ABSTRACT

Banks plays an important role in financial stability and the economy of a country. Now a days banks play crucial role in day-to-day activities of every persons and hence banking has become a common necessity.

The project "Bank Transaction" aims to different operations takes place inside a bank. There will be different branches of a particular bank, each branch having their own employees and customers. Customers can open accounts with the bank and deposit money to their accounts. Customers can also transfer money to other accounts and withdraw the available amount from their accounts. Also, they can take loan from bank.

Different modules are:

1. Customer

2. Employee

Table Description

use bankdb;

Show tables

```
+------------------+
| Tables_in_bankdb |
+------------------+
| account_type     |
| accounts         |
| branch           |
| city             |
| customer         |
| deposite         |
| employee         |
| loan             |
| transaction      |
| withdraw         |
+------------------+
```

account_type

```
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| actyp_id      | varchar(5)  | NO   | PRI |         |       |
| account_types | varchar(20) | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
```

accounts

```
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| cust_id        | int(3)      | YES  | MUL | NULL    |       |
| Customer_Name  | varchar(25) | YES  |     | NULL    |       |
| Account_Number | int(10)     | NO   | PRI | NULL    |       |
| Account_Type   | varchar(15) | YES  | MUL | NULL    |       |
| Branch_id      | varchar(15) | YES  | MUL | NULL    |       |
| Balance        | float(8,2)  | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
```

branch

```
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| id     | varchar(15) | NO   | PRI | NULL    |       |
| Name   | varchar(20) | YES  |     | NULL    |       |
| City   | varchar(20) | YES  | MUL | NULL    |       |
| Assets | float(8,2)  | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
```

city

```
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| city_id    | varchar(5)  | NO   | PRI |         |       |
| city_name  | varchar(20) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
```

customer

```
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| cust_id       | int(3)      | NO   | PRI | NULL    |       |
| Customer_Name | varchar(25) | YES  |     | NULL    |       |
| Address       | varchar(40) | YES  |     | NULL    |       |
| City          | varchar(25) | YES  | MUL | NULL    |       |
| Mobile        | double      | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
```

deposit

```
+----------------+------------+------+-----+---------+-------+
| Field          | Type       | Null | Key | Default | Extra |
+----------------+------------+------+-----+---------+-------+
| depo_id        | int(5)     | NO   | PRI | NULL    |       |
| Date           | date       | YES  |     | NULL    |       |
| Account_Number | int(10)    | YES  | MUL | NULL    |       |
| Amount         | float(8,2) | YES  |     | NULL    |       |
+----------------+------------+------+-----+---------+-------+
```

employee

```
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| emp_id        | int(3)      | NO   | PRI | NULL    |       |
| Employee_Name | varchar(25) | YES  |     | NULL    |       |
| Branch_Name   | varchar(20) | YES  |     | NULL    |       |
| Desigination  | varchar(15) | YES  |     | NULL    |       |
| Salary        | float(8,2)  | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
```

