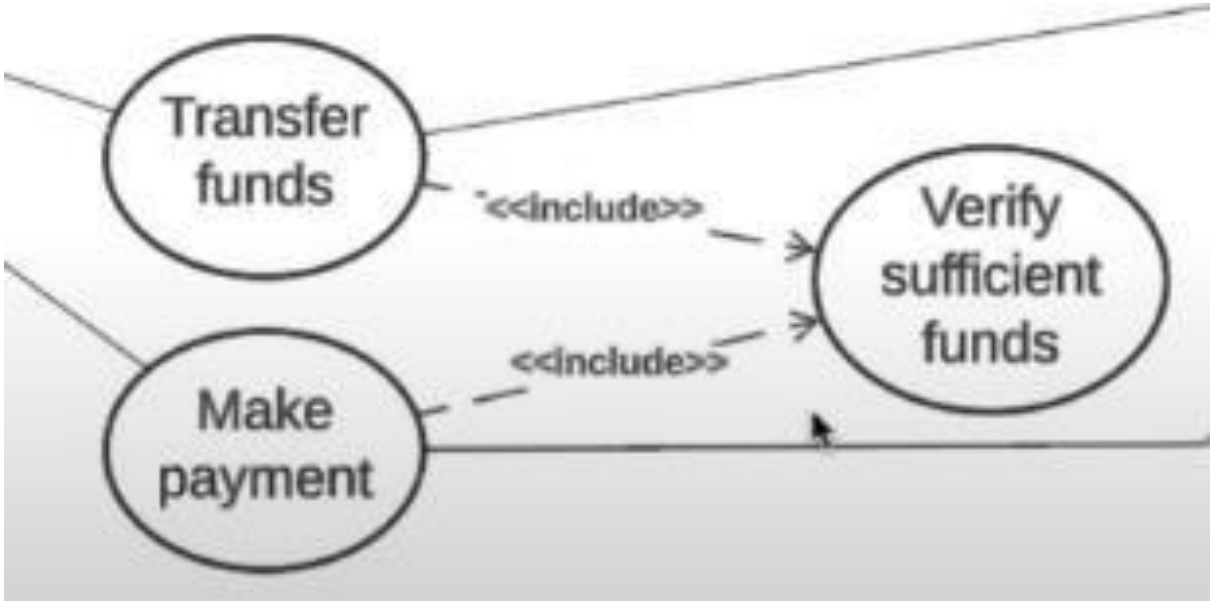
Include Relationship



Include Relationship

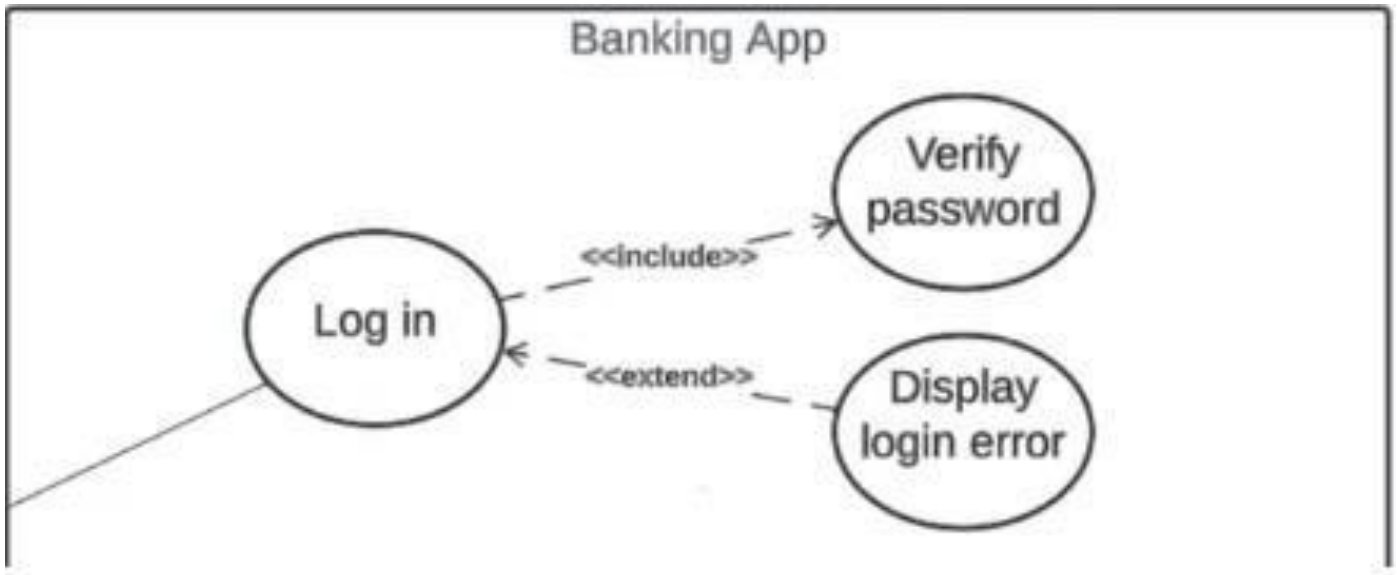


Include Relationship

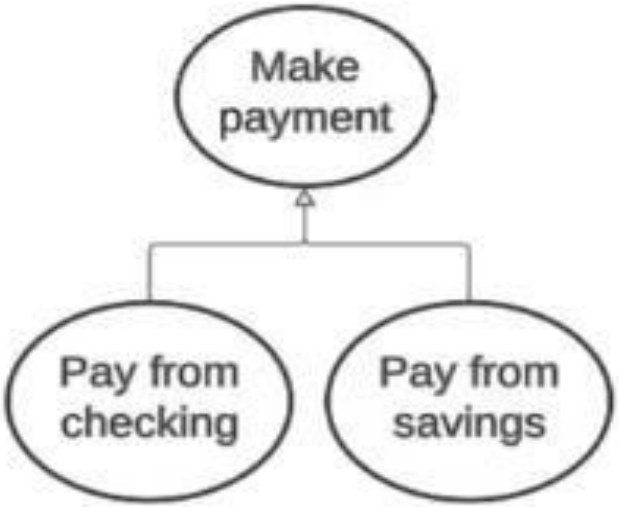


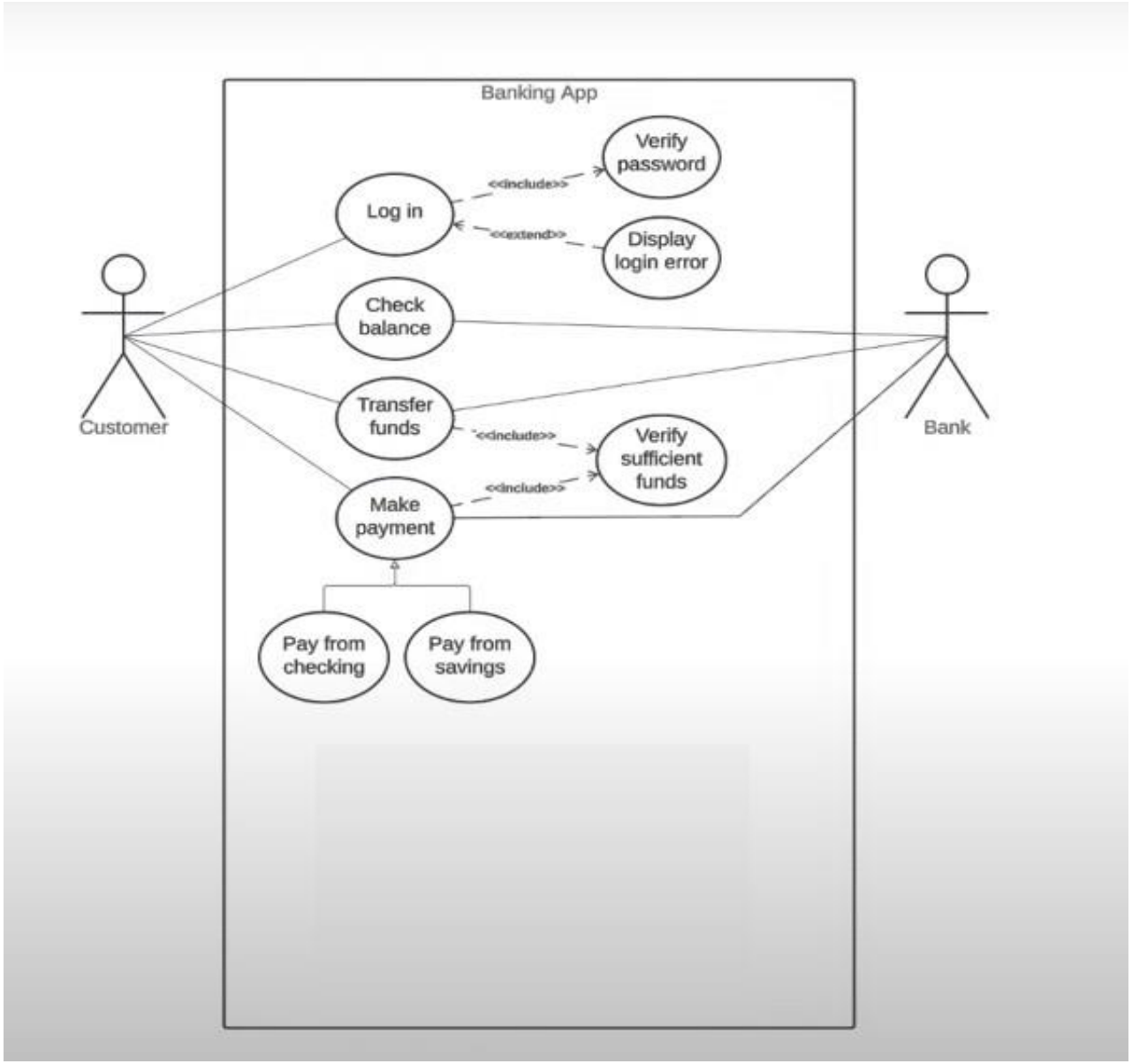
Extend Relationship

Include & Extend Relationship



