DBMS LAB - PROJECT REPORT

Submitted by,

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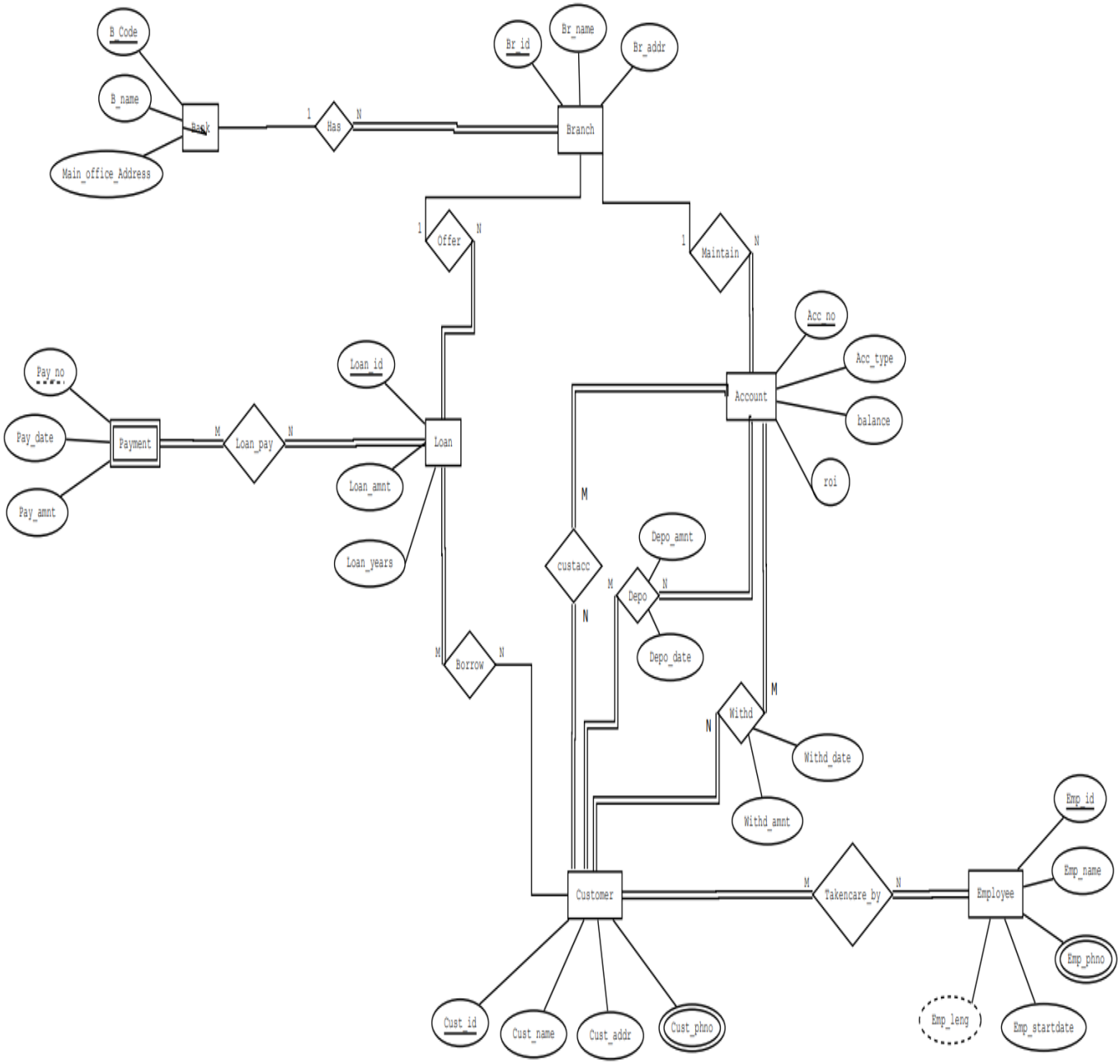
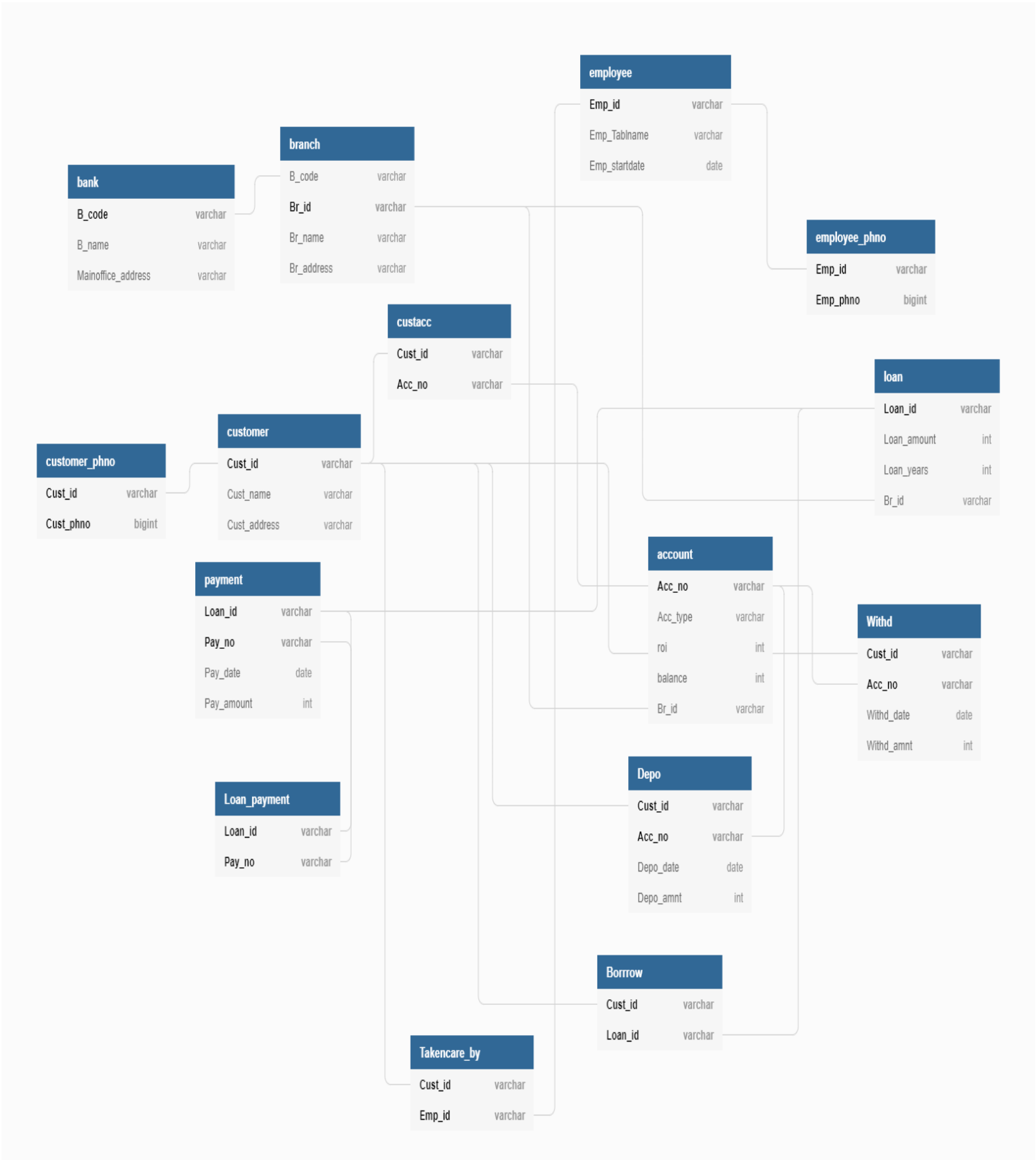
BANKING SYSTEM

The Banking System is an application for maintaining a person's account in a bank which solves financial applications of a customer in banking environment in order to nurture the needs of a user by providing various ways to perform banking tasks. The system provides the access to the customer to create an account, deposit/withdraw the cash and also to view reports of all accounts present.

