DEPARTMENT OF MATHEMATICAL AND COMPUTATIONAL SCIENCES
NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

MA611 – 2nd Semester MCA, 2024-2025

DATABASE SYSTEMS LAB

Assignment-5

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1. Create all the tables by defining primary key, foreign key and other appropriate constraints.
a. Bank (bk_code, bk_name, bk_address)

```
SQL> create table bank
  2  (bk_code varchar(10),
  3  bk_name varchar(20),
  4  bk_address varchar(30),
  5  primary key (bk_code));

Table created.
```

b. Branch (br_id, br_name, br_address, bk_code)

```
SQL> create table branch
  2  (br_id number,
  3  br_name varchar(20),
  4  br_address varchar(30),
  5  bk_code varchar(10),
  6  primary key (br_id),
  7  foreign key (bk_code) references bank
  8  on delete set null);

Table created.
```

c. Customer (cust_ID, cust_name, phone_no, address)

```
SQL> create table customer
  2  (cust_id varchar(10),
  3  cust_name varchar(20),
  4  phone_no numeric(10),
  5  address varchar(30),
  6  primary key (cust_id));

Table created.
```

d. Account (acc_no, acc_type, balance, br_id)

```
SQL> create table account
  2  (acc_no numeric(10),
  3  acc_type varchar(20) check(acc_type in('saving','current','fixed deposit')),
  4  balance numeric(15),
  5  br_id number,
  6  primary key (acc_no),
  7  foreign key (br_id) references branch
  8  on delete set null);
```

Table created.

e. Customer_Account (cust_ID, acc_no)

```
SQL> create table customer_account
  2  (cust_id varchar(10),
  3  acc_no numeric(10),
  4  primary key(cust_id,acc_no),
  5  foreign key (cust_id) references customer
  6  on delete cascade,
  7  foreign key (acc_no) references account);
```

Table created.

f. Loan (loan_ID, loan_type, amount, br_id)

```
SQL> create table loan
  2  (loan_id varchar(10),
  3  loan_type varchar(15) check(loan_type in('personal','secured','student','home','car')),
  4  amount number,
  5  br_id number,
  6  primary key(loan_id),
  7  foreign key(br_id) references branch);
```

Table created.

g. Customer_Loan (cust_ID, loan_ID)

```
SQL> create table customer_loan
  2  (cust_id varchar(10),
  3  loan_id varchar(10),
  4  primary key (cust_id,loan_id),
  5  foreign key (cust_id) references customer
  6  on delete cascade,
  7  foreign key (loan_id) references loan
  8  on delete set null);
```

Table created.

2. Insert atleast five records in each table.
(1) INSERTING INTO BANK TABLE :--

```
SQL> insert into bank
  2  values('bk1','sbi','mumbai,india');
```

1 row created.

```
SQL> insert into bank
  2  values('bk2','kotak mahindra bank','mumbai,india');
```

```
1 row created.
SQL> insert into bank
  2  values('bk3','icici bank','new delhi,india');

1 row created.

SQL> insert into bank
  2  values('bk4','canara bank','zeneva,switzerland');

1 row created.

SQL> insert into bank
  2  values('bk5','bank of baroda','hydrabad,india');

1 row created.
```

(2) INSERTING INTO BRANCH TABLE :--

```
SQL> insert into branch
  2  values('01','bhopal','bhopal,mp','bk1');

1 row created.
SQL> select cust_id , loan_type from customer_loan inner join
  2  loan on  customer_loan.loan_id = loan.loan_id
  3  where loan_type = 'home';
SQL> insert into branch
  2  values('02','lucknow','lucknow,up','bk2');

1 row created.

SQL> insert into branch
  2  values('03','kanpur','kanpur,up','bk3');

1 row created.

SQL> insert into branch
  2  values('04','mangalore','mangalore,karnataka','bk4');

1 row created.

SQL> insert into branch
  2  values('05','udupi','udupi,karnataka','bk5');

1 row created.
```

