INTERNATIONAL CENTRE
FOR APPLIED SCIENCES
MANIPAL
(A constituent unit of MAHE, Manipal)

DMS Mini-Project

BANK MANAGEMENT SYSTEM

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INTRODUCTION

BANK MANAGEMENT SYSTEM is a program that keeps track of a client's bank account. This project demonstrates the operation of a banking account system and covers the essential functions of bank management software. It develops a project for resolving a customer's financial applications in a banking environment to meet the needs of an end banking user by providing multiple ways to complete banking chores.

This project is useful for the bank employees as well as customers to keep a track of account details. The emerging of digital system made information available on fingertips. By automating the transactions one can view the details as and when required in no time. This project emphases on creation of new customer accounts, managing the existing account holders in the bank, by making digital system one can generate daily reports, monthly reports and annual reports which can enhance the system.

This system is designed as an interactive and content management system. The system deals with data entry, validation confirm and updating while the interactive system deals with system interaction with the administration and users. Thus, above features of this project will save transaction time and therefore increase the efficiency of the system.

DESCRIPTION

• The Bank Management System (BMS) makes the managing of accounts easier. This project has been created with various checks like if the program is connected to MySQL database successfully then it would print the message successfully connected, for each option and if the user enters the right details, then it would print successful messages, respectively.

• Primarily, when you run main.py there will be three options available:

1) *Login*: if you already have an existing ID then you can login using this option.

2) *Register*: If you do not have an ID and you wish to create one, this can be done using the register option.

3) *Exit*: This option is used if the user wants to exit the program.

- **WHAT HAPPENS IF THE USER ENTERS THE WRONG USERNAME AND PASSWORD?**

If the user enters the wrong username and password, then he/she would to be again asked to enter a choice from the three options (login, register, exit).

- **AFTER THE USER IS LOGGED IN:**

If the user enters the username and password correctly, then he/she would be directed to a new menu (menu.py) having six options stated below:

1. ***Create bank account***: The user can create a new bank account using this option, then this option would ask the user to enter various details like account number, name, phone number, place, and depositing amount.

2. ***Transaction***: If the user wants to make a transaction, he/she can select this option. This will give the user options to add amount and withdrawal amount. The user can select the option according to his/her preference.

3. ***Customer Details***: If the user selects this option, then he/she would be asked for the account number whose details are to be fetched after entering the right account number. The user would be given details of the account holder with his/her current account balance.

4. ***Transaction Details***: If the user wants to check the transactions of any account, he/she could select this option. Then they are asked for the account number whose transaction details he/she wants to fetch. If the right account number is entered, then the user would be provided with the transaction details of the following account.

5. ***Delete account:*** If the user wants to delete any of the account, he/she could select this option. After selecting the option, the user would be asked for the account number of the account he/she wants to delete.

6. ***Quit***: If the user wants to quit the program, he/she could select the Quit option. All the programs hence will be terminated.

OBJECTIVES

1. **Creating and managing a bank account**.

   To perform any operation in the banking management system the user needs to create an account and the system maintains the record of all the activities performed in that account.

2. **Creation of transaction media, managing transactions.**

   Helps the clients to manage their inflows and outflows in an effective way and provides them with short-term management options.

3. **Storing bank details**.

   Bank maintains a record of all the accounts existing in their database and storing the details of the user associated with that account.

4. **Transaction details.**

   Allows the account holder to see all the transactions processed on their account. Banks usually send monthly statements to an account holder on a set date.

5. **Managing loans.**

   This involves the customer to request loans and the system to sanction them.

6. **Deleting an account.**

   From the bank account list, select one or more account entries, and then choose the Delete button to delete the selected account entries all together.

