DBMS ASSIGNMENT: 1

Name: Poojan Gandhi

Enroll No: AU1940125

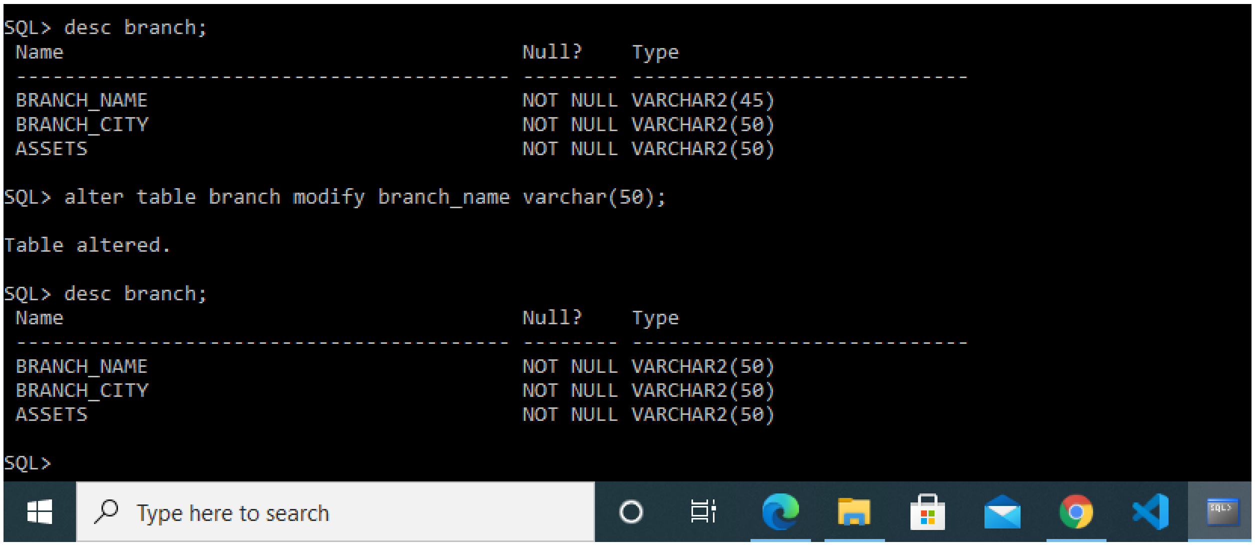
Faculty: Shefali Naik

Bank Table (Table 1)

Part 1

1. Increase the size of branch_name field.

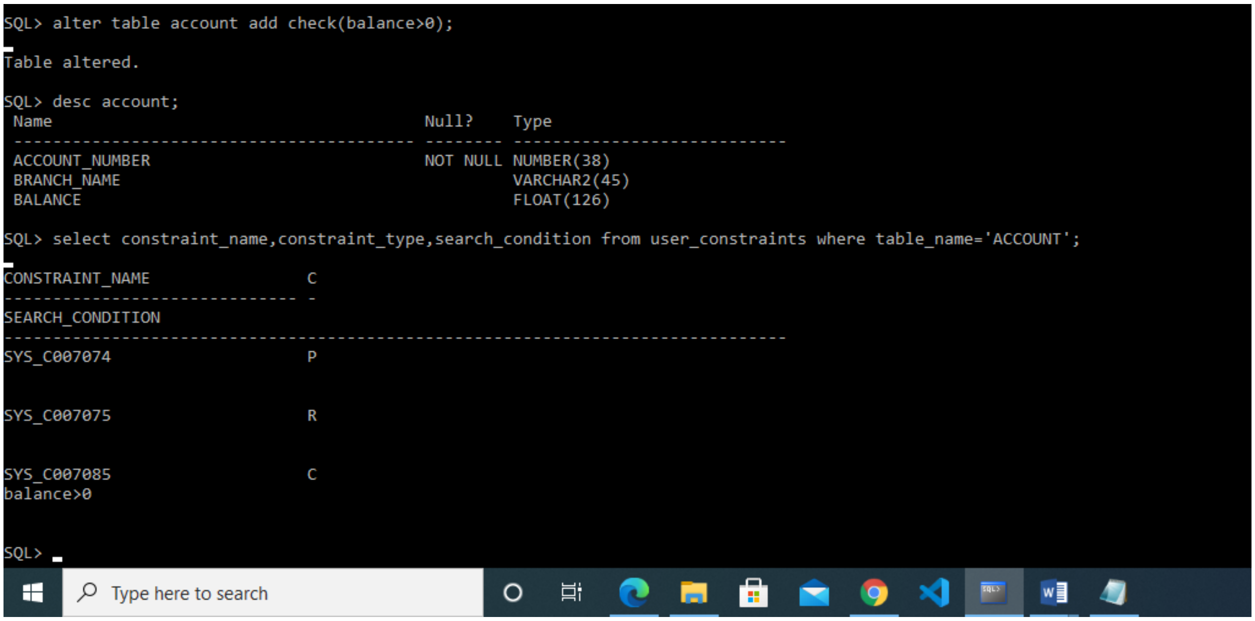
- Query: **alter table branch modify branch_name varchar(50);**
- Image:



```
SQL> desc branch;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BRANCH_NAME                               NOT NULL VARCHAR2(45)
 BRANCH_CITY                               NOT NULL VARCHAR2(50)
 ASSETS                                    NOT NULL VARCHAR2(50)

SQL> alter table branch modify branch_name varchar(50);

Table altered.

SQL> desc branch;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BRANCH_NAME                               NOT NULL VARCHAR2(50)
 BRANCH_CITY                               NOT NULL VARCHAR2(50)
 ASSETS                                    NOT NULL VARCHAR2(50)

SQL>
```