Sl no.	ENTITY	ATTRIBUTES
1.	Bank	B_Code, B_name, Main_office_Address
2.	Branch	Br_id, Br_name, Br_addr
3.	Employee	Emp_id, Emp_name, Emp_phno, Emp_startdate, Emp_leng
4.	Customer	Cust_id, Cust_name, Cust_addr, Cust_phno
5.	Account	Acc_no, Acc_type, roi, balance
6.	Loan	Loan_id, Loan_amnt, Loan_years
7.	Loan Payment	Pay_no, Pay_date, Pay_amnt

ER DIAGRAM


B_Code
B_name
Bank
Main_office_Address
1
Has
N
Br_id
Br_name
Br_addr
Branch
1
Offer
N
1
Maintain
N
Acc_no
Acc_type
balance
roi
Account
Loan_id
Loan
Loan_amnt
Loan_years
Pay_no
Pay_date
Pay_amnt
Payment
M
Loan_pay
N
M
custacc
N
Depo_amnt
M
Depo
N
Depo_date
M
Borrow
N
M
Withd
N
Withd_date
Withd_amnt
Customer
M
Takencare_by
N
Employee
Emp_id
Emp_name
Emp_phno
Emp_leng
Emp_startdate
Cust_id
Cust_name
Cust_addr
Cust_phno


employee
Emp_id varchar
Emp_Tablname varchar
Emp_startdate date
branch
B_code varchar
Br_id varchar
Br_name varchar
Br_address varchar
bank
B_code varchar
B_name varchar
Mainoffice_address varchar
employee_phno
Emp_id varchar
Emp_phno bigint
custacc
Cust_id varchar
Acc_no varchar
loan
Loan_id varchar
Loan_amount int
Loan_years int
Br_id varchar
customer
Cust_id varchar
Cust_name varchar
Cust_address varchar
customer_phno
Cust_id varchar
Cust_phno bigint
account
Acc_no varchar
Acc_type varchar
roi int
balance int
Br_id varchar
payment
Loan_id varchar
Pay_no varchar
Pay_date date
Pay_amount int
Withd
Cust_id varchar
Acc_no varchar
Withd_date date
Withd_amnt int
Depo
Cust_id varchar
Acc_no varchar
Depo_date date
Depo_amnt int
Loan_payment
Loan_id varchar
Pay_no varchar
Borrrow
Cust_id varchar
Loan_id varchar
Takencare_by
Cust_id varchar
Emp_id varchar

RELATION TABLE SQL STATEMENTS

```
create database my_bank;

\c my_bank

create table bank(B_code varchar(20) primary key, B_name varchar(20), Mainoffice_address varchar(20));

create table branch(B_code varchar(20), Br_id varchar(20) primary key, Br_name varchar(20), Br_address varchar(20), foreign key(B_code) references bank);

create table employee(Emp_id varchar(20) primary key, Emp_name varchar(20), Emp_startdate date);

create table employee_phno(Emp_id varchar(20), Emp_phno bigint, primary key(Emp_id,Emp_phno), foreign key(Emp_id) references employee);

create table customer(Cust_id varchar(20) primary key, Cust_name varchar(20), Cust_address varchar(20));

create table customer_phno(Cust_id varchar(20), Cust_phno bigint, primary key(Cust_id,Cust_phno), foreign key(Cust_id) references customer);

create table account(Acc_no varchar(20) primary key, Acc_type varchar(20), roi int, balance int, Br_id varchar(20), foreign key(Br_id) references branch);

create table loan(Loan_id varchar(20) primary key, Loan_amount int, Loan_years int, Br_id varchar(20), foreign key(Br_id) references branch);

create table payment(Loan_id varchar(20), Pay_no varchar(20), Pay_date date, Pay_amount int, primary key(Loan_id,Pay_no), foreign key(Loan_id) references loan);
```

create table custacc(Cust_id varchar(20),Acc_no varchar(20), primary key(Cust_id,Acc_no), foreign key(Cust_id) references customer, foreign key(Acc_no) references account on delete cascade);

create table Depo(Cust_id varchar(20),Acc_no varchar(20),Depo_date date,Depo_amnt int, primary key(Cust_id,Acc_no), foreign key(Cust_id) references customer, foreign key(Acc_no) references account on delete cascade);

create table Withd(Cust_id varchar(20),Acc_no varchar(20),Withd_date date,Withd_amnt int, primary key(Cust_id,Acc_no), foreign key(Cust_id) references customer, foreign key(Acc_no) references account on delete cascade);

create table Loan_payment(Loan_id varchar(20), Pay_no varchar(20),primary key(Loan_id,Pay_no), foreign key(Loan_id,Pay_no) references payment);

create table Takencare_by(Cust_id varchar(20), Emp_id varchar(20), primary key(Cust_id,Emp_id), foreign key(Cust_id) references customer, foreign key(Emp_id) references employee);