DESIGN

DATA DICTIONARY

The following tables with these data type is used in the project:

1. User_detail:
    - Username varchar (25) **Primary Key**
    - Password varchar (4) not null
    - Phone_no varchar (12) not null

2. Customer_detail:
    - Account_no varchar (20) **Primary Key**
    - Account_name varchar (40) not null
    - Phone_no varchar (12)
    - Place varchar (20)
    - Amount varchar (30) not null

3. Transaction_detail_credit:
    - Account_no varchar (20) **Primary key**
    - Date date not null
    - Amount_added int (30)

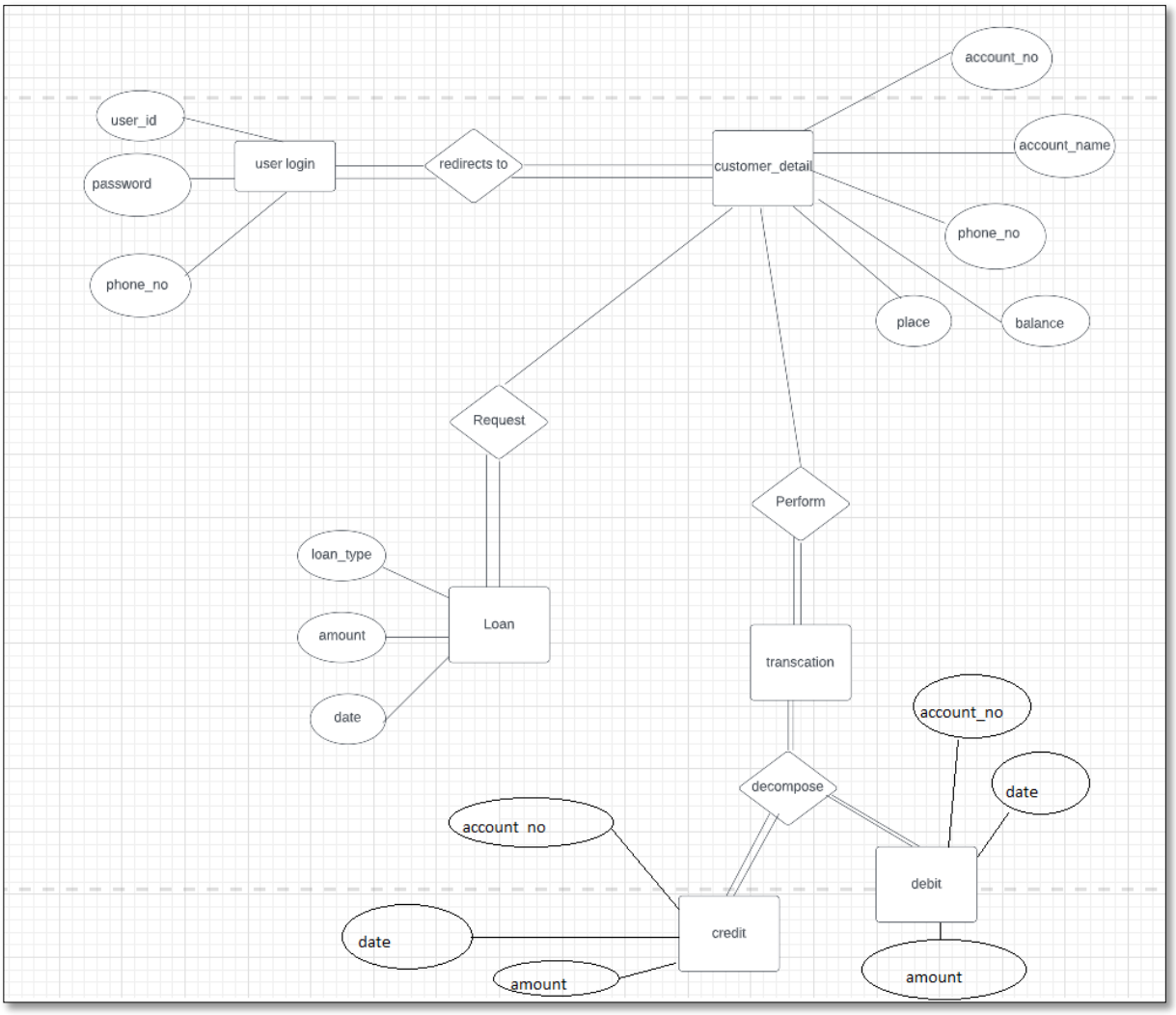
4. Transaction_detail_debit:
    - Account_no varchar (20) **Primary key**
    - Date date not null
    - Amount_added int (30)