2. Add constraint to check whether balance is more than zero.

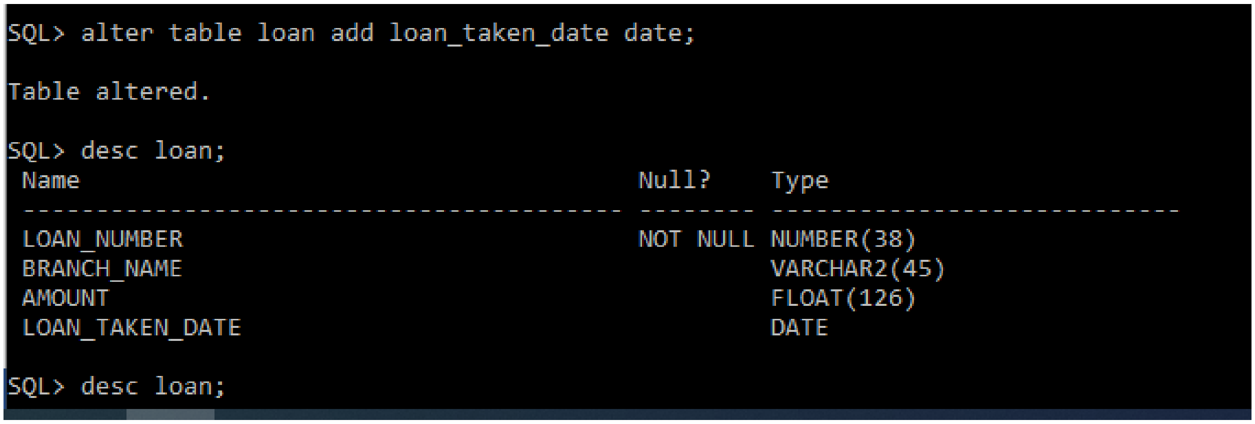
- Query: **alter table account add check(balance>0);**
- Image:



```
SQL> alter table account add check(balance>0);

Table altered.

SQL> desc account;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ACCOUNT_NUMBER                            NOT NULL NUMBER(38)
 BRANCH_NAME                                        VARCHAR2(45)
 BALANCE                                            FLOAT(126)

SQL> select constraint_name,constraint_type,search_condition from user_constraints where table_name='ACCOUNT';

CONSTRAINT_NAME                C
------------------------------ -
SEARCH_CONDITION
--------------------------------------------------------------------------------
SYS_C007074                    P


SYS_C007075                    R


SYS_C007085                    C
balance>0


SQL> _
```

