TRUST BANK

Bank Database Management System

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1.Description: -

This project is about a database schema of a bank named TRUST BANK. Database Schema is Designed to Function as a Backend storage Database for the Bank. Every bank has their own relational database, so it become easy for the bank to do various operations more efficiently without any error. Sometimes it helps in different way or different aspect to Provide helpful facility to customers depending on data. Hence data should be stored in proper manner so, there will be no Errors. Bank provides different perks such as money security, easy transactions of money, loan facility, credit cards etc. so for making these facilities more convenient for Bank customers we need a strong and secure Database. There are Following benefits of having a Database Schema: -

1)Data got stored in a very specific manner and having a relation between them.

2)There is less chances of error while doing it on system over traditional paper method.

3) RDBMS provides many ways to think upon specific data or allow to take some required decision to enhance Customer Facility and to help customers in more effective way.

4)You can update, delete, maintain or enter new customer data in a more efficient way without any errors.

The Following Bank Database Contains 6 Tables;

1. Customer
2. Account_Details
3. Loan
4. Loan_Payment
5. Credit_Card_Details
6. Transactions

These Tables/Entities are related to each other shown through ER-Diagram

2.ER Diagram (Entity Relation Diagram): -
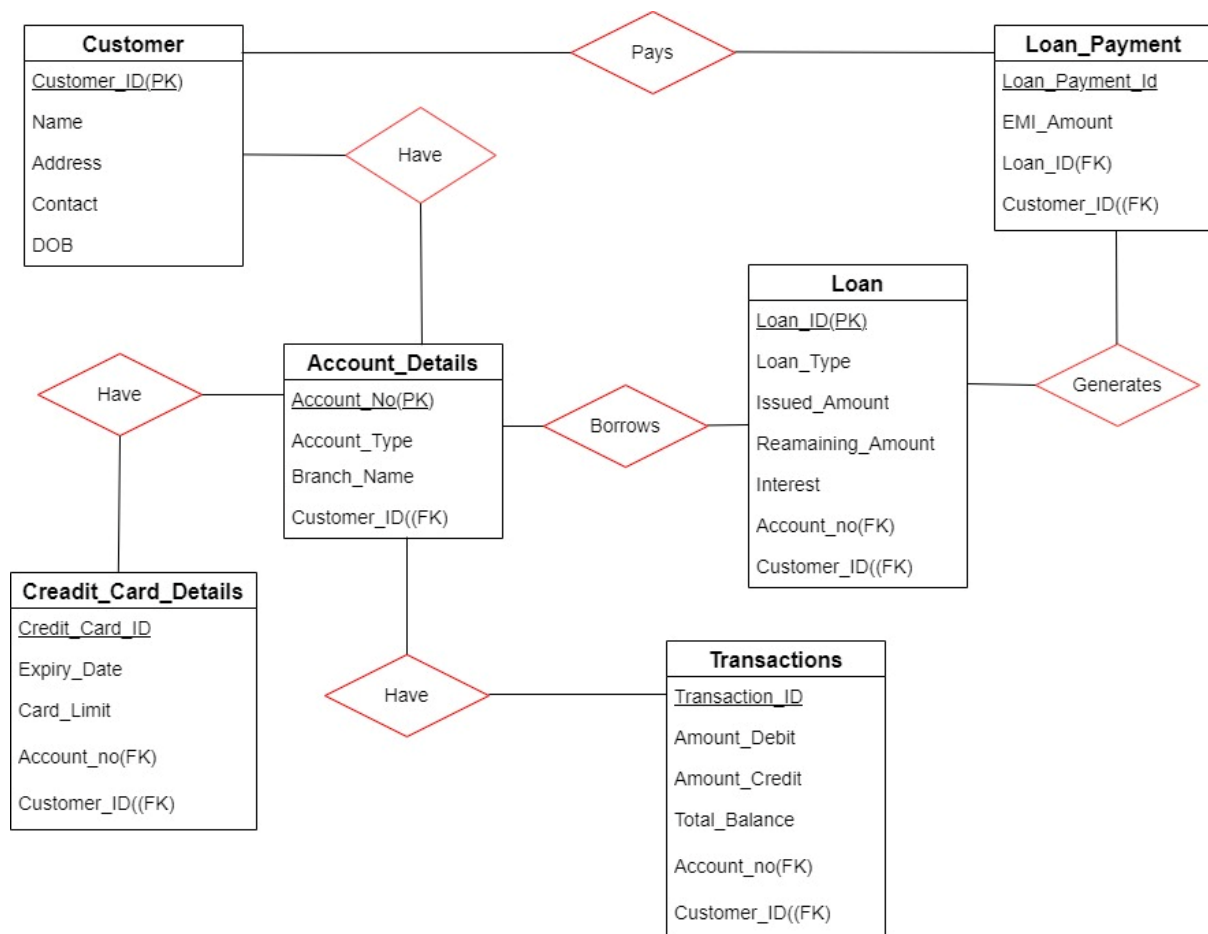
3. Table Description: -