Generalization Relationship




Banking App
Verify password
Log in
<<include>>
<<extend>>
Display login error
Check balance
Transfer funds
<<include>>
Verify sufficient funds
<<include>>
Make payment
Pay from checking
Pay from savings
Customer
Bank

Example 1

Use Case Diagram for ATM

Fig 1

Fig.1

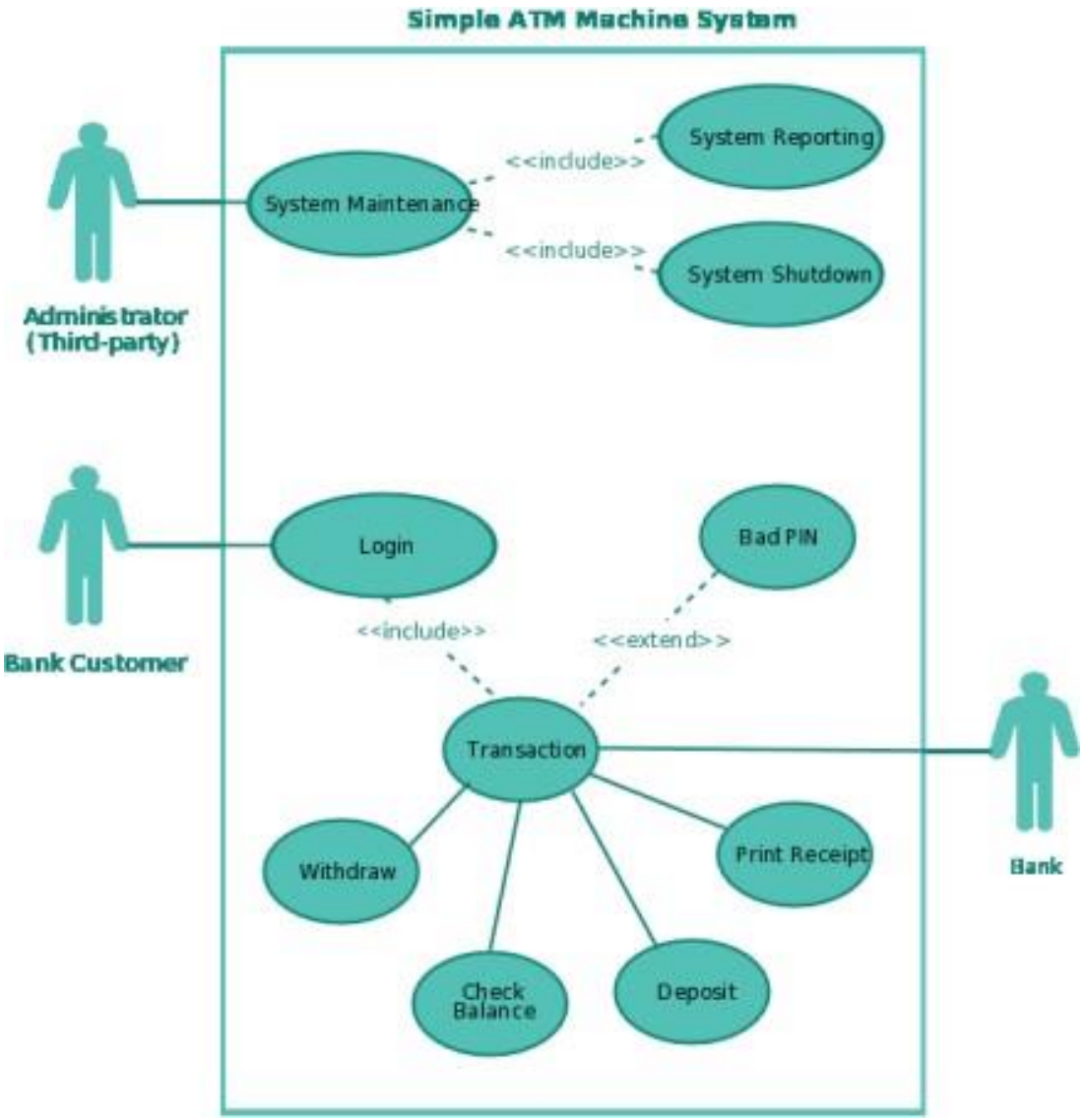

Simple ATM Machine System
System Reporting
<<include>>
System Maintenance
<<include>>
System Shutdown
Administrator
(Third-party)
Login
Bad PIN
<<include>>
<<extend>>
Bank Customer
Transaction
Bank
Withdraw
Print Receipt
Check
Balance
Deposit