3. Add a column loan_taken_date in loan table.

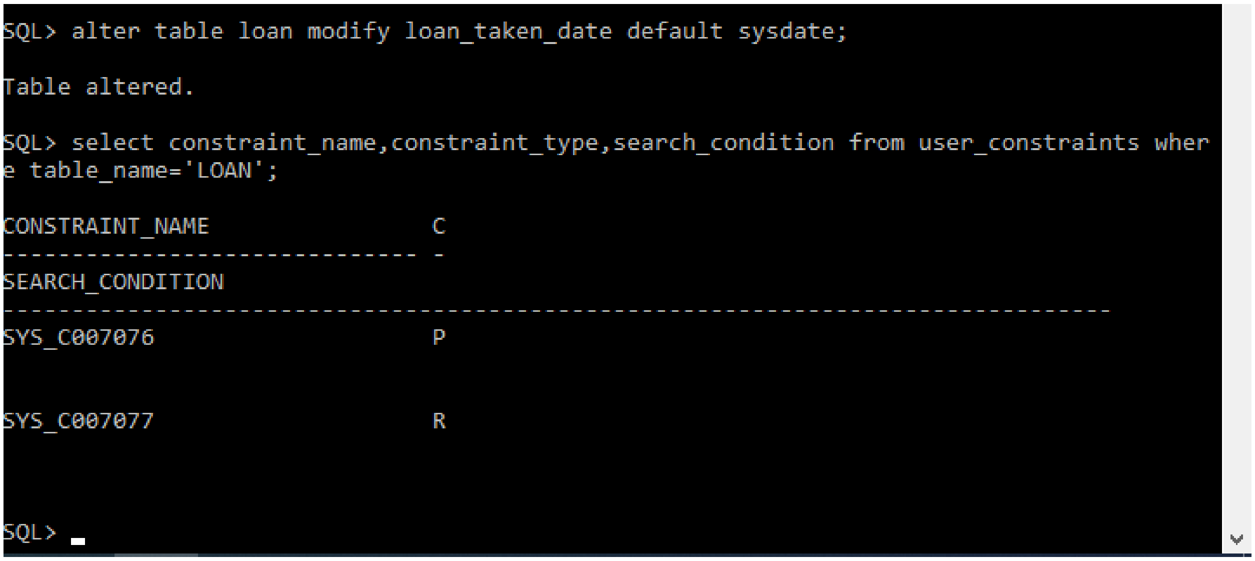
- Query: **alter table loan add loan_taken_date date;**
- Image:



```
SQL> alter table loan add loan_taken_date date;

Table altered.

SQL> desc loan;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 LOAN_NUMBER                               NOT NULL NUMBER(38)
 BRANCH_NAME                                        VARCHAR2(45)
 AMOUNT                                             FLOAT(126)
 LOAN_TAKEN_DATE                                    DATE

SQL> desc loan;
```

4. Add default constraint on loan_taken_date to insert current date

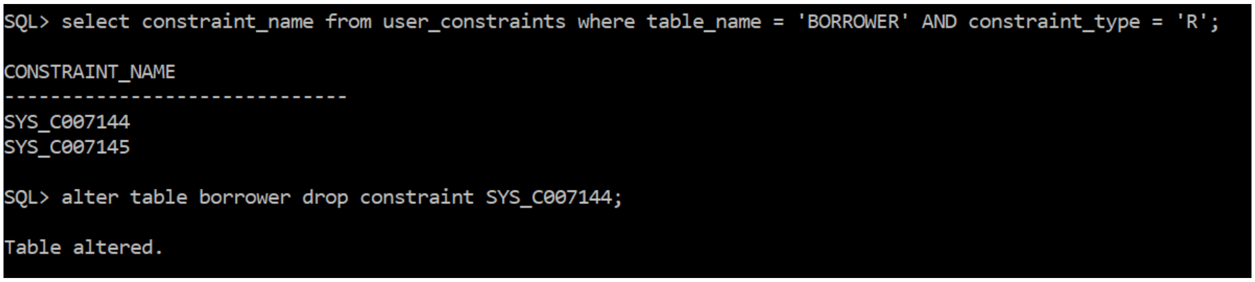
- Query: **alter table loan modify loan_taken_date default sysdate;**
- Image:



```
SQL> alter table loan modify loan_taken_date default sysdate;

Table altered.

SQL> select constraint_name,constraint_type,search_condition from user_constraints wher
e table_name='LOAN';

CONSTRAINT_NAME                C
------------------------------ -
SEARCH_CONDITION
--------------------------------------------------------------------------------
SYS_C007076                    P


SYS_C007077                    R



SQL> _
```

