SWE1004 - (L 9 + L10)

Lab Sheet 6

Join Operations

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SQL – Joins

```
customer(custname, custst, custcity)pk
branch(branchname, branchcity, assets)pk
account(acctno, branchname, balance) pk, fk
loan(loanno, branchname, amount) pk, fk
depositor(custname, acctno)fk, fk
borrower(custname, loanno)fk, fk
```

1. list the name and the city of the customer [Tables involved - customer]

Answer:

```
SQL> select custname, custcity
  2  from customer_mia1127;

CUSTNAME    CUSTCITY
---------- ----------
aditya      delhi
pooja       chennai
sai         bangalore
anaya       delhi
seetha      bangalore
aryan       chennai

6 rows selected.
```

2. list all account details of chennai city [branch, account]

Answer:

```
SQL> select *
  2  from branch_mia1127 cross join account_mia1127
  3  where branchcity='chennai';

BRANCHNAME BRANCHCITY      ASSETS    ACCTNO BRANCHNAME      BALANCE
---------- ---------- ---------- ---------- ---------- ----------
anna salai chennai         122321       101 anna salai       2332
anna salai chennai         122321       102 hal              1221
anna salai chennai         122321       103 vandalur         4433
anna salai chennai         122321       104 ring road        5445
anna salai chennai         122321       105 vandalur         7764
vandalur   chennai         333211       101 anna salai       2332
vandalur   chennai         333211       102 hal              1221
vandalur   chennai         333211       103 vandalur         4433
vandalur   chennai         333211       104 ring road        5445
vandalur   chennai         333211       105 vandalur         7764

10 rows selected.
```

3. list the customer name with the account details [depositor, account]

select custname, acctno, branchname, balance from depositor natural join account;

or

select * from depositor natural join account;

Answer:

```
SQL> select custname, acctno, branchname, balance from depositor_mia1127 natural join account_mia1127;

CUSTNAME       ACCTNO BRANCHNAME      BALANCE
---------- ---------- ---------- ----------
anaya             101 anna salai       2332
sai               102 hal              1221
aryan             103 vandalur         4433
aditya            104 ring road        5445
pooja             105 vandalur         7764
```

4. list the customer name with the acctno and the loanno [depositor, borrower]

Answer:

```
SQL> select custname, acctno, loanno from depositor_mia1127 natural join borrower_mia1127;

CUSTNAME           ACCTNO     LOANNO
--------------- ---------- ----------
sai                   102        501
aryan                 103        504
aryan                 103        503
anaya                 101        502
```

5. list the customer name with the acctno, its branchname and the loanno, its branchname [depositor, borrower, loan, account]

Answer:

```
SQL> select custname, acctno, branchname, loanno, branchname
  2  from depositor_mia1127 natural join borrower_mia1127 natural join loan_mia1127 natural join account_mia1127;

CUSTNAME           ACCTNO BRANCHNAME      LOANNO BRANCHNAME
--------------- ---------- ---------- ---------- ----------
sai                   102 hal            501 hal
aryan                 103 vandalur       504 vandalur
aryan                 103 vandalur       503 vandalur
```

Customer Relation

```
SQL> create table customer_mia1127(custname
varchar2(10),custst varchar2(10),custcity
varchar2(10),primary key(custname));

Table created.


SQL> select * from

customer_mia1127;
-------------- -------------- --------------
 CUSTNAME   CUSTST       CUSTCITY

aditya     janpath      delhi
pooja      avadi        chennai
sai        jayanagar    bangalore
anaya      rajpath      delhi
seetha     park st      bangalore
aryan      vandalur     chennai

6 rows selected.

SQL> commit;

Commit complete.
```

Branch Relation

```
SQL> create table branch_mia1127(branchname
varchar2(10),branchcity varchar2(10),assets number(10,2),
primary key(branchname));

Table created.


SQL> select * from branch_mia1127;

BRANCHNAME BRANCHCITY      ASSETS
-------------------- -------------------- ---------------------
ring road  delhi          233222
anna salai chennai        122321
hal        bangalore       43344
vandalur   chennai        333211

SQL> commit;

Commit complete.
```

Account Relation

```
SQL> create table account_mia1127(acctno number(5) primary
key,branchname varchar2(10),balance number(10,2),foreign
key(branchname) references branch);
```

```
Table created.


SQL> select * from account_mia1127;

     ACCTNO BRANCHNAME      BALANCE
---------- --------------- ----------------------
        101 anna salai        2332
        102 hal               1221
        103 vandalur          4433
        104 ring road         5445
        105 vandalur          7764

SQL> commit;

Commit complete.
```