Fig.1

Example 2

Use Case Diagram for Educational Kids Game

Fig 2

Fig.1

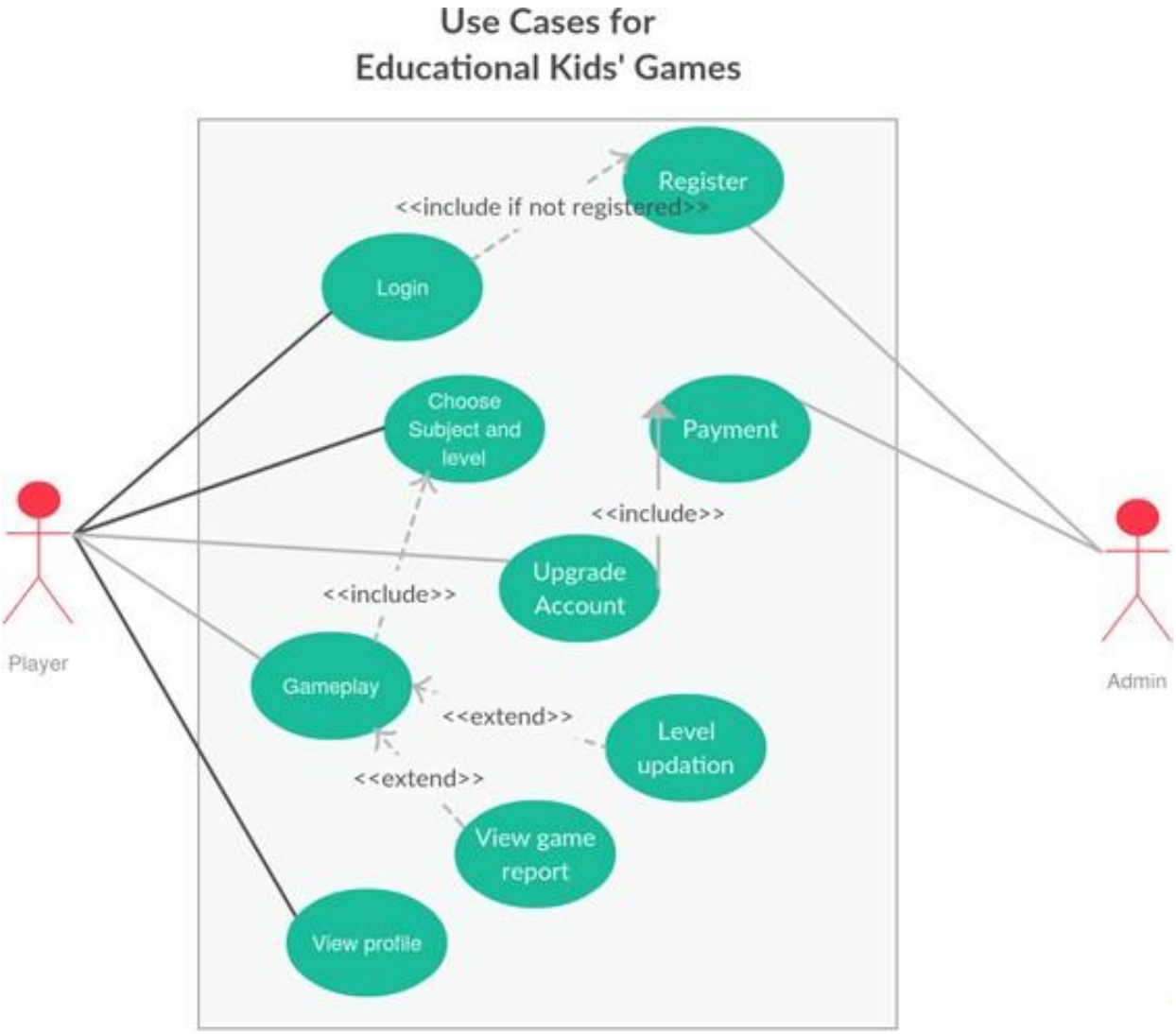

Use Cases for
Educational Kids' Games
Register
<<include if not registered>>
Login
Choose Subject and level
Payment
<<include>>
Upgrade Account
<<include>>
Gameplay
<<extend>>
Level updation
<<extend>>
View game report
View profile
Player
Admin

Fig.2

Part 2

UML class diagrams