create table Borrrow(Cust_id varchar(20), Loan_id varchar(20), primary key(Cust_id,Loan_id), foreign key(Cust_id) references customer, foreign key(Loan_id) references loan);

```
my_bank=# \d
             List of relations
 Schema |      Name       | Type  |  Owner
--------+-----------------+-------+----------
 public | account         | table | postgres
 public | bank            | table | postgres
 public | borrrow         | table | postgres
 public | branch          | table | postgres
 public | custacc         | table | postgres
 public | customer        | table | postgres
 public | customer_phno   | table | postgres
 public | depo            | table | postgres
 public | employee        | table | postgres
 public | employee_phno   | table | postgres
 public | loan            | table | postgres
 public | loan_payment    | table | postgres
 public | payment         | table | postgres
 public | takencare_by    | table | postgres
 public | withd           | table | postgres
(15 rows)
```

```
my_bank=# \d bank
                          Table "public.bank"
       Column       |         Type          | Collation | Nullable | Default
--------------------+-----------------------+-----------+----------+---------
 b_code             | character varying(20) |           | not null |
 b_name             | character varying(20) |           |          |
 mainoffice_address | character varying(20) |           |          |
Indexes:
    "bank_pkey" PRIMARY KEY, btree (b_code)
Referenced by:
    TABLE "branch" CONSTRAINT "branch_b_code_fkey" FOREIGN KEY (b_code) REFERENCES bank(b_code)


my_bank=# \d branch
                        Table "public.branch"
   Column   |         Type          | Collation | Nullable | Default
------------+-----------------------+-----------+----------+---------
 b_code     | character varying(20) |           |          |
 br_id      | character varying(20) |           | not null |
 br_name    | character varying(20) |           |          |
 br_address | character varying(20) |           |          |
Indexes:
    "branch_pkey" PRIMARY KEY, btree (br_id)
Foreign-key constraints:
    "branch_b_code_fkey" FOREIGN KEY (b_code) REFERENCES bank(b_code)
Referenced by:
    TABLE "account" CONSTRAINT "account_br_id_fkey" FOREIGN KEY (br_id) REFERENCES branch(br_id)
    TABLE "loan" CONSTRAINT "loan_br_id_fkey" FOREIGN KEY (br_id) REFERENCES branch(br_id)


my_bank=# \d employee
                      Table "public.employee"
    Column     |         Type          | Collation | Nullable | Default
---------------+-----------------------+-----------+----------+---------
 emp_id        | character varying(20) |           | not null |
 emp_name      | character varying(20) |           |          |
 emp_startdate | date                  |           |          |
Indexes:
    "employee_pkey" PRIMARY KEY, btree (emp_id)
Referenced by:
    TABLE "employee_phno" CONSTRAINT "employee_phno_emp_id_fkey" FOREIGN KEY (emp_id) REFERENCES employee(emp_id)
    TABLE "takencare_by" CONSTRAINT "takencare_by_emp_id_fkey" FOREIGN KEY (emp_id) REFERENCES employee(emp_id)


my_bank=# \d employee_phno
                   Table "public.employee_phno"
  Column  |         Type          | Collation | Nullable | Default
----------+-----------------------+-----------+----------+---------
 emp_id   | character varying(20) |           | not null |
 emp_phno | bigint                |           | not null |
Indexes:
    "employee_phno_pkey" PRIMARY KEY, btree (emp_id, emp_phno)
Foreign-key constraints:
    "employee_phno_emp_id_fkey" FOREIGN KEY (emp_id) REFERENCES employee(emp_id)
```

```
my_bank=# \d payment
                    Table "public.payment"
   Column   |         Type          | Collation | Nullable | Default
------------+-----------------------+-----------+----------+---------
 loan_id    | character varying(20) |           | not null |
 pay_no     | character varying(20) |           | not null |
 pay_date   | date                  |           |          |
 pay_amount | integer               |           |          |
Indexes:
    "payment_pkey" PRIMARY KEY, btree (loan_id, pay_no)
Foreign-key constraints:
    "payment_loan_id_fkey" FOREIGN KEY (loan_id) REFERENCES loan(loan_id)
Referenced by:
    TABLE "loan_payment" CONSTRAINT "loan_payment_loan_id_pay_no_fkey" FOREIGN KEY (loan_id, pay_no) REFERENCES payment(
loan_id, pay_no)


my_bank=# \d customer
                     Table "public.customer"
    Column    |         Type          | Collation | Nullable | Default
--------------+-----------------------+-----------+----------+---------
 cust_id      | character varying(20) |           | not null |
 cust_name    | character varying(20) |           |          |
 cust_address | character varying(20) |           |          |
Indexes:
    "customer_pkey" PRIMARY KEY, btree (cust_id)
Referenced by:
    TABLE "borrow" CONSTRAINT "borrow_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)
    TABLE "custacc" CONSTRAINT "custacc_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)
    TABLE "customer_phno" CONSTRAINT "customer_phno_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)
    TABLE "depo" CONSTRAINT "depo_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)
    TABLE "takencare_by" CONSTRAINT "takencare_by_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)
    TABLE "withd" CONSTRAINT "withd_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)


my_bank=# \d customer_phno
                   Table "public.customer_phno"
  Column   |         Type          | Collation | Nullable | Default
-----------+-----------------------+-----------+----------+---------
 cust_id   | character varying(20) |           | not null |
 cust_phno | bigint                |           | not null |
Indexes:
    "customer_phno_pkey" PRIMARY KEY, btree (cust_id, cust_phno)
Foreign-key constraints:
    "customer_phno_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)
```

```
my_bank=# \d account
                  Table "public.account"
  Column  |        Type         | Collation | Nullable | Default
----------+---------------------+-----------+----------+---------
 acc_no   | character varying(20) |           | not null |
 acc_type | character varying(20) |           |          |
 roi      | integer               |           |          |
 balance  | integer               |           |          |
 br_id    | character varying(20) |           |          |
Indexes:
    "account_pkey" PRIMARY KEY, btree (acc_no)
Foreign-key constraints:
    "account_br_id_fkey" FOREIGN KEY (br_id) REFERENCES branch(br_id)
Referenced by:
    TABLE "custacc" CONSTRAINT "custacc_acc_no_fkey" FOREIGN KEY (acc_no) REFERENCES account(acc_no) ON DELETE CASCADE
    TABLE "depo" CONSTRAINT "depo_acc_no_fkey" FOREIGN KEY (acc_no) REFERENCES account(acc_no) ON DELETE CASCADE
    TABLE "withd" CONSTRAINT "withd_acc_no_fkey" FOREIGN KEY (acc_no) REFERENCES account(acc_no) ON DELETE CASCADE
```

```
my_bank=# \d loan
                     Table "public.loan"
   Column    |        Type         | Collation | Nullable | Default
-------------+---------------------+-----------+----------+---------
 loan_id     | character varying(20) |           | not null |
 loan_amount | integer               |           |          |
 loan_years  | integer               |           |          |
 br_id       | character varying(20) |           |          |
Indexes:
    "loan_pkey" PRIMARY KEY, btree (loan_id)
Foreign-key constraints:
    "loan_br_id_fkey" FOREIGN KEY (br_id) REFERENCES branch(br_id)
Referenced by:
    TABLE "borrow" CONSTRAINT "borrow_loan_id_fkey" FOREIGN KEY (loan_id) REFERENCES loan(loan_id)
    TABLE "payment" CONSTRAINT "payment_loan_id_fkey" FOREIGN KEY (loan_id) REFERENCES loan(loan_id)
```

```
my_bank=# \d custacc
                    Table "public.custacc"
 Column  |         Type          | Collation | Nullable | Default
---------+-----------------------+-----------+----------+---------
 cust_id | character varying(20) |           | not null |
 acc_no  | character varying(20) |           | not null |
Indexes:
    "custacc_pkey" PRIMARY KEY, btree (cust_id, acc_no)
Foreign-key constraints:
    "custacc_acc_no_fkey" FOREIGN KEY (acc_no) REFERENCES account(acc_no) ON DELETE CASCADE
    "custacc_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)


my_bank=# \d depo
                      Table "public.depo"
  Column   |         Type          | Collation | Nullable | Default
-----------+-----------------------+-----------+----------+---------
 cust_id   | character varying(20) |           | not null |
 acc_no    | character varying(20) |           | not null |
 depo_date | date                  |           |          |
 depo_amnt | integer               |           |          |
Indexes:
    "depo_pkey" PRIMARY KEY, btree (cust_id, acc_no)
Foreign-key constraints:
    "depo_acc_no_fkey" FOREIGN KEY (acc_no) REFERENCES account(acc_no) ON DELETE CASCADE
    "depo_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)


my_bank=# \d withd
                      Table "public.withd"
   Column   |         Type          | Collation | Nullable | Default
------------+-----------------------+-----------+----------+---------
 cust_id    | character varying(20) |           | not null |
 acc_no     | character varying(20) |           | not null |
 withd_date | date                  |           |          |
 withd_amnt | integer               |           |          |
Indexes:
    "withd_pkey" PRIMARY KEY, btree (cust_id, acc_no)
Foreign-key constraints:
    "withd_acc_no_fkey" FOREIGN KEY (acc_no) REFERENCES account(acc_no) ON DELETE CASCADE
    "withd_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)
```

```
my_bank=# \d Loan_payment
                Table "public.loan_payment"
 Column  |         Type          | Collation | Nullable | Default
---------+-----------------------+-----------+----------+---------
 loan_id | character varying(20) |           | not null |
 pay_no  | character varying(20) |           | not null |
Indexes:
    "loan_payment_pkey" PRIMARY KEY, btree (loan_id, pay_no)
Foreign-key constraints:
    "loan_payment_loan_id_pay_no_fkey" FOREIGN KEY (loan_id, pay_no) REFERENCES payment(loan_id, pay_no)


my_bank=# \d Takencare_by
                Table "public.takencare_by"
 Column  |         Type          | Collation | Nullable | Default
---------+-----------------------+-----------+----------+---------
 cust_id | character varying(20) |           | not null |
 emp_id  | character varying(20) |           | not null |
Indexes:
    "takencare_by_pkey" PRIMARY KEY, btree (cust_id, emp_id)
Foreign-key constraints:
    "takencare_by_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)
    "takencare_by_emp_id_fkey" FOREIGN KEY (emp_id) REFERENCES employee(emp_id)


my_bank=# \d Borrrow
                   Table "public.borrrow"
 Column  |         Type          | Collation | Nullable | Default
---------+-----------------------+-----------+----------+---------
 cust_id | character varying(20) |           | not null |
 loan_id | character varying(20) |           | not null |
Indexes:
    "borrrow_pkey" PRIMARY KEY, btree (cust_id, loan_id)
Foreign-key constraints:
    "borrrow_cust_id_fkey" FOREIGN KEY (cust_id) REFERENCES customer(cust_id)
    "borrrow_loan_id_fkey" FOREIGN KEY (loan_id) REFERENCES loan(loan_id)
```