(3) INSERTING INTO CUSTOMER TABLE :--

```
SQL> insert into customer
  2  values('c-1','smith',9302393219,'mumbai');

1 row created.
```

```
SQL> insert into customer
  2  values('c-2','nathan',9302393322,'bandra');

1 row created.

SQL> insert into customer
  2  values('c-3','komal',5394245713,'thana');

1 row created.

SQL> insert into customer
  2  values('c-4','varsha',7854698777,'varli');

1 row created.

SQL> insert into customer
  2  values('c-5','ellyce',8798895400,'navi mumbai');

1 row created.
```

(4) INSERTING INTO ACCOUNT TABLE :--

```
SQL> insert into accouSQL> select cust_id , loan_type from customer_loan inner join
  2  loan on  customer_loan.loan_id = loan.loan_id
  3  where loan_type = 'home';nt
  2  values(7546547544,'saving',40200,1);

1 row created.

SQL> insert into account
  2  values(1214214521,'current',50000,1);

1 row created.

SQL> insert into account
  2  values(7874564666,'saving',90000,2);

1 row created.

SQL> insert into account
  2  values(1000457897,'fixed deposit',100000,3);

1 row created.

SQL> insert into account
  2  values(4527457897,'fixed deposit',120000,5);

1 row created.
```

(5) INSERTING INTO CUSTOMER_ACCOUNT TABLE:--

```
SQL> insert into customer_account
  2  values(‘c-1’,7546547544);

1 row created.

SQL> insert into customer_account
  2  values(‘c-2’,1214214521);

1 row created.

SQL> insert into customer_account
  2  values(‘c-3’,1000457897);

1 row created.

SQL> insert into customer_account
  2  values(‘c-3’,7874564666);

1 row created.

SQL> insert into customer_account
  2  values(‘c-5’,7874564666);

1 row created.
```

(6) INSERTING INTO LOAN TABLE:--

```
SQL> insert into loan
  2  values(‘l-1’,’personal’,70000,7546547544’b-1’);

1 row created.

SQL> insert into loan
  2  values(‘l-5’,’home’,50000,1214214521,’b-2’);

1 row created.

SQL> insert into loan
  2  values(‘l-2’,’student’,60000,7874564666,’b-3’);

1 row created.

SQL> insert into loan
  2  values(‘l-3’,’car’,100000,7546547544,’b-5’);

1 row created.

SQL> insert into loan
  2  values(‘l-4’,’personal’,30000,1000457897,’b-2’);

1 row created.
```

(6) INSERTING INTO CUSTOMER_LOAN TABLE:--

```
SQL> insert into customer_loan
  2  values(‘c-1’,’l-1’);

1 row created.

SQL> insert into customer_loan
  2  values(‘c-2’,’l-2’);

1 row created.

SQL> insert into customer_loan
  2  values(‘c-2’,’l-3’);

1 row created.

SQL> insert into customer_loan
  2  values(‘c-5’,’l-4’);

1 row created.

SQL> insert into customer_loan
  2  values(‘c-2’,’l-4’);

1 row created.
```

3. List the details of all customers.

```
SQL> select * from customer;
```

4. Find the cust_ID and phone number of customer ‘Ravi’.

```
SQL> select cust_id,phone_no from customer
  2  where cust_name = 'Ravi';
```

5. Find the Address of all branches of br_01.

```
SQL> select br_address from branch
  2  where br_id = 1;
```

6. Find the details of Customer having ID = ‘c-3’.

```
SQL> select * from customer
  2  where cust_id = 'c-3';
```

7. List the account details having balance more than 10000.

```
SQL> select * from account where balance > 10000;
```

8. List the account details of branch br_02.

```
SQL> select * from account
  2  where br_id = 2;
```

9. List the loan details of branch br_01.

```
SQL> select * from loan
  2  where br_id = '1';
```

10. List the account details with their branch address.

```
SQL> select acc_no,acc_type,balance,account.br_id,br_address from account inner join branch
  2  on account.br_id = branch.br_id;
```

11. List the customer details with their account details.

```
SQL> select
customer.cust_id,cust_name,phone_no,address,account.acc_no,account.acc_type,balance
  2  from customer
  3  inner join customer_account on customer.cust_id = customer_account.cust_id
  4  inner join account on account.acc_no = customer_account.acc_no;
```

12. List the customer details having account type ‘savings’.

```
SQL> select customer.cust_id,cust_name,phone_no,acc_type from customer
  2  inner join customer_account on customer.cust_id = customer_account.cust_id
  3  inner join account on account.acc_no = customer_account.acc_no
  4  where account.acc_type = 'saving';
```