5. Low_bala_account:
    - Account_no varchar (20) **Primary key**
    - Account_name varchar (40)
    - Phone_no varchar (12)
    - Place varchar (20)
    - Amount int (30) not null

6. Loan
    - Account_no varchar (20) **Primary key**
    - Date date not null
    - Loan_amount int (30)
    - Loan_type varchar (20)
    - Interest_rate varchar (2)

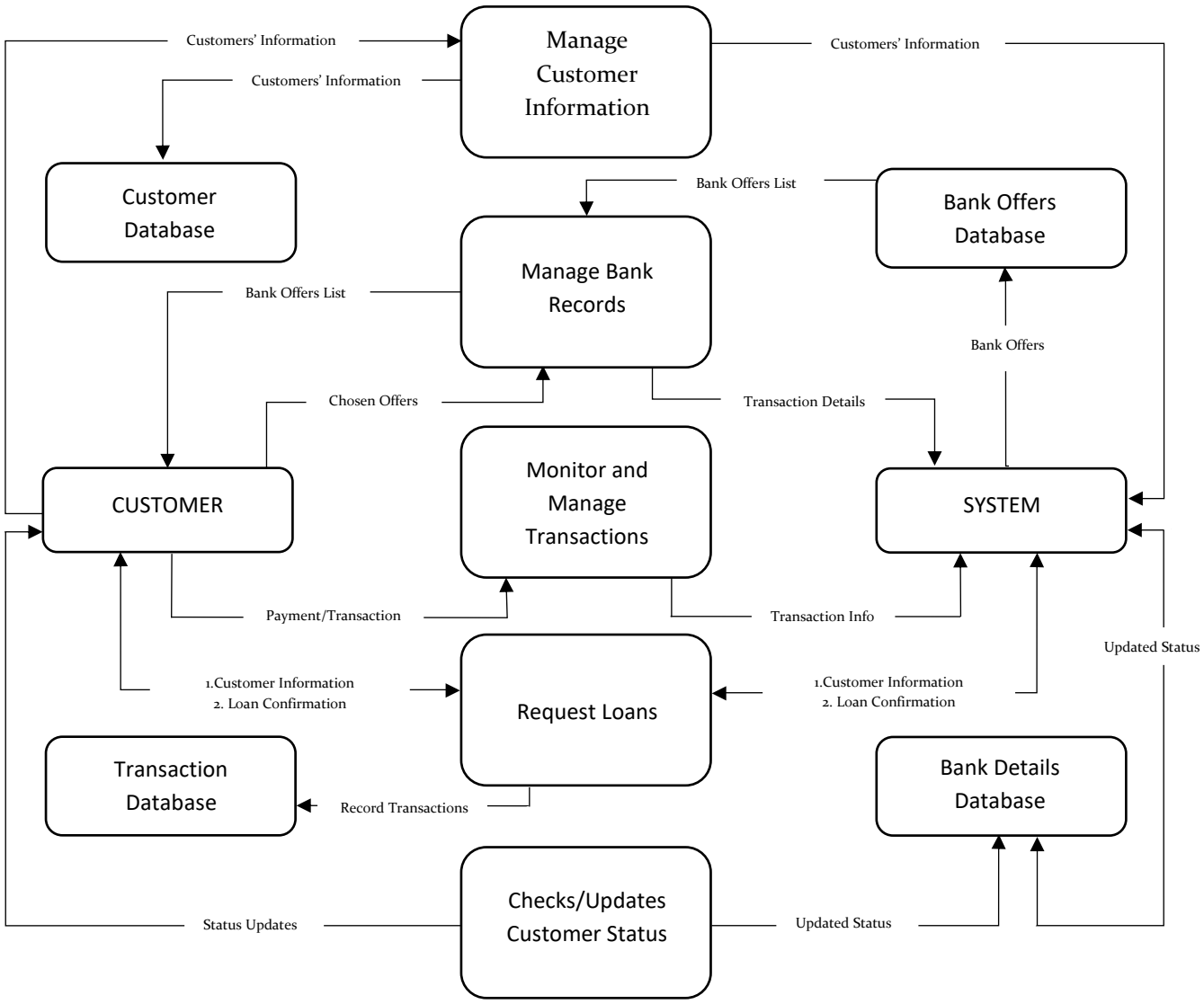
DESIGN

NORMALISATION



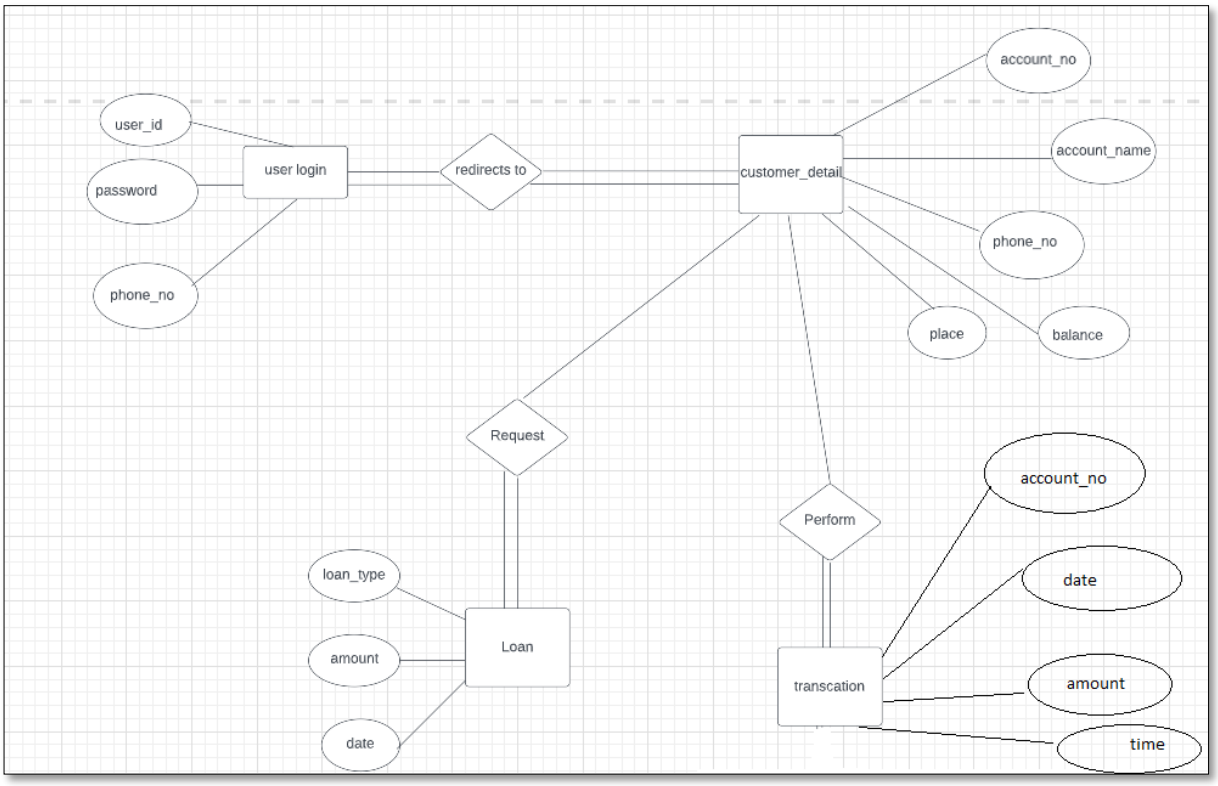
DESIGN

CONCEPTUAL DATA FLOW DIAGRAM



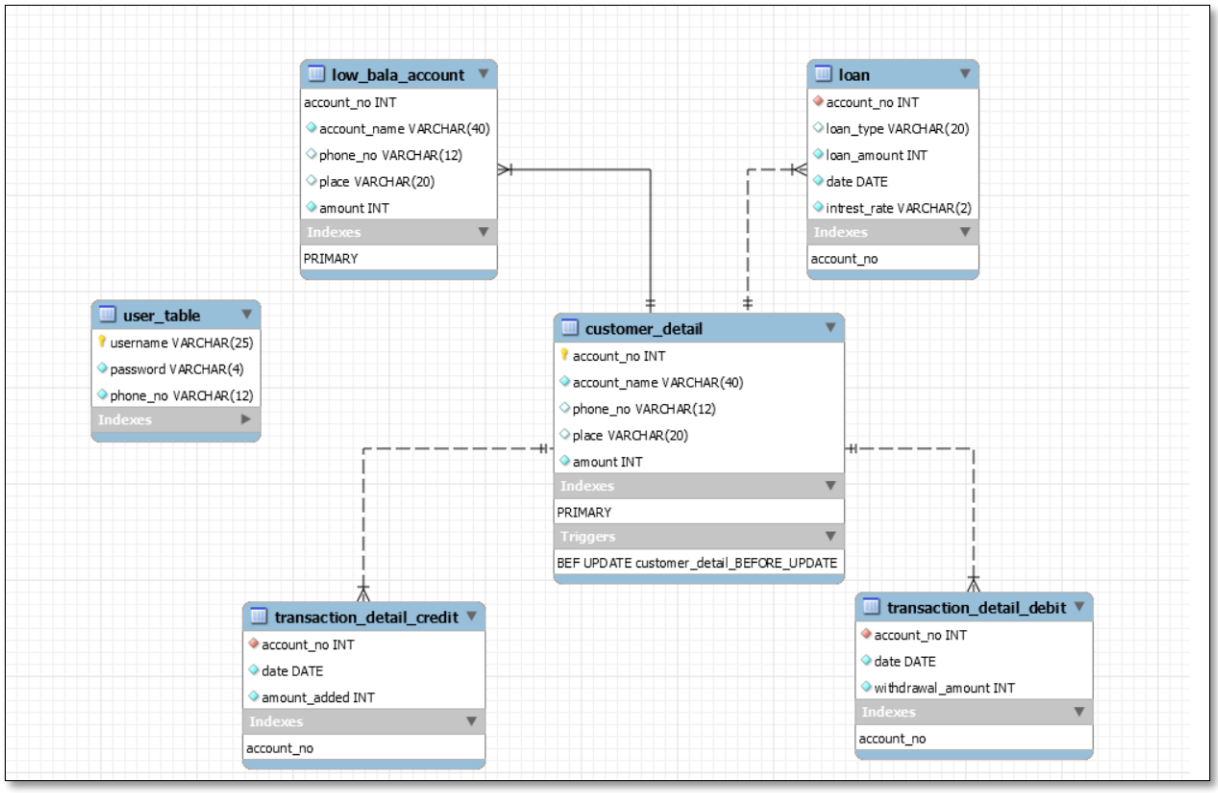
DESIGN

ER DIAGRAM



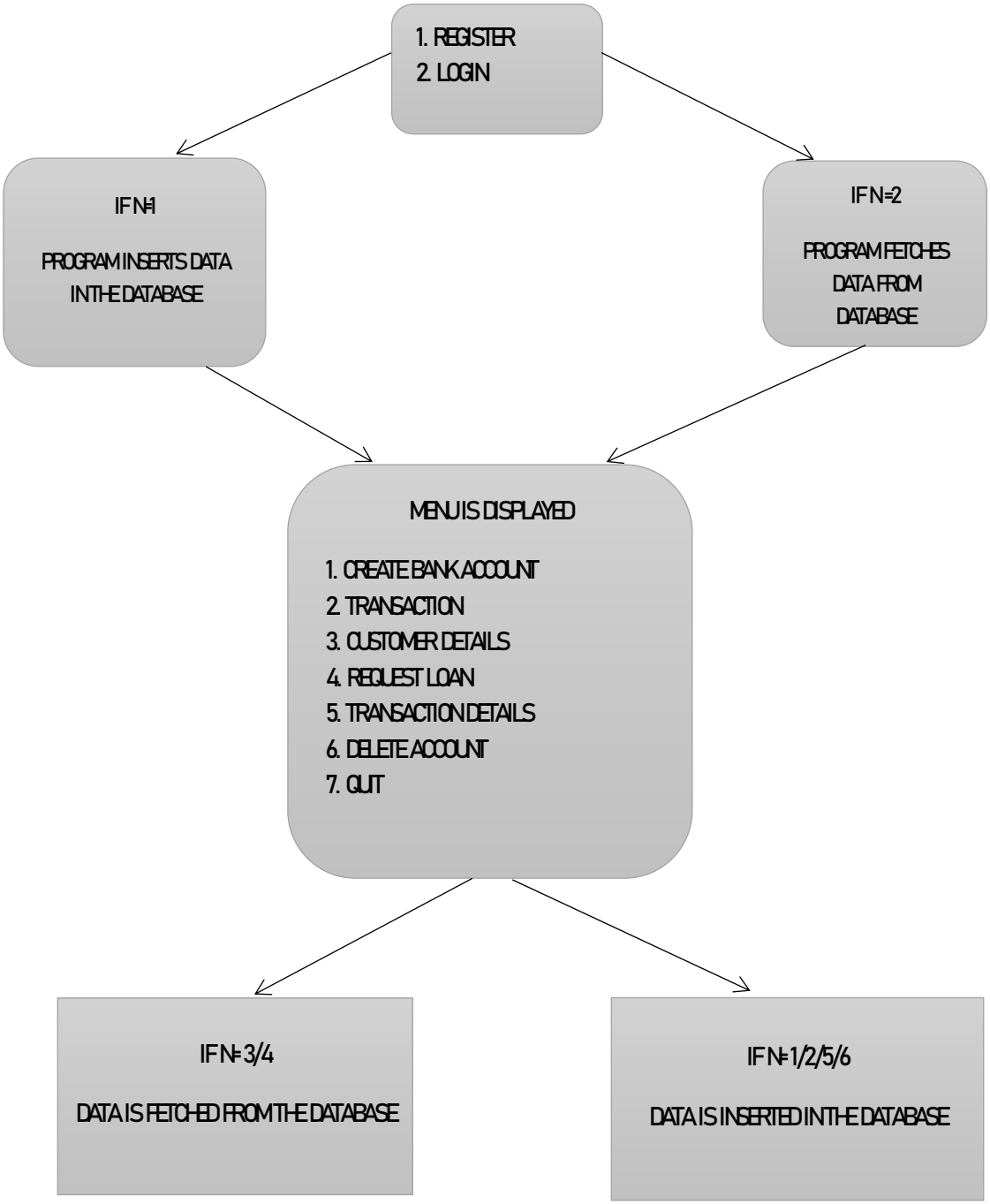