loan

```
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| id        | int(3)      | NO   | PRI | NULL    |       |
| Date      | date        | YES  |     | NULL    |       |
| Branch_Id | varchar(15) | YES  | MUL | NULL    |       |
| Cust_id   | int(3)      | YES  | MUL | NULL    |       |
| Amount    | float(8,2)  | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
```
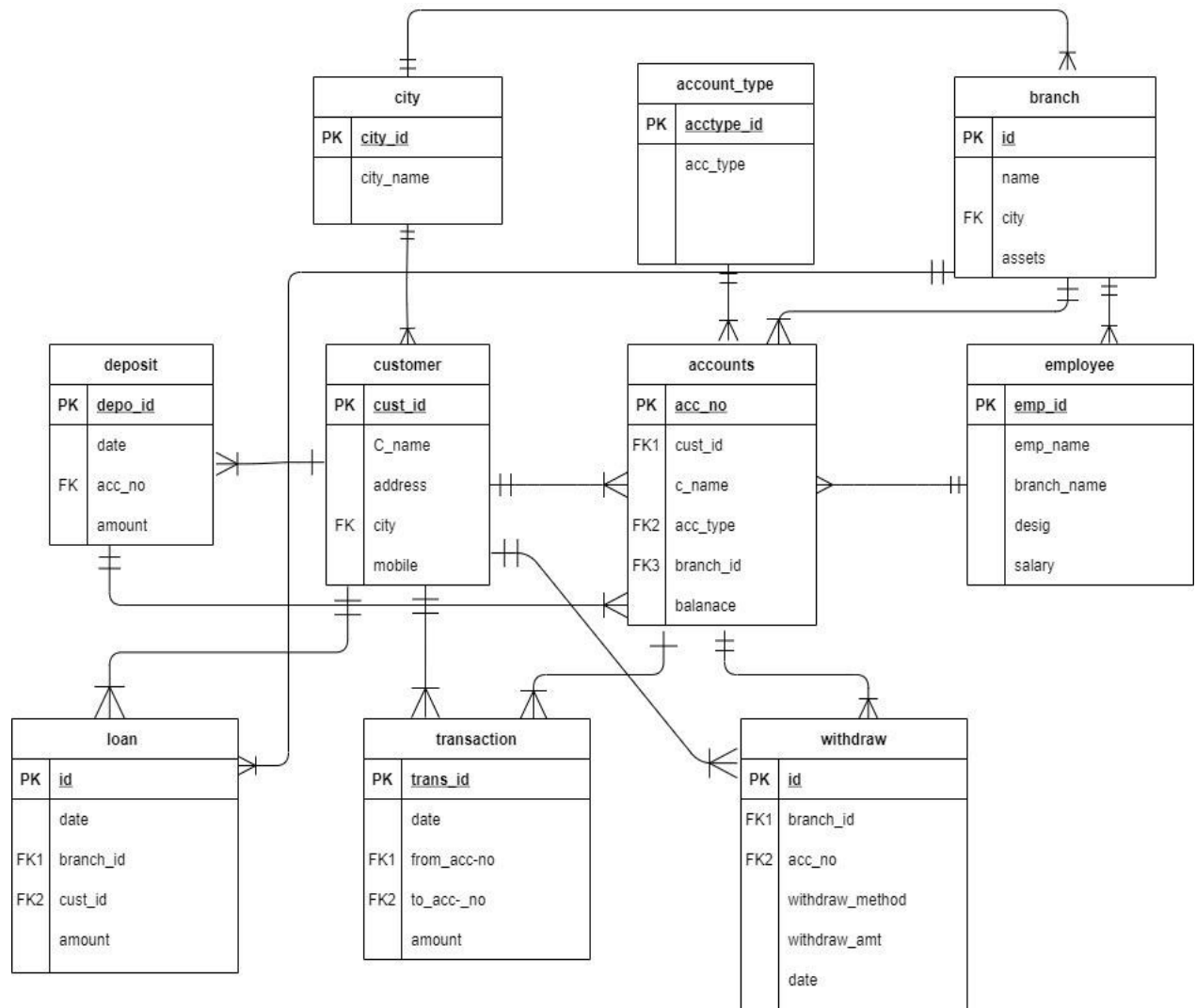
transaction

```
+---------------------+------------+------+-----+---------+-------+
| Field               | Type       | Null | Key | Default | Extra |
+---------------------+------------+------+-----+---------+-------+
| trans_id            | int(3)     | NO   | PRI | NULL    |       |
| Date                | date       | YES  |     | NULL    |       |
| From_Account_Number | int(10)    | YES  | MUL | NULL    |       |
| To_Account_Number   | int(10)    | YES  | MUL | NULL    |       |
| Amount              | float(8,2) | YES  |     | NULL    |       |
+---------------------+------------+------+-----+---------+-------+
```

withdraw

```
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| id              | int(3)      | NO   | PRI | NULL    |       |
| Date            | date        | YES  |     | NULL    |       |
| Branch_Id       | varchar(20) | YES  | MUL | NULL    |       |
| Account_Number  | int(10)     | YES  | MUL | NULL    |       |
| Withdraw_Method | varchar(10) | YES  |     | NULL    |       |
| Withdraw_Amount | float(8,2)  | YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
```

Relational Diagram

city
PK	city_id
	city_name

account_type
PK	acctype_id
	acc_type

branch
PK	id
	name
FK	city
	assets

deposit
PK	depo_id
	date
FK	acc_no
	amount

customer
PK	cust_id
	C_name
	address
FK	city
	mobile

accounts
PK	acc_no
FK1	cust_id
	c_name
FK2	acc_type
FK3	branch_id
	balanace

employee
PK	emp_id
	emp_name
	branch_name
	desig
	salary

loan
PK	id
	date
FK1	branch_id
FK2	cust_id
	amount

transaction
PK	trans_id
	date
FK1	from_acc-no
FK2	to_acc-_no
	amount

withdraw
PK	id
FK1	branch_id
FK2	acc_no
	withdraw_method
	withdraw_amt
	date

Queries

Q: - Withdraw amount from account.