5. Drop foreign key constraint from loan_number field of borrower table

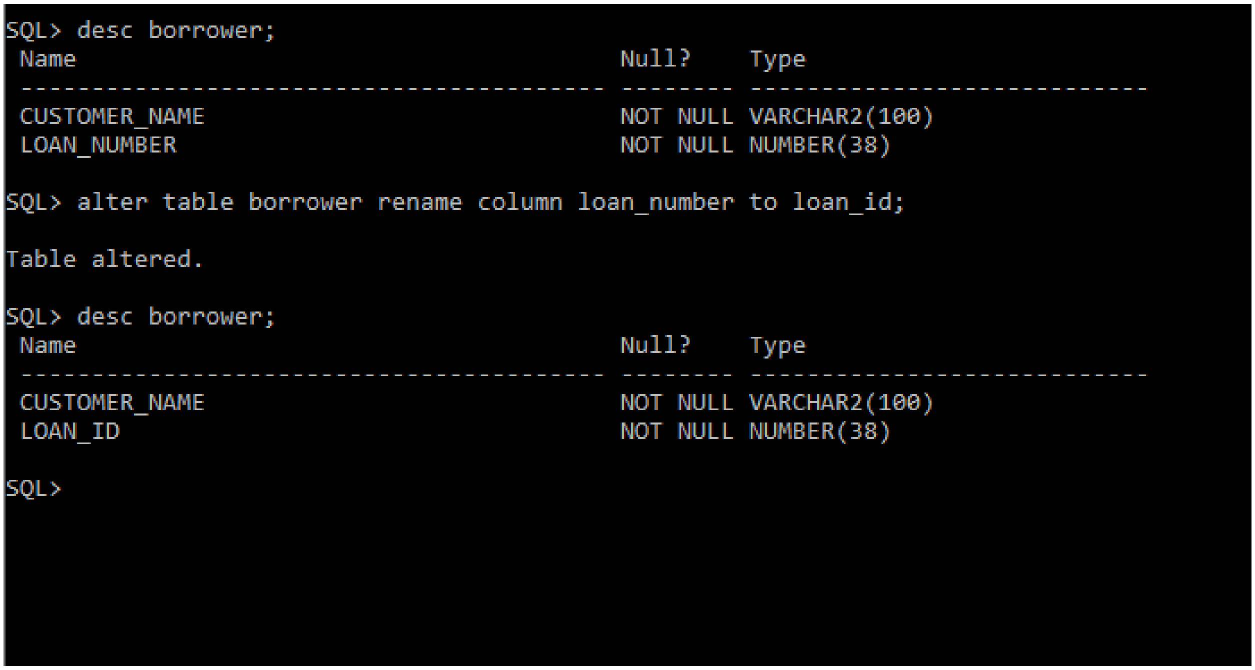
- Query:
  - For getting constraint name of foreign key:
    select constraint_name from user_constraints where table_name = 'BORROWER' and constraint_type = 'R';
  - For deleting that key by its name:
    alter table borrower drop constraint SYS_C007144;
- Image:



```
SQL> select constraint_name from user_constraints where table_name = 'BORROWER' AND constraint_type = 'R';

CONSTRAINT_NAME
------------------------------
SYS_C007144
SYS_C007145

SQL> alter table borrower drop constraint SYS_C007144;

Table altered.
```