DESIGN

ER DIAGRAM



DESIGN

FLOW CHART



FEATURES

1. RELATIONSHIP

- We've used the 'customer_details' relationship entity set to relate the entity sets 'transaction' and 'loan' such that the relationship tells us <which transactions> have been done by the <which customer> and the <loan> that has been granted by the system algorithm.
- We've also used the 'user_login' relationship entity set which is related to 'customer_details' such that the relationship tells us <which account> is of <which user>.

2. STORED PROCEDURES

- A stored procedure **error 1()** has been implemented to the database system to alert the user that the account balance is low.
- The stored procedure **error2()** has been implemented to the database to alert the user that the withdrawal amount entered by the user is too high.
- Another stored procedure **Credit()** has been implemented to the database to add a particular amount to the user's account.

  Input parameters:
  - acc_no
  - amt

  This procedure updates the balance after crediting the entered amount by the user.
- The stored procedure **Debit()** has been implemented to the database to extract a particular amount from the user's account.

3. TRIGGERS

- A trigger 'customer_detail_BEFORE_UPDATE' has been created which is executed for the event <BEFORE UPDATE ON 'customer_detail'>

If the account balance is less than 10000, then the trigger adds this particular account to the low_bala_account table.

- Another trigger 'transaction_detail_AFTER_INSERT' has been created which executes the event <AFTER INSERT ON 'transaction_detail_debit'>

If the withdrawal amount selected is greater than 5000, using the trigger error2() the system displays the message that the withdrawal amount is too high.