Before Update: -

select * from withdraw;

```
+-----+------------+-------------+----------------+----------------+----------------+
| id  | Date       | Branch_Id   | Account_Number |Withdraw_Method | Withdraw_Amount |
+-----+------------+-------------+----------------+----------------+----------------+
| 101 | 2020-12-12 | SIBL0000024 |          12345 | ATM            |          500.00 |
| 102 | 2021-01-10 | SIBL0000063 |        1010101 | ATM            |        12500.00 |
| 103 | 2019-05-25 | SIBL0000084 |         141414 | ATM            |         1500.00 |
+-----+------------+-------------+----------------+----------------+----------------+
```

select * from accounts;

```
+---------+---------------+----------------+--------------+-------------+-----------+
| cust_id | Customer_Name | Account_Number | Account_Type | Branch_id   | Balance   |
+---------+---------------+----------------+--------------+-------------+-----------+
|       1 | Athira        |          12345 | 01SA         | SIBL0000024 |   1000.00 |
|       2 | Elsa          |         121212 | 01SA         | SIBL0000038 |   2500.00 |
|       3 | Jainy         |         131313 | 02CA         | SIBL0000063 |  10000.00 |
|       5 | Jijimol       |         141414 | 04FDA        | SIBL0000084 | 150000.00 |
|       4 | Jerry         |        1010101 | 06NRI        | SIBL0000351 | 550000.00 |
+---------+---------------+----------------+--------------+-------------+-----------+
```

Query: -

insert into withdraw select 104,'2017-09-10','SIBL0000024',1010101,'ATM','50000.00' from dual where(select Balance from accounts where Account_Number=1010101)>=50000.00;

update accounts set Balance=(select (Balance) from (select * from accounts) as a where Account_Number=1010101)-(select Withdraw_Amount from withdraw where id=104) where Account_Number=1010101;

After Update: -

select * from withdraw;

```
+-----+------------+-------------+----------------+----------------+-----------------+
| id  | Date       | Branch_Id   | Account_Number |Withdraw_Method | Withdraw_Amount |
+-----+------------+-------------+----------------+----------------+-----------------+
| 101 | 2020-12-12 | SIBL0000024 |          12345 | ATM            |          500.00 |
| 102 | 2021-01-10 | SIBL0000063 |        1010101 | ATM            |        12500.00 |
| 103 | 2019-05-25 | SIBL0000084 |         141414 | ATM            |         1500.00 |
| 104 | 2017-09-10 | SIBL0000024 |        1010101 | ATM            |        50000.00 |
+-----+------------+-------------+----------------+----------------+-----------------+
```

select * from accounts;

```
+---------+---------------+----------------+--------------+-------------+-----------+
| cust_id | Customer_Name | Account_Number | Account_Type | Branch_id   | Balance   |
+---------+---------------+----------------+--------------+-------------+-----------+
|       1 | Athira        |          12345 | 01SA         | SIBL0000024 |   1000.00 |
|       2 | Elsa          |         121212 | 01SA         | SIBL0000038 |   2500.00 |
|       3 | Jainy         |         131313 | 02CA         | SIBL0000063 |  10000.00 |
|       5 | Jijimol       |         141414 | 04FDA        | SIBL0000084 | 150000.00 |
|       4 | Jerry         |        1010101 | 06NRI        | SIBL0000351 | 500000.00 |
+---------+---------------+----------------+--------------+-------------+-----------+
```

Q: - Depositing amount into account.