6. Rename column loan_number of borrower table as “loan_id”

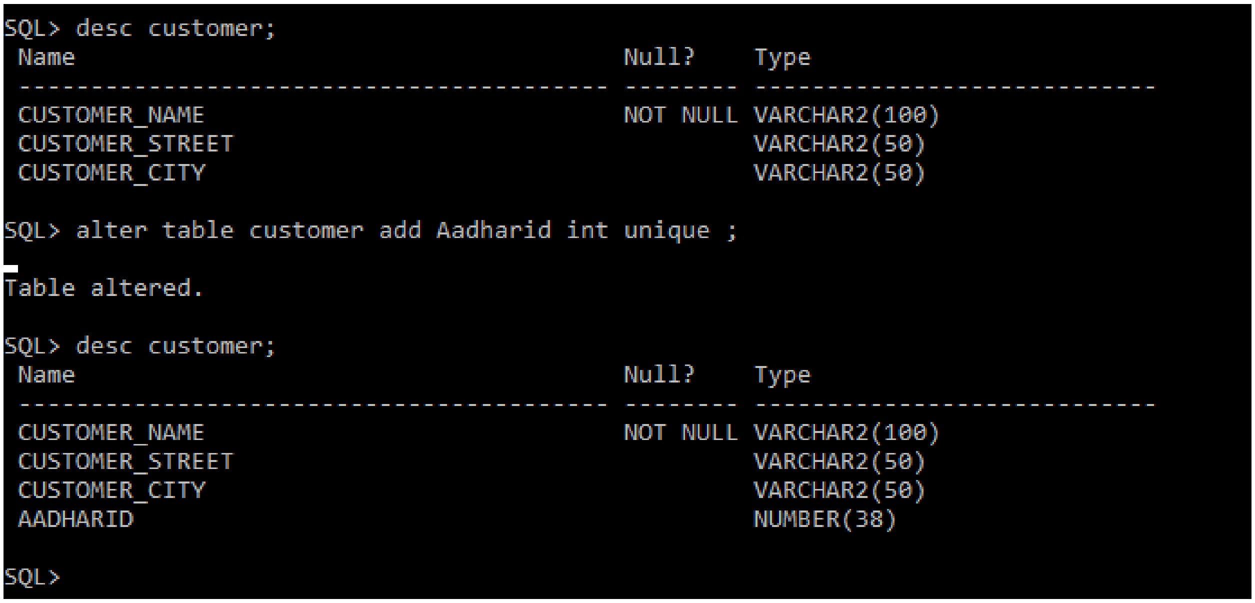
- Query: **alter table borrower rename column loan_number to loan_id;**
- Image:



```
SQL> desc borrower;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_NAME                             NOT NULL VARCHAR2(100)
 LOAN_NUMBER                               NOT NULL NUMBER(38)

SQL> alter table borrower rename column loan_number to loan_id;

Table altered.

SQL> desc borrower;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_NAME                             NOT NULL VARCHAR2(100)
 LOAN_ID                                   NOT NULL NUMBER(38)

SQL>
```

7. Add a field “Aadharid” with unique constraint in customer table

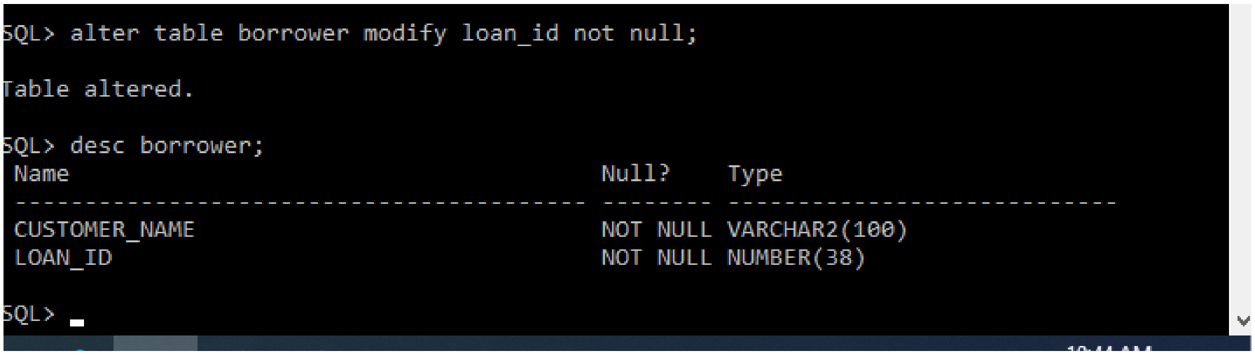
- Query: **alter table customer add Aadharid int unique ;**
- Image:



```
SQL> desc customer;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_NAME                             NOT NULL VARCHAR2(100)
 CUSTOMER_STREET                                    VARCHAR2(50)
 CUSTOMER_CITY                                      VARCHAR2(50)

SQL> alter table customer add Aadharid int unique ;

Table altered.

SQL> desc customer;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_NAME                             NOT NULL VARCHAR2(100)
 CUSTOMER_STREET                                    VARCHAR2(50)
 CUSTOMER_CITY                                      VARCHAR2(50)
 AADHARID                                           NUMBER(38)

SQL>
```