(a) Customer:

```
mysql> Desc Customer;
+-------------+-------------+------+-----+---------+----------------+
| Field       | Type        | Null | Key | Default | Extra          |
+-------------+-------------+------+-----+---------+----------------+
| Customer_ID | int         | NO   | PRI | NULL    | auto_increment |
| Name        | varchar(20) | YES  |     | NULL    |                |
| Address     | varchar(50) | YES  |     | NULL    |                |
| contact     | bigint      | YES  | UNI | NULL    |                |
| DOB         | date        | YES  |     | NULL    |                |
+-------------+-------------+------+-----+---------+----------------+
5 rows in set (0.01 sec)
```

(b)Account_Details:

```
mysql> Desc Account_Details;
+--------------+-------------+------+-----+---------+----------------+
| Field        | Type        | Null | Key | Default | Extra          |
+--------------+-------------+------+-----+---------+----------------+
| Account_No   | int         | NO   | PRI | NULL    | auto_increment |
| Account_Type | varchar(20) | YES  |     | NULL    |                |
| Branch_Name  | varchar(20) | YES  |     | NULL    |                |
| Customer_ID  | int         | YES  | MUL | NULL    |                |
+--------------+-------------+------+-----+---------+----------------+
4 rows in set (0.00 sec)
```

(c)Loan:

```
mysql> Desc Loan;
+------------------+-------------+------+-----+---------+----------------+
| Field            | Type        | Null | Key | Default | Extra          |
+------------------+-------------+------+-----+---------+----------------+
| Loan_ID          | int         | NO   | PRI | NULL    | auto_increment |
| Loan_Type        | varchar(20) | YES  |     | NULL    |                |
| Issued_Amount    | bigint      | YES  |     | NULL    |                |
| Remaining_Amount | bigint      | YES  |     | NULL    |                |
| Interest         | float       | YES  |     | NULL    |                |
| Account_No       | int         | YES  | MUL | NULL    |                |
| Customer_ID      | int         | YES  | MUL | NULL    |                |
+------------------+-------------+------+-----+---------+----------------+
7 rows in set (0.00 sec)
```

(d)Loan_Payment:

```
mysql> Desc Loan_Payment;
+-----------------+--------+------+-----+---------+----------------+
| Field           | Type   | Null | Key | Default | Extra          |
+-----------------+--------+------+-----+---------+----------------+
| Loan_Payment_id | int    | NO   | PRI | NULL    | auto_increment |
| EMI_Amount      | bigint | YES  |     | NULL    |                |
| Loan_ID         | int    | YES  | MUL | NULL    |                |
| Customer_ID     | int    | YES  | MUL | NULL    |                |
+-----------------+--------+------+-----+---------+----------------+
4 rows in set (0.00 sec)
```

(e)Credit_Card_Details:

```
mysql> Desc Credit_Card_Details;
+----------------+------+------+-----+---------+----------------+
| Field          | Type | Null | Key | Default | Extra          |
+----------------+------+------+-----+---------+----------------+
| Credit_Card_ID | int  | NO   | PRI | NULL    | auto_increment |
| Expiry_Date    | date | YES  |     | NULL    |                |
| Card_Limit     | int  | YES  |     | NULL    |                |
| Account_No     | int  | YES  | MUL | NULL    |                |
| Customer_ID    | int  | YES  | MUL | NULL    |                |
+----------------+------+------+-----+---------+----------------+
5 rows in set (0.00 sec)
```