Before Update: -

select * from accounts;

```
+---------+---------------+----------------+--------------+-------------+-----------+
| cust_id | Customer_Name | Account_Number | Account_Type | Branch_id   | Balance   |
+---------+---------------+----------------+--------------+-------------+-----------+
|       1 | Athira        |          12345 | 01SA         | SIBL0000024 |    500.00 |
|       2 | Elsa          |         121212 | 01SA         | SIBL0000038 |   2500.00 |
|       3 | Jainy         |         131313 | 02CA         | SIBL0000063 |  10000.00 |
|       5 | Jijimol       |         141414 | 04FDA        | SIBL0000084 | 150000.00 |
|       4 | Jerry         |        1010101 | 06NRI        | SIBL0000351 | 500000.00 |
+---------+---------------+----------------+--------------+-------------+-----------+
```

select * from deposite;

```
+---------+------------+----------------+----------+
| depo_id | Date       | Account_Number | Amount   |
+---------+------------+----------------+----------+
|     101 | 2021-02-14 |        1010101 | 25000.00 |
|     102 | 2020-10-15 |          12345 |   500.00 |
|     103 | 2019-08-25 |         121212 |  1500.00 |
|     104 | 2021-03-05 |         131313 |  1500.00 |
|     105 | 2020-01-15 |          12345 |  2000.00 |
+---------+------------+----------------+----------+
```

Query: -

insert into deposite values (107,'2020-06-25',12345,'6000.00');

update accounts set Balance=(select (Balance) from (select * from accounts) as a
where Account_Number=12345)+(select Amount from deposite where depo_id=107)
where Account_Number=12345;

After Update: -

select * from deposite;

```
+---------+------------+----------------+----------+
| depo_id | Date       | Account_Number | Amount   |
+---------+------------+----------------+----------+
|     101 | 2021-02-14 |        1010101 | 25000.00 |
|     102 | 2020-10-15 |          12345 |   500.00 |
|     103 | 2019-08-25 |         121212 |  1500.00 |
|     104 | 2021-03-05 |         131313 |  1500.00 |
|     105 | 2020-01-15 |          12345 |  2000.00 |
|     107 | 2020-06-25 |          12345 |  6000.00 |
+---------+------------+----------------+----------+
```

select * from accounts;

```
+---------+---------------+----------------+--------------+-------------+-----------+
| cust_id | Customer_Name | Account_Number | Account_Type | Branch_id   | Balance   |
+---------+---------------+----------------+--------------+-------------+-----------+
|       1 | Athira        |          12345 | 01SA         | SIBL0000024 |   6500.00 |
|       2 | Elsa          |         121212 | 01SA         | SIBL0000038 |   2500.00 |
|       3 | Jainy         |         131313 | 02CA         | SIBL0000063 |  10000.00 |
|       5 | Jijimol       |         141414 | 04FDA        | SIBL0000084 | 150000.00 |
|       4 | Jerry         |        1010101 | 06NRI        | SIBL0000351 | 500000.00 |
+---------+---------------+----------------+--------------+-------------+-----------+
```

Q: - Taking loan from a branch.

Before Update: -

select * from branch;

```
+----------------+-------------------+-------+-----------+
| id             | Name              | City  | Assets    |
+----------------+-------------------+-------+-----------+
| SIBL0000024    | SIB Ernakulam     | 07ER  | 150000.00 |
| SIBL0000038    | SIB Kozhikode     | 11KZ  | 170000.00 |
| SIBL0000063    | SIB Palakkad      | 09PL  | 250000.00 |
| SIBL0000084    | SIB Thrissur      | 08TS  | 555000.00 |
| SIBL0000351    | SIB Malappuram    | 10MA  | 100000.00 |
+----------------+-------------------+-------+-----------+
```

select * from loan;

```
+-----+------------+-------------+---------+----------+
| id  | Date       | Branch_Id   | Cust_id | Amount   |
+-----+------------+-------------+---------+----------+
| 101 | 2020-05-11 | SIBL0000024 |       1 | 15000.00 |
| 102 | 2019-10-05 | SIBL0000063 |       3 | 20000.00 |
| 103 | 2017-07-29 | SIBL0000084 |       5 | 10000.00 |
| 104 | 2021-05-15 | SIBL0000351 |       1 | 10000.00 |
| 105 | 2020-09-21 | SIBL0000351 |       2 | 12000.00 |
+-----+------------+-------------+---------+----------+
```

