

**Title: Online Bank Management System**

- **Subtitle:** Ex. 5 Requirement modelling using State Transition Diagram (Behavioral Modeling) using StarUML
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## 1. Introduction

The **State Transition Diagram** represents the dynamic behavior of the Online Bank Management System by illustrating different states, transitions, and events. It provides a clear understanding of how the system reacts to various user actions and system processes.

## 2. Identified States

The following are the states included in the system:

- **Idle State:** The system is in an idle state before any user interaction.
- **User Authentication:** The system verifies user credentials.
- **Register:** Users register for a new account.
- **Login:** Users successfully log in to the system.
- **Customer Dashboard:** The main interface where users can perform banking operations.
- **Transaction Processing:** Handles user transactions like withdrawal, deposit, and transfers.
- **Withdrawal:** Users withdraw money.
- **Deposit:** Users deposit money.
- **Transfers:** Users transfer funds between accounts.
- **Loan Application:** Users apply for a loan.
- **Managerial Review:** Loan applications are reviewed for approval or rejection.
- **Notification System:** Sends transaction or loan status notifications.
- **System Logout:** The user logs out or the session expires.
- **Final State:** The system process ends.

### 3. Events and Transitions

*Each transition is triggered by an event, leading from one state to another:*

Current State	Event (Triggering Action)	Next State
Idle State	Initiate Login	User Authentication
Idle State	Register New User	Register
Register	Registration Complete	Login
User Authentication	Authentication Failed	Idle State
User Authentication	Successful Login	Customer Dashboard
Customer Dashboard	Initiate Transaction	Transaction Processing
Customer Dashboard	Apply for Loan	Loan Application
Customer Dashboard	User Logs Out	System Logout
Transaction Processing	Choose Withdrawal	Withdrawal
Transaction Processing	Choose Deposit	Deposit
Transaction Processing	Choose Transfers	Transfers
Withdrawal, Deposit, Transfers	Transaction Successful / Failed	Notification System
Loan Application	Submit Loan Request	Managerial Review
Managerial Review	Loan Approved / Rejected	Notification System
Notification System	Notification Sent	Customer Dashboard
Notification System	Notification Failed	Customer Dashboard
System Logout	Session Expired	Final State

## 4. Explanation of State Transitions

1. **User Authentication:** A user either logs in successfully and proceeds to the dashboard or authentication fails, redirecting back to the idle state.
2. **Transaction Processing:** Users initiate transactions, selecting withdrawal, deposit, or fund transfers, which lead to transaction success or failure, followed by a system notification.
3. **Loan Application:** Users apply for loans, which undergo managerial review. Based on approval or rejection, the notification system informs the user.
4. **System Logout:** Users can log out at any stage, leading to the **final state** where the session ends.

## 5. Conclusion

This **State Transition Diagram** provides a structured representation of how the **Online Bank Management System** functions dynamically. It highlights user authentication, transaction management, loan processing, and system notifications while ensuring smooth interactions between the states.

This diagram is essential for designing, implementing, and testing the system's workflow efficiently.

# State Transition Diagram