(f)Transactions:

```
mysql> Desc Transactions;
+----------------+--------+------+-----+---------+----------------+
| Field          | Type   | Null | Key | Default | Extra          |
+----------------+--------+------+-----+---------+----------------+
| Transaction_ID | int    | NO   | PRI | NULL    | auto_increment |
| Amount_Debit   | int    | YES  |     | NULL    |                |
| Amount_Credit  | int    | YES  |     | NULL    |                |
| Total_Balance  | bigint | YES  |     | NULL    |                |
| Account_No     | int    | YES  | MUL | NULL    |                |
| Customer_ID    | int    | YES  | MUL | NULL    |                |
+----------------+--------+------+-----+---------+----------------+
6 rows in set (0.00 sec)
```

4.Commands: -

(a)Create database:

Create Database Trust_Bank;

(b)Select Database:

Use Trust_Bank;

(c) Create Table named Customer:

Create Table Customer(Customer_ID int Primary Key auto_Increment, Name Varchar(20), Address Varchar(50), Contact Bigint Unique, DOB date);

(d) Create Table named Account_Details:

Create Table Account_Details(Account_No int primary key auto_increment, Account_Type Varchar(20), Branch_Name Varchar(20), Customer_ID int, Foreign key(Customer_ID) references Customer(Customer_ID));

(e) Create Table named Loan:

Create Table Loan(Loan_ID int primary key auto_increment, Loan_Type Varchar(20), Issued_Amount Bigint, Remaining_Amount Bigint, Interest Float, Account_No int, Customer_ID int, Foreign key(Account_No) references Account_Details(Account_No), Foreign Key(Customer_ID) references Customer(Customer_ID));

(f) Create Table named Loan_Payment:

Create Table Loan_Payment(Loan_Payment_id int primary key auto_increment,EMI_Amount Bigint,Loan_ID int, Customer_ID int, Foreign key(Loan_ID) references Loan(Loan_ID), Foreign Key(Customer_ID) references Customer(Customer_ID));

(g) Create Table named Credit_Card_Details:

Create Table Credit_Card_Details(Credit_Card_ID int primary key auto_increment, Expiry_Date Date, Card_Limit Int, Account_No int, Customer_ID int, Foreign key(Account_No) references Account_Details(Account_No), Foreign Key(Customer_ID) references Customer(Customer_ID));

(h) Create Table named Transactions:

Create Table Transactions(Transaction_ID int primary key auto_increment, Amount_Debit int, Amount_Credit Int, Total_Balance Bigint, Account_No int, Customer_ID int, Foreign Key(Account_No) references Account_Details(Account_No), Foreign Key(Customer_ID) references Customer(Customer_ID));

(i) Populate Customer Table:

Insert into Customer Values(1,"Mohan Kumar","Kalyan", 986751, '1996-8-29');

Insert into Customer(Name, Address, Contact, DOB) Values("Chetan Parekh","Borivali", 986752, '1987-7-22'),("Mina Gupta","Bandra",986753,'1997-5-10'),("Rupen Rawlo","Kalyan",986763,'1998-7-31'),("Sushma Jain","Vikroli",986764,'1994-4-5');

Insert into Customer(Name, Address, Contact, DOB) Values("Jatin Prakash","Dombivali", 986781, '1999-2-26'),("Minakshi Chougale","Ghatkopar",986773,'1995-5-19'),("Laxmi Sarath","Matunga",986771,'1991-11-11'),("Rakesh Roshan","Dombivali",986765,'1994-7-25');

Insert into Customer(Name, Address, Contact, DOB) Values("Ganpath Jwellers","Kalyan", 986712, null),("Kanak Sharma","Ghatkopar",986785,'1985-6-13'),("Mohan Shukla","Vikroli",986786,'1994-12-31'),("Rakesh Gupta","Airoli",986788,'1997-1-26');