OUTPUT

```
"C:\Users\Gopit SInghal\AppData\Local\Programs\Python\Python37\python.exe" "E:/Computer science project/python projects/Class 12 project/ICAS/main.py"
=====================================================Bank Management System=====================================================
Your database is Successfully connected
================================================================================================================================
1. REGISTER
2. LOGIN
3. EXIT
================================================================================================================================
Enter Your Choice:1
Enter the new user name:trial
Enter a 4 digit password:1234
Enter your phone number:7897897890
User Successfully created
```

- Here the user registers himself to the bank management system by selecting the register option and entering the required details.

```
================================================================================================================================
Enter Your Choice:2
Enter your User Name:trial
Enter your 4 digit password:1234
=====================================================Successfully Login=========================================================
=====================================================Bank Management System=====================================================
Your database is Successfully connected
================================================================================================================================
1. CREATE BANK ACCOUNT
2. TRANSACTION
3. CUSTOMER DETAILS
4. TRANSACTION DETAILS
5. REQUEST LOAN
6. LOW BALANCE ACCOUNT
7. DELETE ACCOUNT
8. QUIT
================================================================================================================================
```

- After selecting the login option, the user can enter their credentials and access the bank management system menu.

```
=====================================================Bank Management System=====================================================
Your database is Successfully connected
================================================================================================================================
1. CREATE BANK ACCOUNT
2. TRANSACTION
3. CUSTOMER DETAILS
4. TRANSACTION DETAILS
5. REQUEST LOAN
6. LOW BALANCE ACCOUNT
7. DELETE ACCOUNT
8. QUIT
================================================================================================================================
Enter Your Choice:1
Enter New Bank Account Number:1111
Enter Your Name:tryyy
Enter Your Phone Number:1212121212
Enter Your Place :manipal
Enter The Amount You Want to Deposit:12000
=======================Account Successfully Created=======================
================================================================================================================================
```

- The user creates his/her bank account by entering the required details.

```
================================================================================================================================
1. CREATE BANK ACCOUNT
2. TRANSACTION
3. CUSTOMER DETAILS
4. TRANSACTION DETAILS
5. REQUEST LOAN
6. LOW BALANCE ACCOUNT
7. DELETE ACCOUNT
8. QUIT
================================================================================================================================
Enter Your Choice:2
Enter Your Account Number:1111
================================================================================================================================
1. ADD AMOUNT
2. WITHDRAWAL AMOUNT
================================================================================================================================
Enter Your Choice:1
Enter The Amount You Want To Add:3000
==================================Amount Successfully Added=====================================
```

- On selecting the transaction option, the user gets the choice to either add or withdraw amount.
- On selecting ADD AMOUNT, the user is required to enter the amount to be added to his/her account.
- On selecting WITHDRAW AMOUNT, the user is required to enter the amount to be withdrawn from his/her account.

The amount is hence added/withdrawn from the account accordingly.

#A trigger has been used to alert the user when the withdrawal value is above 5000.

```
================================================================================================================================
1. CREATE BANK ACCOUNT
2. TRANSACTION
3. CUSTOMER DETAILS
4. TRANSACTION DETAILS
5. REQUEST LOAN
6. LOW BALANCE ACCOUNT
7. DELETE ACCOUNT
8. QUIT
================================================================================================================================
Enter Your Choice:3
Enter the Account Number:1111
Account Number: 1111 Account Holder's Name: tryyy Phone Number: 1212121212 City: manipal Current Amount: 15000
================================================================================================================================
```