13. List the customer details having vehicle loan.

```
SQL> select customer.cust_id,cust_name,phone_no,loan.loan_id from customer
  2  inner join customer_loan on customer.cust_id = customer_loan.cust_id
  3  inner join loan on loan.loan_id = customer_loan.loan_id
  4  where loan.loan_type = 'vehicle';
```

14. List the branch names of all accounts.

```
SQL> select br_name,acc_no from branch inner join account
  2  on branch.br_id = account.br_id;
```

15. List the customer details going to ‘Udupi’ branch.

```
SQL> select customer.cust_id,customer.cust_name,customer.phone_no,branch.br_name from
customer
```

```
  2  inner join  customer_account on
  3  customer.cust_id = customer_account.cust_id
  4  inner join account on account.acc_no = customer_account.acc_no
  5  inner join branch on account.br_id = branch.br_id
  6  where branch.br_name = 'udupi';
```

16. List the customers having loan account in ‘bhopal’ branch.

```
SQL> select customer.cust_id,customer.cust_name, br_name,loan.loan_id from customer
  2  inner join customer_loan on customer.cust_id = customer_loan.cust_id
  3  inner join loan on customer_loan.loan_id = loan.loan_id
  4  inner join branch on loan.br_id = branch.br_id
  5  where branch.br_name = 'bhopal';
```

17. Find the customers having balance between 1000 to 10000 .

```
SQL> select customer.cust_id,cust_name,balance from customer
  2  inner join customer_account on customer.cust_id = customer_account.cust_id
  3  inner join account on customer_account.acc_no = account.acc_no
  4  where balance between 45000 and 90000;
```

18. Give a bonus of rupees 100 to customers having more than 10000 balance.

```
SQL> select cust_id,balance+1000 from account join customer_account
  2  on account.acc_no = customer_account.acc_no
  3  where balance > 10000;
```

19. Deduct 50 rupees from customers having less than 500 rupees in balance.

```
SQL> select cust_id,balance-50  from account join customer_account
  2  on account.acc_no = customer_account.acc_no
  3  where balance < 500;
```

20. Give the customer details having home loan.

```
SQL> select cust_id , loan_type from customer_loan inner join
  2  loan on  customer_loan.loan_id = loan.loan_id
  3  where loan_type = 'home';
```

21. Give the customer details having home loan in ‘NITK’ branch.

```
SQL> select customer_loan.cust_id, branch.br_name from branch
  2  inner join loan on branch.br_id = loan.br_id
  3  inner join customer_loan on loan.loan_id = customer_loan.loan_id
  4  where branch.br_name = 'udupi';
```

22. Add a column NOMINEE to the customer table with data type varchar (50).

```
SQL> alter table customer
  2  add nominee varchar(50);
```

23. List all the account numbers in ascending order of their balance.

```
SQL> select * from account order by balance desc;
```

24. Count the number of customers having account type savings.

```
SQL> select count(distinct cust_id), acc_type from account inner join
  2  customer_account on account.acc_no =  customer_account.acc_no
  3  where acc_type = 'saving'
  4  group by acc_type;
```

25. Count the number of customers for each account type.

```
SQL> select count(distinct cust_id), acc_type from account inner join
  2  customer_account on account.acc_no =  customer_account.acc_no
  3  group by acc_type;
```

26. Find the total balance in Savings account.

```
SQL> select sum(balance) from account
  2  where acc_type = 'saving'
  3  group by acc_type;
```

27. Find the average balance of Current account.

```
SQL> select avg(balance) from account
  2  where acc_type = 'current'
  3  group by acc_type;
```

28. Find the average balance for each account type.

```
SQL> select avg(balance) from account
  2  group by acc_type;
```

29. Find the customer details having maximum balance.

```
SQL> select cust_id , balance from account inner join
  2  customer_account on account.acc_no = customer_account.acc_no
  3  where balance = (select max(balance) from account);
```

30. Find the average amount for vehicle loan.

```
SQL> select avg(amount) from loan
  2  where loan_type = 'car'
  3  group by loan_type;
```

31. Find the average balance in each branch.

```
SQL> select avg(balance) from account
  2  group by br_id;
```