

Practice 19 [Inheritance-Case Studies]

1. **Automated Teller Machine (ATM)** is a banking system, which allows customers to have access to financial transactions. These transactions can be done in public space without any need for a clerk, cashier, or bank teller. The details are:

- The customer has some ATM card having card number, issue date, expiry date and CCV (Card Verification Value) number
- The customer has some bank account, which may be current or saving associated with ATM card. Account has account number, customer information, and balance.
- The user is authenticated when enters the plastic ATM card in a Bank ATM. Customers enters the user name and PIN (Personal Identification Number). After successful entry, the user can do a transaction. Transaction includes withdraw cash, transfer amount to some other account or pay utility bills.
- User can check the account balance or User can demand mini statement.

Create a complete class diagram.

2. **Library Management System** allows user to issue books. The details are:

- User who registers himself as a new user initially is regarded as staff or student for the library system.
- For the user to get registered as a new user, registration forms are available that is needed to be fulfilled by the user.
- After registration, a library card is issued to the user by the librarian. On the library card, an ID is assigned to cardholder or user.
- After getting the library card, a new book is requested by the user as per there requirement.
- After, requesting, the desired book or the requested book is reserved by the user that means no other user can request for that book.
- Now, the user can renew a book that means the user can get a new due date for the desired book if the user has renewed them.
- If the user somehow forgets to return the book before the due date, then the user pays fine. Or if the user forgets to renew the book till the due date, then the book will be overdue and the user pays fine.
- User can fill the feedback form available if they want to.
- Librarian has a key role in this system. Librarian adds the records in the library database about each student or user every time issuing the book or returning the book, or paying fine.
- Librarian also deletes the record of a particular student if the student leaves the college or passed out from the college. If the book no longer exists in the library, then the record of the particular book is also deleted.
- Updating database is the important role of Librarian.

Create a complete class diagram.