1. ABC Bank provides different types of loan. The table below lists the Loans being taken by different customers. Use the below table to answer questions (a) & (b)

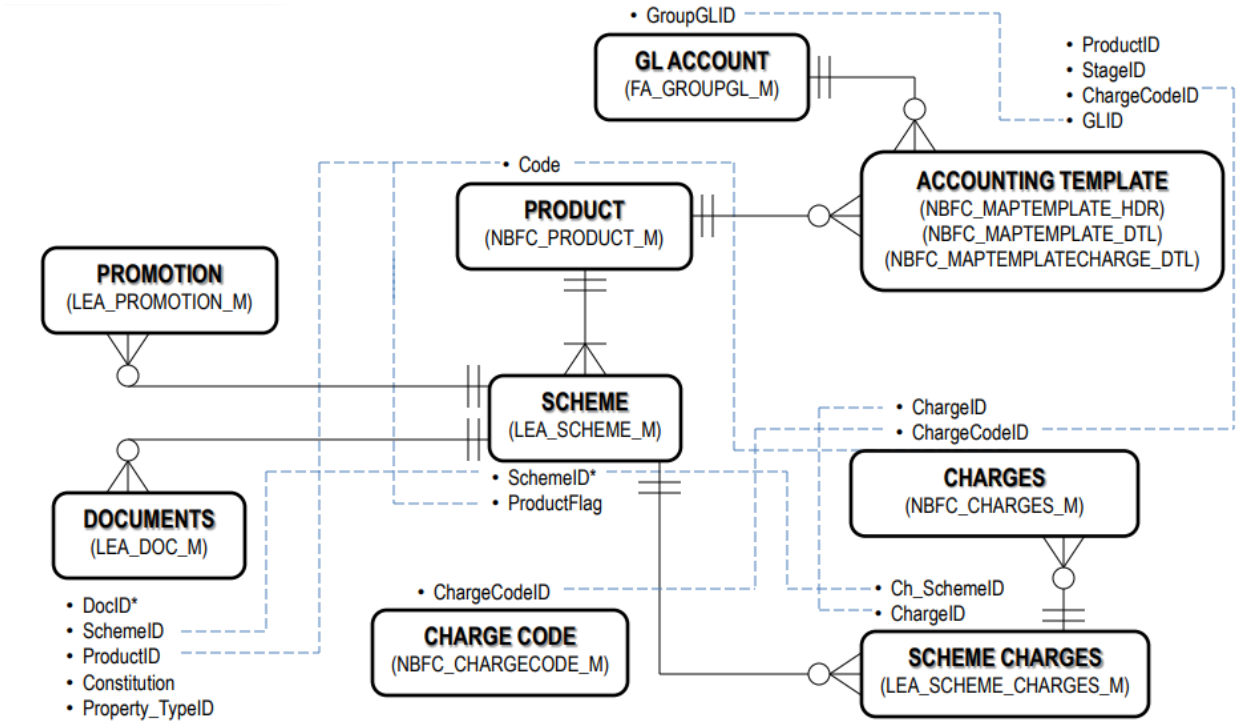
Loan Application ID	Customer Name	Customer Contact_no	Loan Amount	Loan Type	Branch Id	Branch Address
123456	Amit Sharma	23456721	5000000	Home Loan	12	Vasant Kunj
123456	Pooja Jain	89765345	5000000	Home Loan	12	Vasant Kunj
234567	Shikha Gupta	98765789	40000	Consumer Loan	14	G.K 1
234789	Shreya	89345677	600000	Auto Loan	14	G.K.1
678969	Shreya	89345677	50000	Consumer Loan	10	G.K.2

   a. This table is susceptible to update anomalies. Provide examples of insertion, deletion & update anomalies
   b. Normalize this table upto 3NF. State any assumptions.

2. Draw an ER-Diagram which represents all the entities and relationships between them for the below given case study.

   ABC Bank is having two types of Accounts – Saving and Current Accounts. A customer can open one or more accounts of the same type. Customer has a name, an address, a phone number, Aadhaar number and a unique customer id. With the help of Customer-id, all account details can be fetched of the customer. Account has a unique account number, balance, the customer id. The Saving Account earns a quarterly interest and updated in the account balance. The current account doesn't earn interest but it has an overdraft limit. The Bank employs a Customer-manager who is responsible for connecting with the customer and resolving his/her issues. One Customer is managed by one customer-manager but one customer-manager can manage multiple customers. It is must to have a customer-manager assigned to a customer. The Customer_manager is an employee of the bank. The operations which can be performed on both kind of accounts are – Withdraw, deposit and transfer amount.

3. Given the below E-R Diagram, create Relational Database from it.



4. Problem Statement

ABC Bank wants to incorporate a Loan Management System to take care of the Loans to be provided to the customers. The different Loan Product Categories available are:

1. Home Loan
2. Consumer Vehicle Loan
3. Consumer Loan
4. Education Loan

There are different Loan Products available under the categories are:

Loan Product Category	Loan Product
Home Loan	Under-Construction, Ready-to-move
Auto Loan	4-wheeler, 2-wheeler
Consumer Loan	Electrical Items, Furniture
Education Loan	Graduate, Post-Graduate

Every Loan Product has the following attributes:

1. Loan Security Type – Secured/UnSecured
2. Minimum Loan Value
3. Maximum Loan Value
4. Rate of Interest

5. Max Tenure
6. Min Tenure

The Loan can be availed by any Customer. One customer can apply for more than one loan product and one Loan product can be availed by multiple customers together.

The Customer has the following attributes

1. Customer ID
2. Customer Name
3. Customer Aadhaar number
4. Customer Address
5. Phone Number
6. Email Address

After the Loan application is successfully processed, the Loan amount is disbursed.

Once the Loan amount is disbursed, the EMI is calculated and repayment schedule is generated. On the due date, an invoice/advice is generated for the EMI being due. The EMI is paid through Cheque only and the cheque details are stored in Payment Details. Once the EMI is paid, a receipt is generated and information is stored against which invoice/advice number the EMI has been paid.

If the EMI is not paid on the specified date, the Late Payment Penalty(LPP) is levied and a separate advice is generated for the LPP. The customer can choose to clear both the dues with single payment(cheques) or separate payment (cheques) for both advices.

Answer the below questions:

a) Identify the entities and their attributes and relationship between entities
b) Normalize the attributes
c) Draw the corresponding ER Diagram
d) Create the Relational Model