DATA INSERTION

insert into bank values ('ABC123', 'Indian Bank', 'Bangalore');

insert into bank values ('DEF456', 'Canara Bank', 'Mangalore');

insert into bank values ('GHI789', 'Punjab Bank', 'Punjab');

insert into bank values ('JKL321', 'Syndicate Bank', 'Jaipur');

insert into bank values ('MNO654', 'Swiss Bank', 'Delhi');

insert into bank values ('PQR987', 'ICICI Bank', 'Chennai');

insert into bank values ('STU963', 'Mahila Bank', 'Pune');

insert into bank values ('VWX852', 'Peoples Bank', 'Goa');

insert into bank values ('YZA741', 'Society Bank', 'Jaipur');

insert into bank values ('BCD858', 'Janahitha Bank', 'Bangalore');

```
my_bank=# select * from bank;
 b_code |     b_name     | mainoffice_address
--------+----------------+--------------------
 ABC123 | Indian Bank    | Bangalore
 DEF456 | Canara Bank    | Mangalore
 GHI789 | Punjab Bank    | Punjab
 JKL321 | Syndicate Bank | Jaipur
 MNO654 | Swiss Bank     | Delhi
 PQR987 | ICICI Bank     | Chennai
 STU963 | Mahila Bank    | Pune
 VWX852 | Peoples Bank   | Goa
 YZA741 | Society Bank   | Jaipur
 BCD858 | Janahitha Bank | Bangalore
(10 rows)
```

insert into branch values ('ABC123', '1', 'Indian Bank1', 'Tumakuru');

insert into branch values ('ABC123', '2', 'Indian Bank2', 'Hyderabad');

insert into branch values ('DEF456', '3', 'Canara Bank1', 'Odisa');

insert into branch values ('GHI789', '4', 'Punjab Bank1', 'Punjab');

insert into branch values ('GHI789', '5', 'Punjab Bank2', 'Odisa');

insert into branch values ('GHI789', '6', 'Punjab Bank3', 'UP');

insert into branch values ('JKL321', '7', 'Syndicate Bank1', 'Bangalore');

insert into branch values ('MNO654', '8', 'Swiss Bank1', 'Pune');

insert into branch values ('PQR987', '9', 'ICICI Bank1', 'Jaipur');

insert into branch values ('PQR987', '10', 'ICICI Bank2', 'Delhi');

insert into branch values ('STU963', '11', 'Mahila Bank1', 'Delhi');

insert into branch values ('VWX852', '12', 'Peoples Bank1', 'UP');

insert into branch values ('YZA741', '13', 'Society Bank1', 'Punjab');

insert into branch values ('YZA741', '14', 'Society Bank2', 'Goa');

insert into branch values ('YZA741', '15', 'Society Bank3', 'Bangalore');

insert into branch values ('YZA741', '16', 'Society Bank4', 'Chennai');

insert into branch values ('BCD858', '17', 'Janahitha Bank1', 'Hyderabad');

```
my_bank=# select * from branch;
 b_code | br_id |     br_name     | br_address
--------+-------+-----------------+------------
 ABC123 | 1     | Indian Bank1    | Tumakuru
 ABC123 | 2     | Indian Bank2    | Hyderabad
 DEF456 | 3     | Canara Bank1    | Odisa
 GHI789 | 4     | Punjab Bank1    | Punjab
 GHI789 | 5     | Punjab Bank2    | Odisa
 GHI789 | 6     | Punjab Bank3    | UP
 JKL321 | 7     | Syndicate Bank1 | Bangalore
 MNO654 | 8     | Swiss Bank1     | Pune
 PQR987 | 9     | ICICI Bank1     | Jaipur
 PQR987 | 10    | ICICI Bank2     | Delhi
 STU963 | 11    | Mahila Bank1    | Delhi
 VWX852 | 12    | Peoples Bank1   | UP
 YZA741 | 13    | Society Bank1   | Punjab
 YZA741 | 14    | Society Bank2   | Goa
 YZA741 | 15    | Society Bank3   | Bangalore
 YZA741 | 16    | Society Bank4   | Chennai
 BCD858 | 17    | Janahitha Bank1 | Hyderabad
(17 rows)
```

insert into employee values ('A1', 'Ram', '2015-12-21');

insert into employee values ('B1', 'Keerthi', '2016-11-15');

insert into employee values ('A3', 'Raju', '2003-08-08');

insert into employee values ('C1', 'Aniket', '2015-06-03');

