Department of Electrical & Computer Engineering (ECE)

Project- Individual

Assignment Title: Bank Management System

Course Title: Database Systems

Course Code: CSE 311

Submitted to:

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Assignment Title: Bank Management System

Description:

Suppose, I own a Bank, and I have stored all the information in account details schema. There are six tables in the account details schema. Those tables are account, borrower, branch, customer, depositor, and loan.

Account (account number, balance, branch name):

There is an account identified by account number. Total available balance at any given time represented by balance, and hosted branch name represented by branch name.

Borrower (customer name, loan number):

Each customer can take a loan from the bank against the loan number. A loan number can assign to multiple borrowers. If the same loan number is assign to multiple borrowers, this will represent a joint loan against that loan number.

Branch (branch name, branch city, asset):

A branch having a name is situate in a city having assets of a certain amount. There can be multiple branches in a city.

Customer (customer name, Customer Street, customer city):

A customer having a valid name lives at a street address in a city.

Depositor (account number, customer name):

A customer having a valid name has an account issued against an account number.

Loan (loan number, branch name, and amount):

Loan number identifies each loan, and each loan is issue by branch having branch name. Amount represents the issued total loan by a branch.
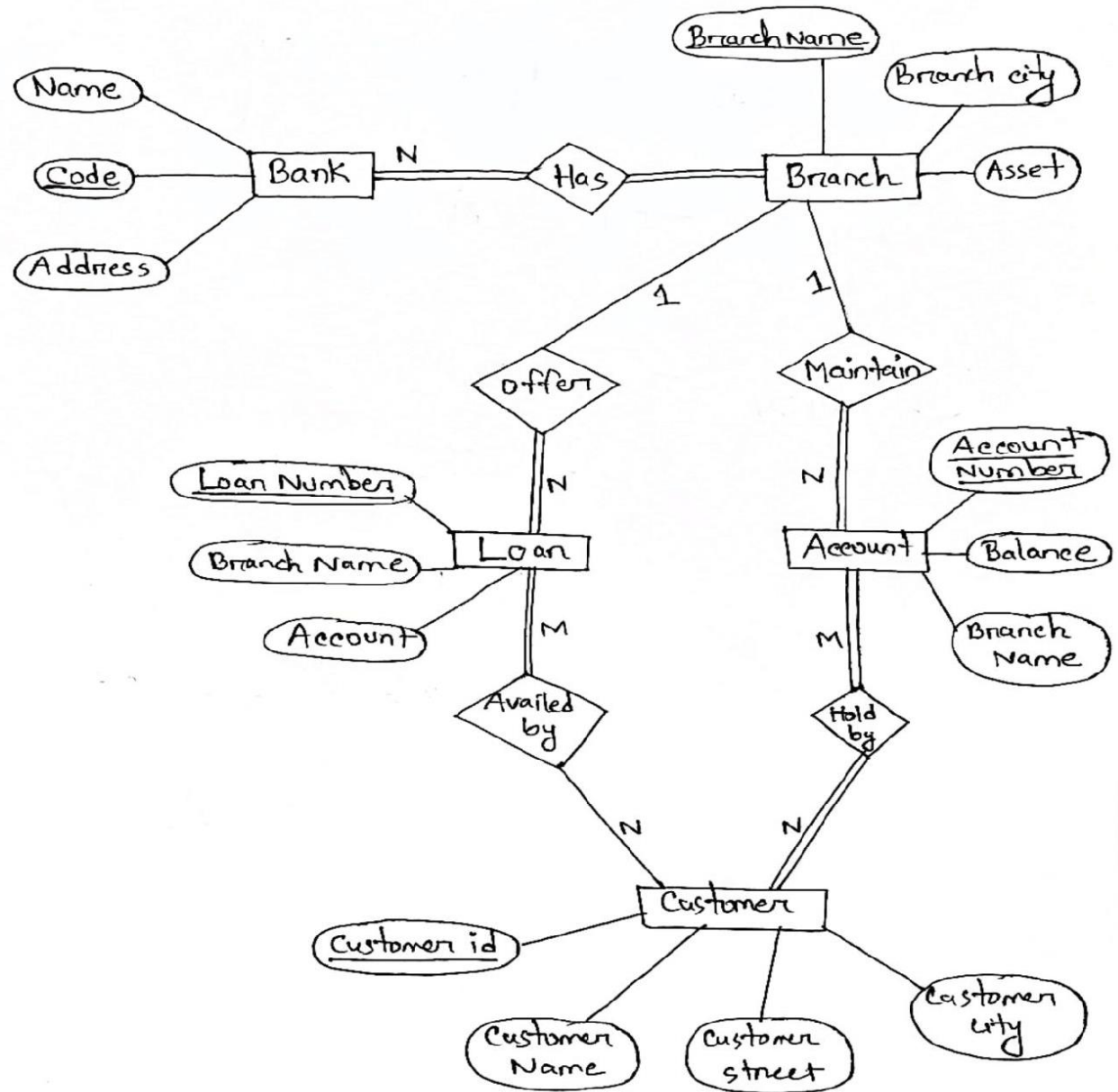
ER diagram:

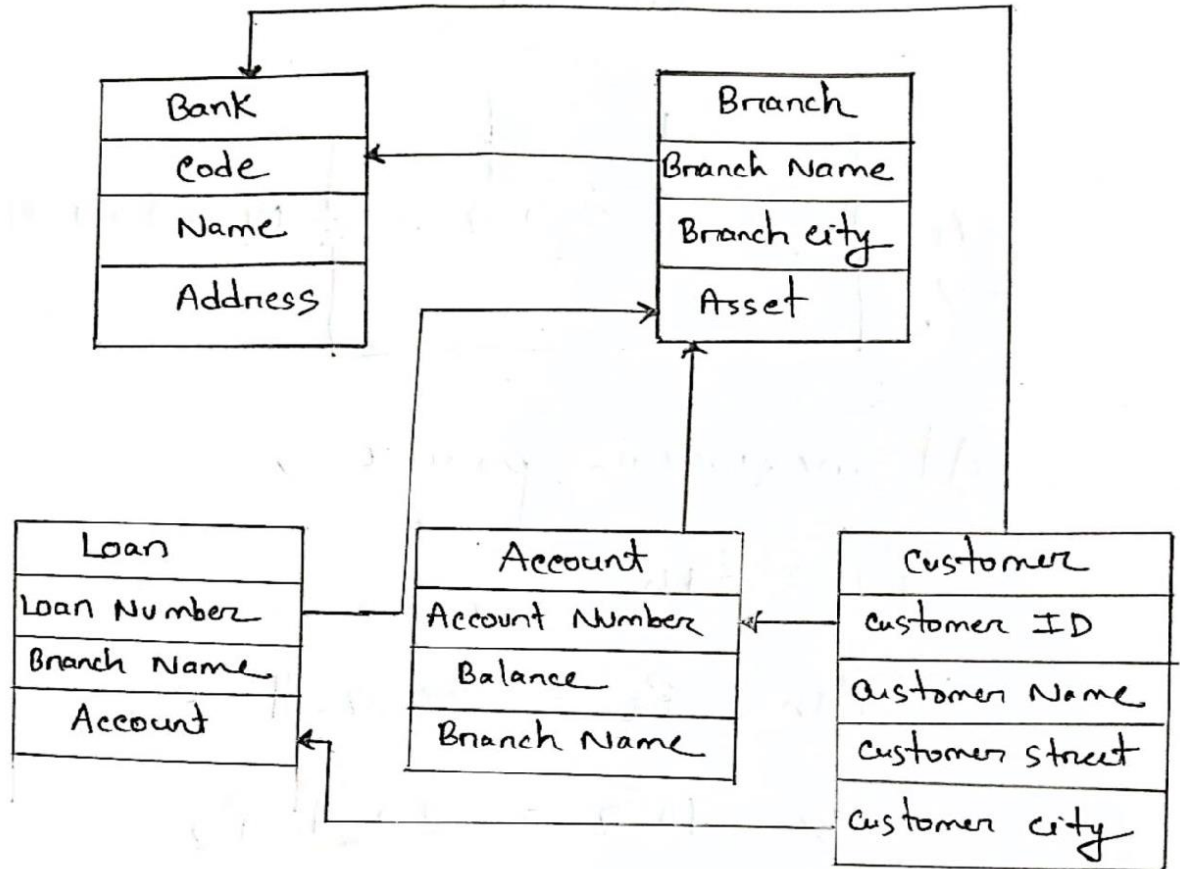Fig: ER Diagram of a Bank Management System.

Schema diagram:

Bank
Code
Name
Address

Branch
Branch Name
Branch city
Asset

Loan
Loan Number
Branch Name
Account

Account
Account Number
Balance
Branch Name

Customer
Customer ID
Customer Name
Customer street
Customer city

Fig: Schema Diagram of Bank Management System.