- On selecting the CUSTOMER DETAILS option, the system displays the account details on entering the account number of the individual.

```
=====================================================Bank Management System=============================================================
Your database is Successfully connected
==========================================================================================================================================
1. CREATE BANK ACCOUNT
2. TRANSACTION
3. CUSTOMER DETAILS
4. TRANSACTION DETAILS
5. REQUEST LOAN
6. LOW BALANCE ACCOUNT
7. DELETE ACCOUNT
8. QUIT
==========================================================================================================================================
Enter Your Choice:4
Enter Your Account Number:1111
==========================================================================================================================================
1. Credit
2. Debit
==========================================================================================================================================
Enter Your Choice:1
==========================================================================================================================================
Transaction For Account Number: 1111
Date: 2022-11-20 credited Amount: 3000

The Total Number Of Transactions are: 1
```

```
==========================================================================================================================================
1. CREATE BANK ACCOUNT
2. TRANSACTION
3. CUSTOMER DETAILS
4. TRANSACTION DETAILS
5. REQUEST LOAN
6. LOW BALANCE ACCOUNT
7. DELETE ACCOUNT
8. QUIT
==========================================================================================================================================
Enter Your Choice:4
Enter Your Account Number:1111
==========================================================================================================================================
1. Credit
2. Debit
==========================================================================================================================================
Enter Your Choice:2
==========================================================================================================================================
Transaction For Account Number: 1111
Date: 2022-11-20 DEBITED Amount: 2400

The Total Number Of Transactions are: 1
```

- On selecting the TRANSACTION DETAILS option, the system displays the account's transaction details with the option of either credit or debit history on entering the account number of the individual.

```
================================================================================================================================================
1. CREATE BANK ACCOUNT
2. TRANSACTION
3. CUSTOMER DETAILS
4. TRANSACTION DETAILS
5. REQUEST LOAN
6. LOW BALANCE ACCOUNT
7. DELETE ACCOUNT
8. QUIT
================================================================================================================================================
Enter Your Choice:5
Enter the account number:1111
=========================================================================
1. HOME LOAN INTREST RATE:7%
2. EDUCATION LOAN INTREST RATE:13%
3. PERSONAL LOAN INTREST RATE:9%
4. BUISNESS LOAN INTREST RATE:5%
enter the loan type:home
enter the intrest rate:7
enter the amount required:12000
====================loan sanctioned====================================
```

- On selecting the REQUEST LOAN option, one can apply for a loan on specifying the type, rate of interest and the loan amount. The requested amount is credited into the bank balance of the user.

```
================================================================================================================================================
Enter Your Choice:1
Enter New Bank Account Number:1212
Enter Your Name:try12
Enter Your Phone Number:5456565456
Enter Your Place :manglore
Enter The Amount You Want to Deposit:8000
======================Account Successfully Created=======================
================================================================================================================================================
1. CREATE BANK ACCOUNT
2. TRANSACTION
3. CUSTOMER DETAILS
4. TRANSACTION DETAILS
5. REQUEST LOAN
6. LOW BALANCE ACCOUNT
7. DELETE ACCOUNT
8. QUIT
================================================================================================================================================
Enter Your Choice:6
Account Number: 1 Account Holder's Name: ankit Phone Number: 2323 City: ludhiana Current Amount: 8000
================================================================================================================================================
```

- On selecting the LOW BALANCE ACCOUNT option, the clerk can access the accounts which have a balance below a threshold (10000).

#A trigger is used to alert the user when an account balance falls below 10000

```
=========================================================Bank Management System=============================================================
Your database is Successfully connected
================================================================================================================================================
1. CREATE BANK ACCOUNT
2. TRANSACTION
3. CUSTOMER DETAILS
4. TRANSACTION DETAILS
5. REQUEST LOAN
6. LOW BALANCE ACCOUNT
7. DELETE ACCOUNT
8. QUIT
================================================================================================================================================
Enter Your Choice:7
Enter The Account Number:1111
==================================Account Successfully Deleted==================================
================================================================================================================================================
```

- On selecting the DELETE ACCOUNT option, the user can delete their account.

CONCLUSION

Bank management system is a virtualization of transactions in banking system. The banking system are used manual working but when we used online banking system it is totally virtualization process which avoid manual process and converts it in automatic process.

We have successfully designed, develop and implemented this Bank customers Management system which provides a more secured approach in managing bank customer's information and strengthens the relationships between banks and their customers by providing the right solutions that uses a multilevel security to improve customer satisfaction

FUTURE DEVELOPMENTS:

- OTP (One-time password)
- Transaction alert SMS (Short Message Service)
- Various constraint checks can be added on the username, passwords, e.t.c.