insert into employee values ('A5', 'Raghu', '2019-12-12');

insert into employee values ('B2', 'Ram', '2015-11-25');

insert into employee values ('B3', 'Sham', '2018-12-31');

insert into employee values ('D1', 'Pearl', '2016-11-20');

insert into employee values ('C2', 'Harini', '1999-05-01');

insert into employee values ('D6', 'Jay', '2003-02-06');

```
my_bank=# select * from employee;
 emp_id | emp_name | emp_startdate
--------+----------+---------------
 A1     | Ram      | 2015-12-21
 B1     | Keerthi  | 2016-11-15
 A3     | Raju     | 2003-08-08
 C1     | Aniket   | 2015-06-03
 A5     | Raghu    | 2019-12-12
 B2     | Ram      | 2015-11-25
 B3     | Sham     | 2018-12-31
 D1     | Pearl    | 2016-11-20
 C2     | Harini   | 1999-05-01
 D6     | Jay      | 2003-02-06
(10 rows)
```

insert into employee_phno values ('D6', 6362100151);

insert into employee_phno values ('A5', 8756692412);

insert into employee_phno values ('A1', 4587963210);

insert into employee_phno values ('D1', 9987456321);

insert into employee_phno values ('A1', 1234567890);

insert into employee_phno values ('B3', 7894561235);

insert into employee_phno values ('C2', 8795525425);

insert into employee_phno values ('C1', 9980893654);

insert into employee_phno values ('B2', 8889654234);

insert into employee_phno values ('B1', 9844998273);

insert into employee_phno values ('A3', 9980891973);

insert into employee_phno values ('D6', 9980369354);

insert into employee_phno values ('B1', 6362113556);

```
my_bank=# select * from employee_phno;
 emp_id |  emp_phno
--------+------------
 D6     | 6362100151
 A5     | 8756692412
 D1     | 9987456321
 A1     | 4587963210
 A1     | 1234567890
 C2     | 8795525425
 B3     | 7894561235
 C1     | 9980893654
 B2     | 8889654234
 B1     | 9844998273
 A3     | 9980891973
 D6     | 9980369354
 B1     | 6362113556
(13 rows)
```

insert into customer values ('A111B', 'Uma', 'Bangalore');

insert into customer values ('A222B', 'Pavithra', 'Jaipur');

insert into customer values ('A333B', 'Shree', 'Chennai');

insert into customer values ('A444B', 'Gary', 'Hyderabad');

insert into customer values ('A555B', 'Dhruv', 'Delhi');

insert into customer values ('A666B', 'Prathik', 'Goa');

insert into customer values ('A777B', 'Nagesh', 'Punjab');

insert into customer values ('A888B', 'Tomy', 'Bangalore');

insert into customer values ('A999B', 'Tarun', 'Punjab');

insert into customer values ('A000B', 'Yukthi', 'Odisa');

```
my_bank=# select * from customer;
 cust_id | cust_name | cust_address
---------+-----------+--------------
 A111B   | Uma       | Bangalore
 A222B   | Pavithra  | Jaipur
 A333B   | Shree     | Chennai
 A444B   | Gary      | Hyderabad
 A555B   | Dhruv     | Delhi
 A666B   | Prathik   | Goa
 A777B   | Nagesh    | Punjab
 A888B   | Tomy      | Bangalore
 A999B   | Tarun     | Punjab
 A000B   | Yukthi    | Odisa
(10 rows)
```

insert into customer_phno values ('A111B', 1234568521);

insert into customer_phno values ('A222B', 9876541596);

insert into customer_phno values ('A222B', 3578964121);

insert into customer_phno values ('A333B', 8569741232);

insert into customer_phno values ('A444B', 7598461235);

insert into customer_phno values ('A555B', 8795454555);

insert into customer_phno values ('A666B', 8521697431);

insert into customer_phno values ('A666B', 5896741236);

insert into customer_phno values ('A777B', 8589674125);

insert into customer_phno values ('A888B', 5796284621);

insert into customer_phno values ('A999B', 1258964715);

insert into customer_phno values ('A999B', 9982564757);

insert into customer_phno values ('A000B', 6362100152);

```
my_bank=# select * from customer_phno;
 cust_id | cust_phno
---------+------------
 A111B   | 1234568521
 A222B   | 9876541596
 A222B   | 3578964121
 A333B   | 8569741232
 A444B   | 7598461235
 A555B   | 8795454555
 A666B   | 8521697431
 A666B   | 5896741236
 A777B   | 8589674125
 A888B   | 5796284621
 A999B   | 1258964715
 A999B   | 9982564757
 A000B   | 6362100152
(13 rows)
```

insert into account values ('JK123', 'Saving', 8, 5500, '1');

insert into account values ('LK546', 'Kids', 2, 3210, '2');

insert into account values ('PO589', 'Saving', 5, 450, '3');

insert into account values ('RF456', 'Deposit', 9, 9000, '4');

insert into account values ('TH896', 'Saving', 3, 8700, '5');

insert into account values ('SA546', 'Kids', 8, 4500, '6');

insert into account values ('FG323', 'NRI', 9, 6300, '7');

insert into account values ('HJ555', 'Deposit', 6, 1210, '8');

insert into account values ('RQ861', 'Kids', 1, 8625, '9');

insert into account values ('QE123', 'Saving', 4, 525, '10');

insert into account values ('JL453', 'NRI', 7, 1100, '11');

insert into account values ('EQ333', 'Saving', 6, 6785, '12');

insert into account values ('NM852', 'Kids', 2, 50, '13');

insert into account values ('ZF485', 'Deposit', 3, 1100, '14');

insert into account values ('ZX369', 'Saving', 4, 5500, '15');

insert into account values ('KL875', 'Kids', 8, 8975, '16');

insert into account values ('OI100', 'Deposit', 9, 500, '17');

insert into account values ('UI001', 'Saving', 6, 3200, '1');

insert into account values ('UY500', 'Salary', 7, 3000, '11');

insert into account values ('TE999', 'Deposit', 8, 7530, '16');

insert into account values ('SA775', 'Deposit', 1, 1111, '9');

insert into account values ('YG666', 'NRI', 3, 9873, '5');

```
my_bank=# select * from account;
 acc_no | acc_type | roi | balance | br_id
--------+----------+-----+---------+-------
 JK123  | Saving   |   8 |    5500 | 1
 LK546  | Kids     |   2 |    3210 | 2
 PO589  | Saving   |   5 |     450 | 3
 RF456  | Deposit  |   9 |    9000 | 4
 TH896  | Saving   |   3 |    8700 | 5
 SA546  | Kids     |   8 |    4500 | 6
 FG323  | NRI      |   9 |    6300 | 7
 HJ555  | Deposit  |   6 |    1210 | 8
 RQ861  | Kids     |   1 |    8625 | 9
 QE123  | Saving   |   4 |     525 | 10
 JL453  | NRI      |   7 |    1100 | 11
 EQ333  | Saving   |   6 |    6785 | 12
 NM852  | Kids     |   2 |      50 | 13
 ZF485  | Deposit  |   3 |    1100 | 14
 ZX369  | Saving   |   4 |    5500 | 15
 KL875  | Kids     |   8 |    8975 | 16
 OI100  | Deposit  |   9 |     500 | 17
 UI001  | Saving   |   6 |    3200 | 1
 UY500  | Salary   |   7 |    3000 | 11
 TE999  | Deposit  |   8 |    7530 | 16
 SA775  | Deposit  |   1 |    1111 | 9
 YG666  | NRI      |   3 |    9873 | 5
(22 rows)
```