Insert into Customer(Name, Address, Contact, DOB) Values("Rishikesh Chavan","Vikroli", 986789, '1996-5-12'),("Kedar Sharma","Ghatkopar",986791,'1975-10-15'),("Siddharth Jadhav","Sanpada",986792,'1989-10-31'),("Mukesh Gupta","Airoli",986795,'1990-3-27');

Insert into Customer(Name, Address, Contact, DOB) Values("Subhas Bose","Dombivali", 986798,'2000-5-2'), ("Omkar Chavan","Dombivali", 986740,'2001-6-20'),("Chandan Tiwari","Kurla",986738,'1988-8-25');

(j) Populate Account_Details Table:

Insert into Account_Details Values(101,"Saving","Thane",1);

Insert into Account_Details(Account_Type,Branch_Name,Customer_Id) Values("Salary","Thane",2),("Saving","Mulund",3),("Saving","Thane",4),("Saving","Thane",5);

Insert into Account_Details(Account_Type,Branch_Name,Customer_Id) Values("Saving","Mulund",6),("Salary","Mulund",7),("Saving","Thane",8),("Saving","Thane",9);

Insert into Account_Details(Account_Type,Branch_Name,Customer_Id) Values("Current","Thane",10),("Saving","Mulund",11),("Salary","Mulund",12),("Salary","Thane",13);

Insert into Account_Details(Account_Type,Branch_Name,Customer_Id) Values("Salary","Thane",14),("Saving","Mulund",15),("Saving","Thane",16),("Saving","Thane",17);

Insert into Account_Details(Account_Type,Branch_Name,Customer_Id) Values("Saving","Mulund",18),("Saving","Thane",19),("Saving","Thane",20);

(k) Populate Loan Table:

Insert Into Loan Values(201, "Home Loan",1500000,1250000,6.75,101,1);

Insert Into Loan Values(202, "Home Loan",2000000,1500000,7.15,103,3);

Insert Into Loan Values(203, "Personal Loan",350000,150000,12.25,105,5);

Insert Into Loan Values(204, "Business Loan",5000000,3570000,15.25,110,10);

Insert Into Loan Values(205, "Home Loan",700000,425000,7.75,118,18);

(l) Populate Loan_Payment Table:

Insert into Loan_Payment Values(601,25000,201,1);

Insert into Loan_Payment Values(602,18500,202,3);

Insert into Loan_Payment Values(603,12500,203,5);

Insert into Loan_Payment Values(604,55000,204,10);

Insert into Loan_Payment Values(605,20000,205,18);

(m) Populate Credit_Card_Details Table:

insert into Credit_Card_Details Values(301,'2026-5-18',500000,102,2);

insert into Credit_Card_Details Values(302,'2025-8-12',300000,104,4);

insert into Credit_Card_Details Values(303,'2024-3-22',500000,105,5);

insert into Credit_Card_Details Values(304,'2025-12-09',200000,107,7);

insert into Credit_Card_Details Values(305,'2024-12-19',700000,118,18);

(n) Populate Transactions Table:

Insert Into Transactions Values(1001,5000,Null,250000,101,1);

Insert Into Transactions(Amount_Debit, Amount_Credit, Total_Balance, Account_No, Customer_ID)Values(Null,7000,207000,102,2),(18500,null,127000,103,3),(4000,null,95000, 104,4),(12500,null,112000,105,5),(Null,50000,225000,106,6);

Insert Into Transactions(Amount_Debit, Amount_Credit, Total_Balance, Account_No, Customer_ID)Values(10000,null,121000,107,7),(null,12000,75800,108,8),(5000,null,220000 ,106,6),(null,25000,555000,110,10),(Null,14000,75800,109,9);

Insert Into Transactions (Amount_Debit, Amount_Credit, Total_Balance, Account_No, Customer_ID)Values(55000,null,500000,110,10),(null,9500,88500,116,16),(5000,null,75000 ,117,17),(20000,null,85300,118,18),(Null,17000,72800,119,19);