Query: -

insert into loan select 106,'2021-04-19','SIBL0000024',1,'10000.00' from dual where (select Assets from branch where id='SIBL0000024')>10000.00;

update branch set Assets=(select (Assets) from (select * from branch) as a where id='SIBL0000024')-(select Amount from loan where id=106) where id='SIBL0000024';

After Update: -

select * from loan;

```
+------+------------+--------------+---------+----------+
| id   | Date       | Branch_Id    | Cust_id | Amount   |
+------+------------+--------------+---------+----------+
| 101  | 2020-05-11 | SIBL0000024  |       1 | 15000.00 |
| 102  | 2019-10-05 | SIBL0000063  |       3 | 20000.00 |
| 103  | 2017-07-29 | SIBL0000084  |       5 | 10000.00 |
| 104  | 2021-05-15 | SIBL0000351  |       1 | 10000.00 |
| 105  | 2020-09-21 | SIBL0000351  |       2 | 12000.00 |
| 106  | 2021-04-19 | SIBL0000024  |       1 | 10000.00 |
+------+------------+--------------+---------+----------+
```

select * from branch;

```
+-------------+-----------------+------+-----------+
| id          | Name            | City | Assets    |
+-------------+-----------------+------+-----------+
| SIBL0000024 | SIB Ernakulam   | 07ER | 140000.00 |
| SIBL0000038 | SIB Kozhikode   | 11KZ | 170000.00 |
| SIBL0000063 | SIB Palakkad    | 09PL | 250000.00 |
| SIBL0000084 | SIB Thrissur    | 08TS | 555000.00 |
| SIBL0000351 | SIB Malappuram  | 10MA | 100000.00 |
+-------------+-----------------+------+-----------+
```

Q: - Transfer amount from an account.

Before Update: -

select * from transaction;

```
+----------+------------+---------------------+-------------------+---------+
| trans_id | Date       | From_Account_Number | To_Account_Number | Amount  |
+----------+------------+---------------------+-------------------+---------+
|      101 | 2020-01-15 |             1010101 |             12345 | 5000.00 |
|      102 | 2018-10-05 |             1010101 |            121212 | 3000.00 |
|      103 | 2021-03-09 |             1010101 |            131313 | 1500.00 |
|      104 | 2020-01-15 |             1010101 |            141414 | 2500.00 |
|      105 | 2017-08-08 |              131313 |             12345 |  500.00 |
+----------+------------+---------------------+-------------------+---------+
```

select * from accounts;

```
+---------+---------------+----------------+--------------+-------------+-----------+
| cust_id | Customer_Name | Account_Number | Account_Type | Branch_id   | Balance   |
+---------+---------------+----------------+--------------+-------------+-----------+
|       1 | Athira        |          12345 | 01SA         | SIBL0000024 |   6500.00 |
|       2 | Elsa          |         121212 | 01SA         | SIBL0000038 |   2500.00 |
|       3 | Jainy         |         131313 | 02CA         | SIBL0000063 |  10000.00 |
|       5 | Jijimol       |         141414 | 04FDA        | SIBL0000084 | 150000.00 |
|       4 | Jerry         |        1010101 | 06NRI        | SIBL0000351 | 500000.00 |
+---------+---------------+----------------+--------------+-------------+-----------+
```

Query: -

insert into transaction select 106,'2021-04-11',1010101,12345,'2000.00' from dual
where (select Balance from accounts where Account_Number=1010101)>='2000.00';

update accounts set Balance=(select (Balance) from (select * from accounts) as a
where Account_Number=1010101)-(select Amount from transaction where
trans_id=106) where Account_Number=1010101;

update accounts set Balance=(select (Balance) from (select * from accounts) as a
where Account_Number=12345)+(select Amount from transaction where
trans_id=106) where Account_Number=12345;