8. Add “Not Null” constraint on loan_number field of borrower table

- Query: **alter table borrower modify loan_id not null;**
- Image:

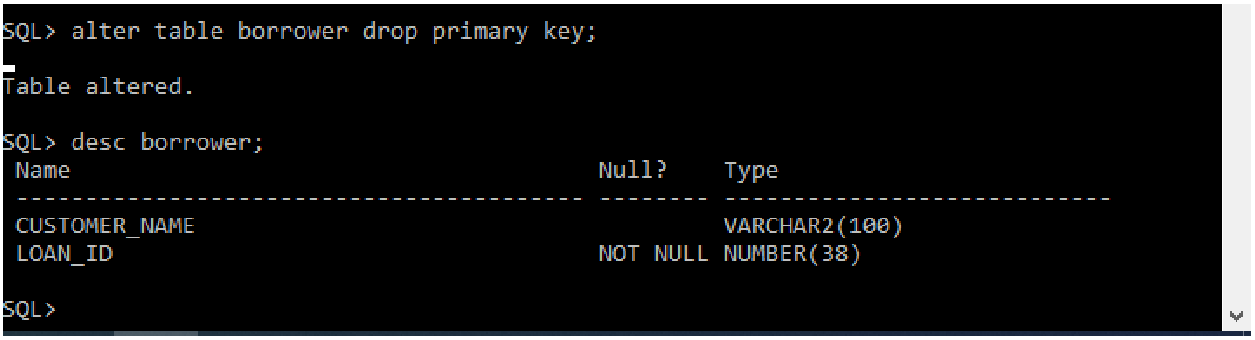


```
SQL> alter table borrower modify loan_id not null;

Table altered.

SQL> desc borrower;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_NAME                             NOT NULL VARCHAR2(100)
 LOAN_ID                                   NOT NULL NUMBER(38)

SQL> _
```

9. Drop primary key constraint from borrower table.

Query: **alter table borrower drop primary key;**

Image:

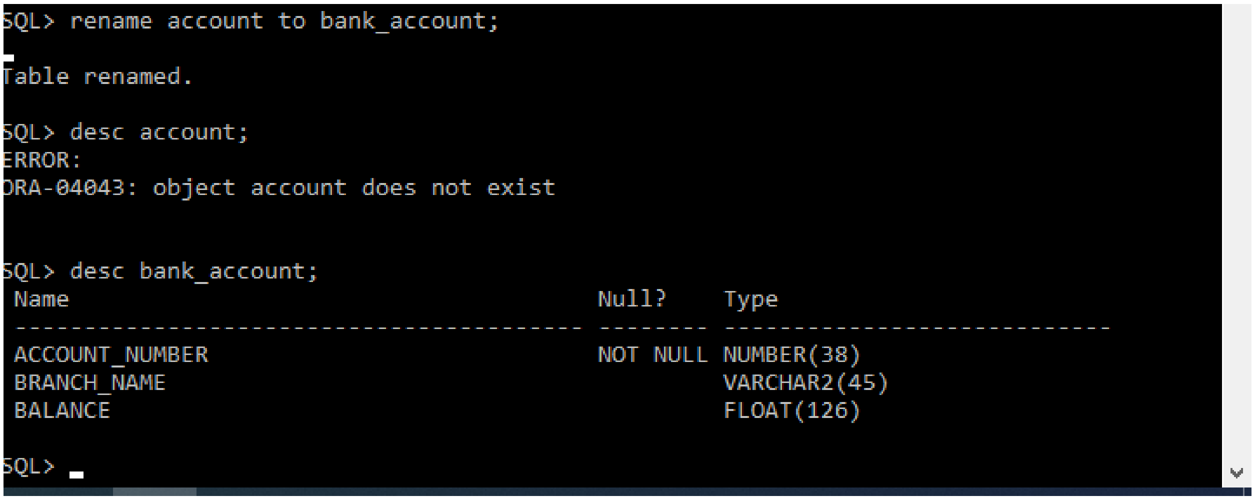


```
SQL> alter table borrower drop primary key;

Table altered.

SQL> desc borrower;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_NAME                                      VARCHAR2(100)
 LOAN_ID                                   NOT NULL NUMBER(38)

SQL>
```