Insert Into Transactions (Amount_Debit, Amount_Credit, Total_Balance, Account_No, Customer_ID)Values(null,27000,201000,120,20),(4500,Null,68300,119,19),(Null,10000,850 00,117,17),(4500,null,84000,116,16);

Insert into Transactions (Amount_Debit, Amount_Credit, Total_Balance, Account_No, Customer_ID)Values(null,27000,527000,110,10), (null,5000,73300,119,19), (25000,null,502000,110,10),(null,60000,90000,116,16),(null,50000,552000,110,10),(10000, null,63300,119,19);

5. Sub-Queries: -

1) Select Customer Who has not Taken any loan:

Select Name from Customer where Customer_ID not in(Select Customer_ID From Loan);

```
+------------------+
| name             |
+------------------+
| Chetan Parekh    |
| Rupen Rawlo      |
| Jatin Prakash    |
| Minakshi Chougale |
| Laxmi Sarath     |
| Rakesh Roshan    |
| Kanak Sharma     |
| Mohan Shukla     |
| Rakesh Gupta     |
| Rishikesh Chavan |
| Kedar Sharma     |
| Siddharth Jadhav |
| Mukesh Gupta     |
| Omkar Chavan     |
| Chandan Tiwari   |
+------------------+
```

2) Select Customer Who has maximum Card_limit on Credit_Card:

Select * From Customer Where Customer_ID=(Select Customer_ID from Credit_card_details where Card_limit=(Select Max(Card_limit) from Credit_Card_Details));

```
+-------------+-------------+-----------+---------+------------+
| Customer_ID | Name        | Address   | contact | DOB        |
+-------------+-------------+-----------+---------+------------+
|          18 | Subhas Bose | Dombivali |  986798 | 2000-05-02 |
+-------------+-------------+-----------+---------+------------+
1 row in set (0.00 sec)
```

3) Select Customer Who has taken Credit_Card:

Select * from Customer Where customer_ID in(Select Customer_id from Credit_Card_Details);

```
+-------------+------------------+-----------+---------+------------+
| Customer_ID | Name             | Address   | contact | DOB        |
+-------------+------------------+-----------+---------+------------+
|           2 | Chetan Parekh    | Borivali  |  986752 | 1987-07-22 |
|           4 | Rupen Rawlo      | Kalyan    |  986763 | 1998-07-31 |
|           5 | Sushma Jain      | Vikroli   |  986764 | 1994-04-05 |
|           7 | Minakshi Chougale| Ghatkopar |  986773 | 1995-05-19 |
|          18 | Subhas Bose      | Dombivali |  986798 | 2000-05-02 |
+-------------+------------------+-----------+---------+------------+
5 rows in set (0.00 sec)
```

4) Select Customer Who didn't had any Transaction:

Select * from Customer Where Customer_ID not in(Select Customer_ID from Transactions);

```
+-------------+------------------+-----------+---------+------------+
| Customer_ID | Name             | Address   | contact | DOB        |
+-------------+------------------+-----------+---------+------------+
|          11 | Kanak Sharma     | Ghatkopar |  986785 | 1985-06-13 |
|          12 | Mohan Shukla     | Vikroli   |  986786 | 1994-12-31 |
|          13 | Rakesh Gupta     | Airoli    |  986788 | 1997-01-26 |
|          14 | Rishikesh Chavan | Vikroli   |  986789 | 1996-05-12 |
|          15 | Kedar Sharma     | Ghatkopar |  986791 | 1975-10-15 |
+-------------+------------------+-----------+---------+------------+
5 rows in set (0.00 sec)
```

5) Select Customer Who pays highest EMI_Amount:

Select * From Customer Where Customer_ID=(Select Customer_ID from Loan_Payment where EMI_Amount=(Select max(EMI_Amount) from Loan_Payment));

```
+-------------+-----------------+---------+---------+------+
| Customer_ID | Name            | Address | contact | DOB  |
+-------------+-----------------+---------+---------+------+
|          10 | Ganpath Jwellers| Kalyan  |  986712 | NULL |
+-------------+-----------------+---------+---------+------+
```