After Update: -

select * from transaction;

```
+----------+------------+---------------------+-------------------+---------+
| trans_id | Date       | From_Account_Number | To_Account_Number | Amount  |
+----------+------------+---------------------+-------------------+---------+
|      101 | 2020-01-15 |             1010101 |             12345 | 5000.00 |
|      102 | 2018-10-05 |             1010101 |            121212 | 3000.00 |
|      103 | 2021-03-09 |             1010101 |            131313 | 1500.00 |
|      104 | 2020-01-15 |             1010101 |            141414 | 2500.00 |
|      105 | 2017-08-08 |              131313 |             12345 |  500.00 |
|      106 | 2021-04-11 |             1010101 |             12345 | 2000.00 |
+----------+------------+---------------------+-------------------+---------+
```

select * from accounts;

```
+---------+---------------+----------------+--------------+-------------+-----------+
| cust_id | Customer_Name | Account_Number | Account_Type | Branch_id   | Balance   |
+---------+---------------+----------------+--------------+-------------+-----------+
|       1 | Athira        |          12345 | 01SA         | SIBL0000024 |   8500.00 |
|       2 | Elsa          |         121212 | 01SA         | SIBL0000038 |   2500.00 |
|       3 | Jainy         |         131313 | 02CA         | SIBL0000063 |  10000.00 |
|       5 | Jijimol       |         141414 | 04FDA        | SIBL0000084 | 150000.00 |
|       4 | Jerry         |        1010101 | 06NRI        | SIBL0000351 | 498000.00 |
+---------+---------------+----------------+--------------+-------------+-----------+
```

Q: - Display the details of customer who withdrew amount from a specific branch.

Query: -

select customer_name,account_number from accounts where account_number in(select account_number from withdraw where branch_id in(select id from branch where name="sib palakkad"));

```
+---------------+----------------+
| customer_name | account_number |
+---------------+----------------+
| Jerry         |        1010101 |
+---------------+----------------+
```

Q: - To display city name and count of branches in that city in a specific order.

Query: -

select city_name,count(*) as Number_of_branches from city group by city_name order by city_name;

```
+---------------------+--------------------+
| city_name           | Number_of_branches |
+---------------------+--------------------+
| Alappuzha           |                  1 |
| Ernakulam           |                  1 |
| Idukki              |                  1 |
| Kannur              |                  1 |
| Kasaragod           |                  1 |
| Kollam              |                  1 |
| Kottayam            |                  1 |
| Kozhikode           |                  1 |
| Malappuram          |                  1 |
| Palakkad            |                  1 |
| Pathanamthitta      |                  1 |
| Thiruvananthapuram  |                  1 |
| Thrissur            |                  1 |
| Wayanad             |                  1 |
+---------------------+--------------------+
```

Q: - To display transaction details where transaction amount greater than 1000 and transaction done after 2018-01-01.

Query: -

select * from transaction where Amount>1000 and Date>'2018-01-01' order by Date;

```
+----------+------------+---------------------+-------------------+---------+
| trans_id | Date       | From_Account_Number | To_Account_Number | Amount  |
+----------+------------+---------------------+-------------------+---------+
|      102 | 2018-10-05 |             1010101 |            121212 | 3000.00 |
|      101 | 2020-01-15 |             1010101 |             12345 | 5000.00 |
|      104 | 2020-01-15 |             1010101 |            141414 | 2500.00 |
|      103 | 2021-03-09 |             1010101 |            131313 | 1500.00 |
|      106 | 2021-04-11 |             1010101 |             12345 | 2000.00 |
+----------+------------+---------------------+-------------------+---------+
```

Q: - To find the sum of loan amount taken from different branches by a specific customer;

Query: -

select sum(Amount) as Total_Amount_Of_Loan_Taken_From_All_Branches from loan where Cust_id=1;

```
+-----------------------------------------------+
| Total_Amount_Of_Loan_Taken_From_All_Branches  |
+-----------------------------------------------+
|                                    35000.00   |
+-----------------------------------------------+
```

Q: - Details of account holders who take loan in between the year 2017-07-15 to 2020-05-11.

Query: -

select customer_Name,Address,City,Mobile from customer where cust_id in(select cust_id from loan where date between '2017-07-15' and '2020-05-11');

```
+---------------+-----------+-------+------------+
| customer_Name | Address   | City  | Mobile     |
+---------------+-----------+-------+------------+
| Athira        | qwerty    | 01TV  | 8078575220 |
| Jainy         | qweabcd   | 03AL  | 8113885083 |
| Jibiya        | qawbecrd  | 05KT  | 8592904287 |
+---------------+-----------+-------+------------+
```