10. Rename table account to bank_account.

Query: **rename account to bank_account;**

Image:



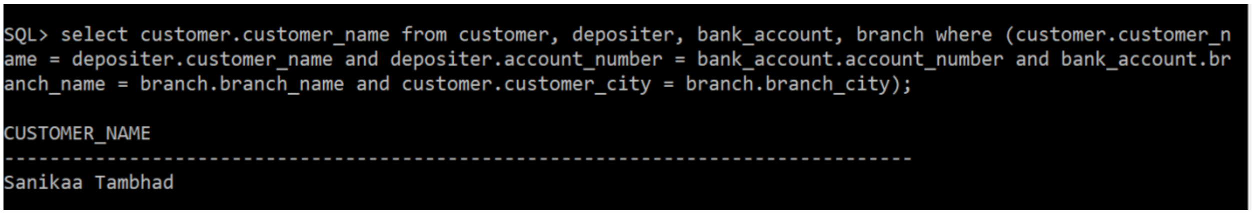
```
SQL> rename account to bank_account;

Table renamed.

SQL> desc account;
ERROR:
ORA-04043: object account does not exist


SQL> desc bank_account;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ACCOUNT_NUMBER                            NOT NULL NUMBER(38)
 BRANCH_NAME                                        VARCHAR2(45)
 BALANCE                                            FLOAT(126)

SQL> _
```

Part 2

1. Display names of the customers who have account in the city where they live.

- Query: **select customer.customer_name from customer, depositer, bank_account, branch where (customer.customer_name = depositer.customer_name and depositer.account_number = bank_account.account_number and bank_account.branch_name = branch.branch_name and customer.customer_city = branch.branch_city);**

- Image:

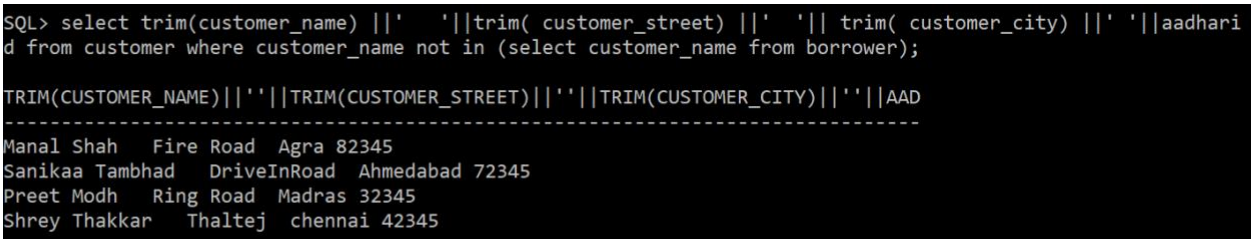


```
SQL> select customer.customer_name from customer, depositer, bank_account, branch where (customer.customer_n
ame = depositer.customer_name and depositer.account_number = bank_account.account_number and bank_account.br
anch_name = branch.branch_name and customer.customer_city = branch.branch_city);

CUSTOMER_NAME
--------------------------------------------------------------------------------
Sanikaa Tambhad
```

2. Display details of customers who are not borrower.

- Query: **select trim(customer_name) ||'   '||trim(customer_street) ||' '|| trim(customer_city) ||' '||aadharid from customer where customer_name not in (select customer_name from borrower);**

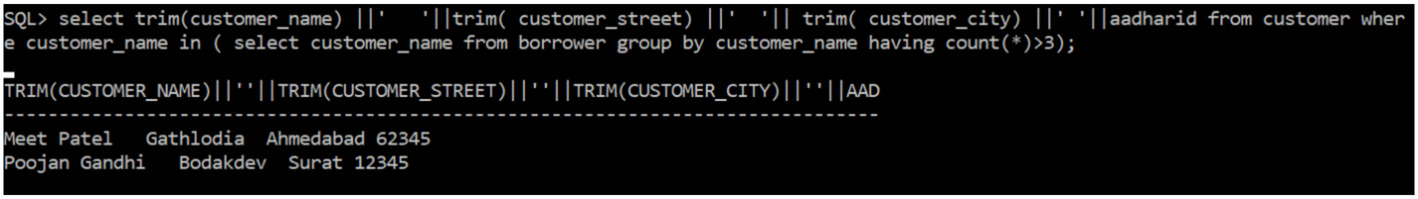
- Image:



```
SQL> select trim(customer_name) ||'   '||trim( customer_street) ||'  '|| trim( customer_city) ||' '||aadhari
d from customer where customer_name not in (select customer_name from borrower);

TRIM(CUSTOMER_NAME)||''||TRIM(CUSTOMER_STREET)||''||TRIM(CUSTOMER_CITY)||''||AAD
--------------------------------------------------------------------------------
Manal Shah   Fire Road  Agra 82345
Sanikaa Tambhad   DriveInRoad  Ahmedabad 72345
Preet Modh   Ring Road  Madras 32345
Shrey Thakkar   Thaltej  chennai 42345
```