6. Joins: -

1)Display Customer Name along with their Bank Account_Type:

Select Customer.Name, Account_Details.Account_Type from Customer Inner Join Account_Details on Customer.Customer_ID=Account_Details.Customer_ID;

```
+--------------------+--------------+
| Name               | Account_Type |
+--------------------+--------------+
| Mohan Kumar        | Saving       |
| Chetan Parekh      | Salary       |
| Mina Gupta         | Saving       |
| Rupen Rawlo        | Saving       |
| Sushma Jain        | Saving       |
| Jatin Prakash      | Saving       |
| Minakshi Chougale  | Salary       |
| Laxmi Sarath       | Saving       |
| Rakesh Roshan      | Saving       |
| Ganpath Jwellers   | Current      |
| Kanak Sharma       | Saving       |
| Mohan Shukla       | Salary       |
| Rakesh Gupta       | Salary       |
| Rishikesh Chavan   | Salary       |
| Kedar Sharma       | Saving       |
| Siddharth Jadhav   | Saving       |
| Mukesh Gupta       | Saving       |
| Subhas Bose        | Saving       |
| Omkar Chavan       | Saving       |
| Chandan Tiwari     | Saving       |
+--------------------+--------------+
20 rows in set (0.00 sec)
```

2)Display Customer Name having which kind of loan along with EMI_Amount:

Select Customer.Name, Loan.Loan_Type, Loan_Payment.EMI_Amount from Customer inner join Loan on Customer.Customer_ID=Loan.Customer_ID inner join Loan_Payment on Loan.Customer_ID=Loan_Payment.Customer_ID;

```
+------------------+---------------+------------+
| Name             | Loan_Type     | EMI_Amount |
+------------------+---------------+------------+
| Mohan Kumar      | Home Loan     |      25000 |
| Mina Gupta       | Home Loan     |      18500 |
| Sushma Jain      | Personal Loan |      12500 |
| Ganpath Jwellers | Business Loan |      55000 |
| Subhas Bose      | Home Loan     |      20000 |
+------------------+---------------+------------+
5 rows in set (0.00 sec)
```

3)Display List of top 5 customer who have done most transaction:

Select Customer.Name, Count (Transactions.Customer_ID) as Total_Transactions from Customer inner Join Transactions on Customer.Customer_ID=Transactions.Customer_ID Group By Transactions.Customer_ID order by Count(Transactions.Customer_ID) Desc Limit 5;

```
+------------------+--------------------+
| Name             | Total_Transactions |
+------------------+--------------------+
| Ganpath Jwellers |                  5 |
| Omkar Chavan     |                  4 |
| Siddharth Jadhav |                  3 |
| Mukesh Gupta     |                  2 |
| Jatin Prakash    |                  2 |
+------------------+--------------------+
5 rows in set (0.00 sec)
```

4) Display List of top 3 customer who have most credit_card limit:

Select Customer.Name, Credit_Card_Details.Card_Limit from Customer Inner Join Credit_Card_Details on Customer.Customer_ID=Credit_Card_Details.Customer_ID Order by Card_Limit desc limit 3;

```
+----------------+------------+
| Name           | Card_Limit |
+----------------+------------+
| Subhas Bose    |     700000 |
| Chetan Parekh  |     500000 |
| Sushma Jain    |     500000 |
+----------------+------------+
3 rows in set (0.00 sec)
```

5)Display those customers who have taken Credit_Card as well as Loan:

Select Customer.Name, Loan.Loan_Type, Credit_Card_Details.Credit_Card_ID from Customer inner Join Loan on Customer.Customer_ID=Loan.Customer_ID inner Join Credit_Card_Details on Loan.Customer_ID=Credit_Card_Details.Customer_Id;

```
+-------------+---------------+----------------+
| Name        | Loan_Type     | Credit_Card_ID |
+-------------+---------------+----------------+
| Sushma Jain | Personal Loan |            303 |
| Subhas Bose | Home Loan     |            305 |
+-------------+---------------+----------------+
2 rows in set (0.00 sec)
```

TRUST BANK

THANK YOU!