insert into loan values ('IO9', 30000, 1, '1');

insert into loan values ('IH5', 45000, 2, '2');

insert into loan values ('HO9', 65000, 3, '3');

```
insert into loan values ('IL7', 78900, 4, '4');
insert into loan values ('LO9', 45450, 5, '5');
insert into loan values ('IN6', 62530, 1, '6');
insert into loan values ('NO4', 60000, 2, '7');
insert into loan values ('UY3', 80000, 2, '8');
insert into loan values ('IY1', 52500, 3, '9');
insert into loan values ('YO3', 11110, 4, '10');
insert into loan values ('IR2', 10200, 5, '11');
insert into loan values ('RO9', 30300, 1, '12');
insert into loan values ('IS7', 58000, 6, '13');
insert into loan values ('SD6', 99999, 8, '14');
insert into loan values ('DD5', 85800, 5, '15');
insert into loan values ('XZ4', 36950, 4, '16');
insert into loan values ('CV8', 75800, 3, '17');
insert into loan values ('IM8', 8750, 6, '5');
insert into loan values ('IU1', 87000, 3, '2');
```

```
my_bank=# select * from loan;
 loan_id | loan_amount | loan_years | br_id
---------+-------------+------------+-------
 IO9     |       30000 |          1 | 1
 IH5     |       45000 |          2 | 2
 HO9     |       65000 |          3 | 3
 IL7     |       78900 |          4 | 4
 LO9     |       45450 |          5 | 5
 IN6     |       62530 |          1 | 6
 NO4     |       60000 |          2 | 7
 UY3     |       80000 |          2 | 8
 IY1     |       52500 |          3 | 9
 YO3     |       11110 |          4 | 10
 IR2     |       10200 |          5 | 11
 RO9     |       30300 |          1 | 12
 IS7     |       58000 |          6 | 13
 SD6     |       99999 |          8 | 14
 DD5     |       85800 |          5 | 15
 XZ4     |       36950 |          4 | 16
 CV8     |       75800 |          3 | 17
 IM8     |        8750 |          6 | 5
 IU1     |       87000 |          3 | 2
(19 rows)
```

insert into payment values ('IO9', '1', '2019-12-21', 3000);

insert into payment values ('IH5', '2', '2018-08-15', 2520);

insert into payment values ('UY3', '3', '2017-06-20', 1510);

insert into payment values ('YO3', '4', '2015-03-18', 4500);

insert into payment values ('XZ4', '5', '2016-11-17', 300);

insert into payment values ('IM8', '6', '2020-10-16', 500);

insert into payment values ('IU1', '7', '2019-02-25', 1000);

insert into payment values ('SD6', '8', '2021-09-22', 3000);

insert into payment values ('DD5', '9', '2018-05-21', 400);

insert into payment values ('RO9', '0', '2017-01-14', 2400);

insert into payment values ('IO9', '2', '2019-12-21', 3000);

```
my_bank=# select * from payment;
 loan_id | pay_no |  pay_date  | pay_amount
---------+--------+------------+------------
 IO9     | 1      | 2019-12-21 |       3000
 IH5     | 2      | 2018-08-15 |       2520
 UY3     | 3      | 2017-06-20 |       1510
 YO3     | 4      | 2015-03-18 |       4500
 XZ4     | 5      | 2016-11-17 |        300
 IM8     | 6      | 2020-10-16 |        500
 IU1     | 7      | 2019-02-25 |       1000
 SD6     | 8      | 2021-09-22 |       3000
 DD5     | 9      | 2018-05-21 |        400
 RO9     | 0      | 2017-01-14 |       2400
 IO9     | 2      | 2019-12-21 |       3000
(11 rows)
```

insert into Depo values ('A111B', 'JK123', '2021-09-10', 3000);

insert into Depo values ('A222B', 'LK546', '2021-09-11', 200);

insert into Depo values ('A333B', 'PO589', '2021-09-10', 6000);

insert into Depo values ('A444B', 'RF456', '2021-09-12', 500);

insert into Depo values ('A555B', 'TH896', '2021-09-12', 1000);

insert into Depo values ('A666B', 'SA546', '2021-09-11', 700);

insert into Depo values ('A777B', 'FG323', '2021-09-12', 8500);

insert into Depo values ('A888B', 'HJ555', '2021-09-11', 2510);

insert into Depo values ('A999B', 'JL453', '2021-09-10', 3500);

insert into Depo values ('A000B', 'JK123', '2021-09-11', 8000);

insert into Depo values ('A333B', 'JK123', '2021-09-10', 4000);

insert into Depo values ('A222B', 'SA546', '2021-09-10', 6000);

```
my_bank=# select * from Depo;
 cust_id | acc_no | depo_date  | depo_amnt
---------+--------+------------+-----------
 A111B   | JK123  | 2021-09-10 |      3000
 A222B   | LK546  | 2021-09-11 |       200
 A333B   | PO589  | 2021-09-10 |      6000
 A444B   | RF456  | 2021-09-12 |       500
 A555B   | TH896  | 2021-09-12 |      1000
 A666B   | SA546  | 2021-09-11 |       700
 A777B   | FG323  | 2021-09-12 |      8500
 A888B   | HJ555  | 2021-09-11 |      2510
 A999B   | JL453  | 2021-09-10 |      3500
 A000B   | JK123  | 2021-09-11 |      8000
 A333B   | JK123  | 2021-09-10 |      4000
 A222B   | SA546  | 2021-09-10 |      6000
(12 rows)
```

insert into Withd values ('A111B', 'JK123', '2021-09-10', 300);

insert into Withd values ('A222B', 'LK546', '2021-09-11', 20);

insert into Withd values ('A333B', 'PO589', '2021-09-10', 600);

insert into Withd values ('A444B', 'RF456', '2021-09-12', 50);

insert into Withd values ('A555B', 'TH896', '2021-09-12', 100);

insert into Withd values ('A666B', 'SA546', '2021-09-11', 70);

insert into Withd values ('A777B', 'FG323', '2021-09-12', 850);

insert into Withd values ('A888B', 'HJ555', '2021-09-11', 250);

insert into Withd values ('A999B', 'JL453', '2021-09-10', 300);

insert into Withd values ('A000B', 'JK123', '2021-09-11', 800);

insert into Withd values ('A333B', 'JK123', '2021-09-10', 400);