Query of Chapter 3:

Question:

- Find out the customers' name, customers' city who have jointly borrowed a Loan.

```sql
--Find out the customers' name, customers' city who have jointly borrowed a Loan

SELECT customer.customer_name, customer.customer_city
FROM borrower, customer
WHERE borrower.customer_name = customer.customer_name
AND borrower.loan_number IN(
    SELECT borrower.loan_number
    FROM borrower
    GROUP by borrower.loan_number
    HAVING COUNT(customer_name) >1)
    ORDER BY customer_street ASC
```

150 %

Results | Messages

	customer_name	customer_city
1	Jones	Harrison
2	Williams	Princeton

- Find out the Average deposited amount of the customers having a name that starts with 'J'

```sql
--Find out the Average deposited amount of the customers having a name that
--starts with 'J'

SELECT AVG(account.balance) AS 'AVERAGE BALANCE'
FROM depositor,account
WHERE depositor.account_number = account.account_number
AND customer_name LIKE 'J%'
```

150 %

Results | Messages

	AVERAGE BALANCE
1	283

- List all the possible combinations of customer name and branch name. Sort the result based on the customer's name in descending order.

```
--List all the possible combinations of customer name and branch name. Sort the
--result based on the customer's name in descending order

SELECT customer_name, branch.branch_name
FROM customer,branch
ORDER BY customer_name DESC
```

150 %

Results | Messages

	customer_name	branch_name
1	Williams	Brighton
2	Williams	Downtown
3	Williams	Mianus
4	Williams	North Town
5	Williams	Perryridge
6	Williams	Pownal
7	Williams	Redwood
8	Williams	Round-Hill
9	Turner	Brighton
10	Turner	Downtown
11	Turner	Mianus
12	Turner	North Town
13	Turner	Perryridge
14	Turner	Pownal

Query executed successfully.   DESKTOP-CO3DP4C\SQLEXPRESS ...   DESKTOP-CO3DP4C\SAD

- Find out the customer's details who does not have any deposit or loan account.

```sql
--Find out the customer's details who does not have any deposit or loan account.

SELECT *
FROM customer
WHERE customer.customer_name NOT IN(
        SELECT depositor.customer_name
        FROM depositor)
        AND customer.customer_name NOT IN(
            SELECT borrower.customer_name
            FROM borrower)
```

150 % ▾ <

Results Messages

	customer_name	customer_street	customer_city
1	Brooks	Senator	Brooklyn
2	Glenn	Sand Hill	Woodside
3	Green	Walnut	Stamford
4	Lindsay	Park	Pittsfield
5	Lex	Spring	Pittsfield

- Find out the Total Asset, Total Loan, and Total Deposit of your Bank.

```sql
--Find out the Total Asset, Total Loan, Total Deposit of your Bank

SELECT b.E as 'Total Assest', c.F as 'Total Balance', d.G 'Total Loan'
FROM (SELECT SUM(branch.assets) E FROM branch) as b,
    (SELECT SUM(account.balance) F FROM account) as c,
    (SELECT SUM(loan.amount) G FROM loan) as d
```

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Results Messages

	Total Assest	Total Balance	Total Loan
1	32300000	2800	8700

- Find out the customer name, street address, Account Number, Loan Number. Include the customer details also even if he/she does not have any deposit or loan account. Sort the result set in ascending order of customer name.

```sql
--Find out the customer name, street address, Account Number, Loan Number.
--Include the customer details also even if he/she doesn't have any deposit or loan
--account. Sort the result set in ascending order of customer name.


SELECT customer.customer_name, customer.customer_street, account_number, loan_number
FROM customer
LEFT JOIN depositor
ON(customer.customer_name = depositor.customer_name)
LEFT JOIN borrower
ON(customer.customer_name = borrower.customer_name)
ORDER BY customer.customer_name ASC
```

150 %

Results Messages

	customer_name	customer_street	account_number	loan_number
1	Adams	Spring	NULL	L-16
2	Brooks	Senator	NULL	NULL
3	Curry	North	NULL	L-93
4	Glenn	Sand Hill	NULL	NULL
5	Green	Walnut	NULL	NULL
6	Hayes	Main	A-102	L-15
7	Johnson	Alma	A-101	NULL
8	Johnson	Alma	A-201	NULL

Query executed successfully.   DESKTOP-CO3DP4C\SQLEXPRESS ... DESKTOP-CO3DP4C\SADIK ...

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[NB: .SQL file is attached.]