Loan Relation

```
SQL> create table loan_mia1127(loanno number(5) primary
key,branchname varchar2(15),amount number(10,2),foreign
key(branchname) references branch);

Table created.


SQL> select * from
loan_mia1127;

     LOANNO BRANCHNAME              AMOUNT
---------- ----------------------- ----------------------
        501 hal                     300459
        502 ring road               211222
        503 vandalur                665544
        504 vandalur                232221
```

Depositor Relation [Association between customer and account]

```
SQL> create table depositor_mia1127(custname varchar2(10),
acctno number(5),foreign key(custname) references customer,
foreign key(acctno) references account);
Table created.


SQL> select * from
          depositor_mia1127;

CUSTNAME          ACCTNO
--------------- -------------------------------------------
aditya               104
pooja                105
sai                  102
anaya                101
aryan                103

SQL> commit;
```

Commit complete.

<u>Borrower Relation [Association between customer and loan]</u>


```
SQL> create table borrower_mia1127(custname varchar2(15), loanno
number(5), foreign key(custname) references customer, foreign
key(loanno) references loan);

Table created.

SQL> select * from borrower_mia1127;

CUSTNAME            LOANNO
-------------------------------------------------------
sai                    501
seetha                 501
aryan                  504
aryan                  503
anaya                  502

SQL> commit;

Commit complete.
```

Table instances

Banking Schema
customer(<u>custname</u>, custst, custcity)pk
branch(<u>branchname</u>, branchcity, assets)pk
account(<u>acctno</u>, <u>branchname</u>, balance) pk, fk
loan(<u>loanno</u>, <u>branchname</u>, amount) pk, fk
depositor(<u>custname</u>, <u>acctno</u>)fk, fk
borrower(<u>custname</u>, <u>loanno</u>)fk, fk

```
create table customer_mia1127(custname varchar2(10),custst
varchar2(10),custcity varchar2(10),primary key(custname));

insert into customer_mia1127
values('aditya','janpath','delhi');

insert into customer_mia1127
values('pooja','avadi','chennai');

insert into customer_mia1127
values('sai','jayanagar','bangalore');

insert into customer_mia1127
values('anaya','rajpath','delhi');

insert into customer_mia1127 values('seetha','park
st','bangalore');

insert into customer_mia1127
values('aryan','vandalur','chennai');
```

```sql
create table branch_mia1127(branchname
varchar2(10),branchcity varchar2(10),assets number(10,2),
primary key(branchname));

insert into branch_mia1127 values('ring
road','delhi',233222);

insert into branch_mia1127 values('anna
salai','chennai',122321);

insert into branch_mia1127 values('hal','bangalore',43344);
insert into branch_mia1127 values('vandalur','chennai',333211);


create table account_mia1127(acctno number(5) primary key,branchname
varchar2(10),balance number(10,2),foreign key(branchname) references
branch);
insert into account_mia1127 values(101,'anna
salai',2332);
insert into account_mia1127
values(102,'hal',1221);
insert into account_mia1127
values(103,'vandalur',4433);
insert into account_mia1127 values(104,'ring
road',5445);
insert into account_mia1127
values(105,'vandalur',7764);


create table loan_mia1127(loanno number(5) primary key,branchname
varchar2(15),amount number(10,2),foreign key(branchname) references
branch);
insert into loan_mia1127
values(501,'hal',300459);
insert into loan_mia1127 values(502,'ring
road',211222);
insert into loan_mia1127
values(503,'vandalur',665544);
insert into loan_mia1127
values(504,'vandalur',232221);
```

Depositor Relation [Association between customer and account]

```sql
create table depositor_mia1127(custname varchar2(10), acctno
number(5),foreign key(custname) references customer, foreign
key(acctno) references account);
insert into depositor_mia1127
values('aditya',104);
insert into depositor_mia1127
values('pooja',105);
insert into depositor_mia1127
values('sai',102);
insert into depositor_mia1127
values('anaya',101);
insert into depositor_mia1127
values('aryan',103);
```

Borrower Relation [Association between customer and loan]

```
create table borrower_mia1127(custname varchar2(15), loanno number(5),
foreign key(custname) references customer, foreign key(loanno)
references loan);
insert into borrower_mia1127
values('sai',501);
insert into borrower_mia1127
values('seetha',501);
insert into borrower_mia1127
values('aryan',504);
insert into borrower_mia1127
values('aryan',503);
insert into borrower_mia1127
values('anaya',502);
commit;
```