insert into Withd values ('A222B', 'SA546', '2021-09-10', 600);

```
my_bank=# select * from withd;
 cust_id | acc_no | withd_date | withd_amnt
---------+--------+------------+------------
 A111B   | JK123  | 2021-09-10 |        300
 A222B   | LK546  | 2021-09-11 |         20
 A333B   | PO589  | 2021-09-10 |        600
 A444B   | RF456  | 2021-09-12 |         50
 A555B   | TH896  | 2021-09-12 |        100
 A666B   | SA546  | 2021-09-11 |         70
 A777B   | FG323  | 2021-09-12 |        850
 A888B   | HJ555  | 2021-09-11 |        250
 A999B   | JL453  | 2021-09-10 |        300
 A000B   | JK123  | 2021-09-11 |        800
 A333B   | JK123  | 2021-09-10 |        400
 A222B   | SA546  | 2021-09-10 |        600
(12 rows)
```

insert into custacc values ('A111B', 'JK123');

insert into custacc values ('A222B', 'LK546');

insert into custacc values ('A333B', 'PO589');

insert into custacc values ('A444B', 'RF456');

insert into custacc values ('A555B', 'TH896');

insert into custacc values ('A666B', 'SA546');

insert into custacc values ('A777B', 'FG323');

insert into custacc values ('A888B', 'HJ555');

insert into custacc values ('A999B', 'JL453');

```
my_bank=# select * from custacc;
 cust_id | acc_no
---------+--------
 A111B   | JK123
 A222B   | LK546
 A333B   | PO589
 A444B   | RF456
 A555B   | TH896
 A666B   | SA546
 A777B   | FG323
 A888B   | HJ555
 A999B   | JL453
(9 rows)
```

insert into Loan_payment values ('IO9', '1');

insert into Loan_payment values ('IH5', '2');

insert into Loan_payment values ('UY3', '3');

insert into Loan_payment values ('YO3', '4');

insert into Loan_payment values ('XZ4', '5');

insert into Loan_payment values ('IM8', '6');

insert into Loan_payment values ('IU1', '7');

insert into Loan_payment values ('SD6', '8');

insert into Loan_payment values ('DD5', '9');

insert into Loan_payment values ('RO9', '0');

insert into Loan_payment values ('IO9', '2');

```
my_bank=# select * from Loan_payment;
 loan_id | pay_no
---------+--------
 IO9     | 1
 IH5     | 2
 UY3     | 3
 YO3     | 4
 XZ4     | 5
 IM8     | 6
 IU1     | 7
 SD6     | 8
 DD5     | 9
 RO9     | 0
 IO9     | 2
(11 rows)
```

insert into Takencare_by values ('A111B', 'A1');

insert into Takencare_by values ('A222B', 'B1');

insert into Takencare_by values ('A333B', 'A3');

insert into Takencare_by values ('A444B', 'C1');

insert into Takencare_by values ('A555B', 'A5');

insert into Takencare_by values ('A666B', 'B2');

insert into Takencare_by values ('A777B', 'B3');

insert into Takencare_by values ('A888B', 'D1');

insert into Takencare_by values ('A999B', 'D6');

insert into Takencare_by values ('A000B', 'C2');

insert into Takencare_by values ('A888B', 'B2');

insert into Takencare_by values ('A555B', 'A1');

insert into Takencare_by values ('A555B', 'C2');

insert into Takencare_by values ('A111B', 'D1');

```
my_bank=# select * from Takencare_by;
 cust_id | emp_id
---------+--------
 A111B   | A1
 A222B   | B1
 A333B   | A3
 A444B   | C1
 A555B   | A5
 A666B   | B2
 A777B   | B3
 A888B   | D1
 A999B   | D6
 A000B   | C2
 A888B   | B2
 A555B   | A1
 A555B   | C2
 A111B   | D1
(14 rows)
```

insert into Borrrow values ('A111B', 'IO9');

insert into Borrrow values ('A222B', 'IH5');

insert into Borrrow values ('A333B', 'DD5');

insert into Borrrow values ('A444B', 'SD6');

insert into Borrrow values ('A555B', 'XZ4');

insert into Borrrow values ('A666B', 'YO3');

insert into Borrrow values ('A777B', 'UY3');

insert into Borrrow values ('A888B', 'IO9');

insert into Borrrow values ('A999B', 'IM8');

insert into Borrrow values ('A000B', 'IU1');

```
my_bank=# select * from Borrrow;
 cust_id | loan_id
---------+---------
 A111B   | IO9
 A222B   | IH5
 A333B   | DD5
 A444B   | SD6
 A555B   | XZ4
 A666B   | YO3
 A777B   | UY3
 A888B   | IO9
 A999B   | IM8
 A000B   | IU1
 A888B   | DD5
 A555B   | RO9
 A555B   | IO9
 A111B   | IH5
(14 rows)
```

QUERIES

1.Balance enquiry with name .

select (select balance from account a,custacc c2,customer c3 where c3.cust_name='Uma' and c3.cust_id=c2.cust_id and c2.acc_no=a.acc_no)+(select sum(d.depo_amnt) from depo d,customer c where c.cust_name = 'Uma' and c.cust_id = d.cust_id)-(select sum(w.withd_amnt) from withd w,customer c where c.cust_name = 'Uma' and c.cust_id = w.cust_id);

```
my_bank=# select (select balance from account a,custacc c2,customer c3 where c3.cust
_name='Uma' and c3.cust_id=c2.cust_id and c2.acc_no=a.acc_no)+(select sum(d.depo_amn
t) from depo d,customer c where c.cust_name = 'Uma' and c.cust_id = d.cust_id )-( se
lect sum(w.withd_amnt) from withd w,customer c where c.cust_name = 'Uma' and c.cust_
id = w.cust_id);
 ?column?
----------
     8236
(1 row)
```

2. Update balance with corresponding Rate Of Interest .

update account set balance=balance + (roi*balance/1200);

```
my_bank=# select * from account;
 acc_no | acc_type | roi | balance | br_id
--------+----------+-----+---------+-------
 JK123  | Saving   |   8 |    5500 | 1
 LK546  | Kids     |   2 |    3210 | 2
 PO589  | Saving   |   5 |     450 | 3
 RF456  | Deposit  |   9 |    9000 | 4
 TH896  | Saving   |   3 |    8700 | 5
 SA546  | Kids     |   8 |    4500 | 6
 FG323  | NRI      |   9 |    6300 | 7
 HJ555  | Deposit  |   6 |    1210 | 8
 RQ861  | Kids     |   1 |    8625 | 9
 QE123  | Saving   |   4 |     525 | 10
 JL453  | NRI      |   7 |    1100 | 11
 EQ333  | Saving   |   6 |    6785 | 12
 NM852  | Kids     |   2 |      50 | 13
 ZF485  | Deposit  |   3 |    1100 | 14
 ZX369  | Saving   |   4 |    5500 | 15
 KL875  | Kids     |   8 |    8975 | 16
 OI100  | Deposit  |   9 |     500 | 17
 UI001  | Saving   |   6 |    3200 | 1
 UY500  | Salary   |   7 |    3000 | 11
 TE999  | Deposit  |   8 |    7530 | 16
 SA775  | Deposit  |   1 |    1111 | 9
 YG666  | NRI      |   3 |    9873 | 5
(22 rows)
```

After update,

```
my_bank=# update account set balance=balance + (roi*balance/1200);
UPDATE 22
my_bank=# select * from account;
 acc_no | acc_type | roi | balance | br_id
--------+----------+-----+---------+-------
 JK123  | Saving   |   8 |    5536 | 1
 LK546  | Kids     |   2 |    3215 | 2
 PO589  | Saving   |   5 |     451 | 3
 RF456  | Deposit  |   9 |    9067 | 4
 TH896  | Saving   |   3 |    8721 | 5
 SA546  | Kids     |   8 |    4530 | 6
 FG323  | NRI      |   9 |    6347 | 7
 HJ555  | Deposit  |   6 |    1216 | 8
 RQ861  | Kids     |   1 |    8632 | 9
 QE123  | Saving   |   4 |     526 | 10
 JL453  | NRI      |   7 |    1106 | 11
 EQ333  | Saving   |   6 |    6818 | 12
 NM852  | Kids     |   2 |      50 | 13
 ZF485  | Deposit  |   3 |    1102 | 14
 ZX369  | Saving   |   4 |    5518 | 15
 KL875  | Kids     |   8 |    9034 | 16
 OI100  | Deposit  |   9 |     503 | 17
 UI001  | Saving   |   6 |    3216 | 1
 UY500  | Salary   |   7 |    3017 | 11
 TE999  | Deposit  |   8 |    7580 | 16
 SA775  | Deposit  |   1 |    1111 | 9
 YG666  | NRI      |   3 |    9897 | 5
(22 rows)
```

3. Loan Balance Enquiry.

select loan_amount - (select sum(pay_amount) from payment p,borrrow b,customer c where p.loan_id = b.loan_id and b.cust_id = c.cust_id and c.cust_name ='Uma') from loan l ,customer c ,borrrow b where b.cust_id = c.cust_id and c.cust_name ='Uma' and b.loan_id = l.loan_id;

```
my_bank=# select loan_amount - (select sum(pay_amount) from payment p,borrrow b,cust
omer c where p.loan_id = b.loan_id and b.cust_id = c.cust_id and c.cust_name ='Uma')
 from loan l ,customer c ,borrrow b where b.cust_id = c.cust_id and c.cust_name ='Um
a' and b.loan_id = l.loan_id;
 ?column?
----------
    24000
(1 row)
```

4. Loan remaining Time Enquiry.

create view detail as select l.loan_years,l.loan_id from loan l where l.loan_id = (select b.loan_id from borrrow b where b.cust_id =(select cust_id from customer c where c.cust_name = 'Uma'));

select * from detail;

select (select 12*d.loan_years from detail d) - count(*) from payment p where p.loan_id =(select d.loan_id from detail d);

```
my_bank=# create view detail as select l.loan_years,l.loan_id from loan l where l.lo
an_id = (select b.loan_id from borrrow b where b.cust_id =(select cust_id from custo
mer c where c.cust_name = 'Uma'));
CREATE VIEW
my_bank=# select * from detail;
 loan_years | loan_id
------------+---------
          1 | IO9
(1 row)


my_bank=# select (select 12*d.loan_years from detail d) - count(*) from payment p wh
ere p.loan_id =(select d.loan_id from detail d);
 ?column?
----------
       10
(1 row)
```

5. Account deletion

delete from account a where a.acc_no = (select acc_no from custacc where cust_id = (select cust_id from customer where cust_name='Shree')) ;

```
my_bank=# delete from account a where a.acc_no = (select acc_no from custacc where
my_bank(# cust_id = (select cust_id from customer where cust_name='Shree')) ;
DELETE 1
my_bank=#
```

6. New Account creation.

insert into customer values ('B111C', 'Raj', 'Bangalore');

insert into account values ('JK999', 'Saving', 8, 5500, '1');

insert into custacc values ('B111C','JK999');

```
my_bank=# insert into customer values ('B111C', 'Raj', 'Bangalore');
INSERT 0 1
my_bank=# insert into account values ('JK999', 'Saving', 8, 5500, '1');
INSERT 0 1
my_bank=# insert into custacc values ('B111C','JK999');
INSERT 0 1
my_bank=#
```

7.Transfer of branch with customer name.

update account set br_id = (select br_id from branch b where b.br_name = 'Canara Bank1') where acc_no in (select acc_no from custacc a where a.cust_id = (select c.cust_id from customer c where c.cust_name = 'Shree'));

```
my_bank=# update account set br_id = (select br_id from branch b where b.br_name = '
Canara Bank1') where acc_no in (select acc_no from custacc a where a.cust_id = (sele
ct c.cust_id from customer c where c.cust_name = 'Shree'));
UPDATE 2
my_bank=#
```

8. Employee Details

get employee details who handles customer

select e.emp_id ,e.emp_name ,e.emp_startdate from employee e ,takencare_by tb ,customer c where c.cust_name = 'Uma' and c.cust_id =tb.cust_id and tb.emp_id =e.emp_id ;

```
my_bank=# select e.emp_id ,e.emp_name ,e.emp_startdate from employee e ,takencare_by
 tb ,customer c where c.cust_name = 'Uma' and c.cust_id =tb.cust_id and tb.emp_id =e
.emp_id ;
 emp_id | emp_name | emp_startdate
--------+----------+---------------
 A1     | Ram      | 2015-12-21
(1 row)
```

select * from employee e where e.emp_name = 'Jay';

```
my_bank=# select * from employee e where e.emp_name = 'Jay';
 emp_id | emp_name | emp_startdate
--------+----------+---------------
 D6     | Jay      | 2003-02-06
(1 row)


my_bank=#
```

How many years is he working?

select date_part('year',current_date) -date_part('year',(select emp_startdate from employee e where e.emp_name = 'Jay'));

```
my_bank=# select date_part('year',current_date) -date_part('year',(select emp_startd
ate from employee e where e.emp_name = 'Jay'));
 ?column?
----------
       18
(1 row)


my_bank=#
```

9. Customer detail’s (to get customer details)

select c.cust_id ,c.cust_name ,c.cust_address,a.acc_no,a.acc_type ,a.roi from customer c,account a,custacc ca where a.acc_no = ca.acc_no and c.cust_id = ca.cust_id and c.cust_name = 'Shree';

```
my_bank=# select c.cust_id ,c.cust_name ,c.cust_address,a.acc_no,a.acc_type ,a.roi
from customer c,account a,custacc ca where a.acc_no = ca.acc_no and c.cust_id = ca.c
ust_id and c.cust_name = 'Shree';
 cust_id | cust_name | cust_address | acc_no | acc_type | roi
---------+-----------+--------------+--------+----------+-----
 A333B   | Shree     | Chennai      | PO589  | Saving   |   5
 A333B   | Shree     | Chennai      | JK123  | Saving   |   8
(2 rows)
```

10. Role Management

CREATE USER shiv WITH PASSWORD 'ram' valid UNTIL '2022-01-01';

drop user if exists ram;

```
my_bank=# drop user if exists ram;
DROP ROLE
my_bank=# CREATE USER shiv WITH PASSWORD 'ram' valid UNTIL '2022-01-01';
CREATE ROLE
my_bank=#
```

****