3. Display customer details who have taken loan more than 3 times

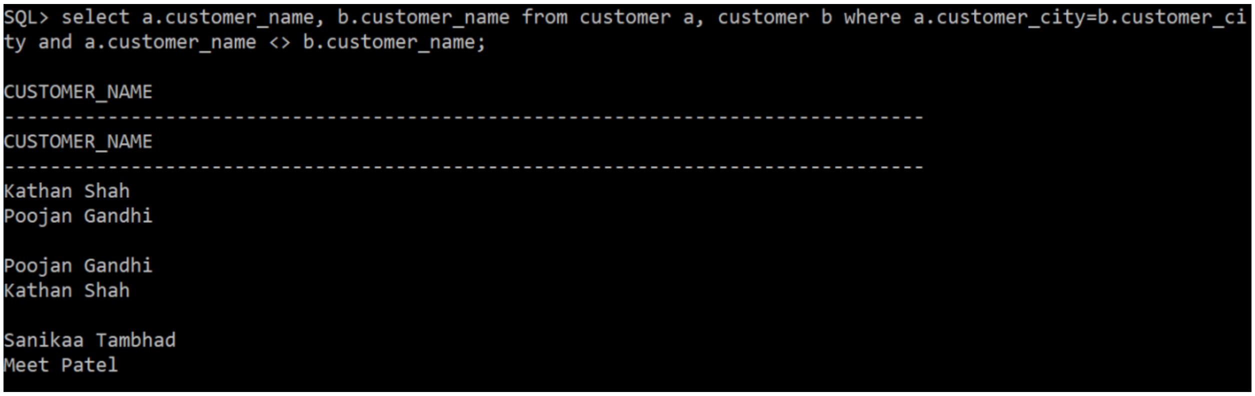
- Query: **select trim(customer_name) ||'   '||trim(customer_street) ||' '|| trim(customer_city) ||' '||aadharid from customer where customer_name in (select customer_name from borrower group by customer_name having count(*)>3);**
- Image:



```
SQL> select trim(customer_name) ||'   '||trim( customer_street) ||'  '|| trim( customer_city) ||' '||aadharid from customer wher
e customer_name in ( select customer_name from borrower group by customer_name having count(*)>3);

TRIM(CUSTOMER_NAME)||''||TRIM(CUSTOMER_STREET)||''||TRIM(CUSTOMER_CITY)||''||AAD
--------------------------------------------------------------------------------
Meet Patel   Gathlodia  Ahmedabad 62345
Poojan Gandhi   Bodakdev  Surat 12345
```

4. Display pairs of customers who live in the same city.

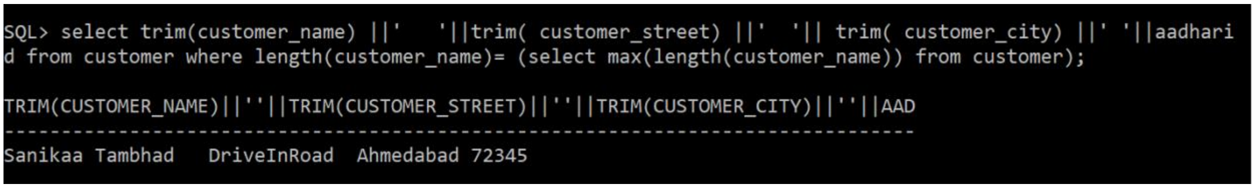
- Query: **select a.customer_name, b.customer_name from customer a, customer b where a.customer_city=b.customer_city and a.customer_name <> b.customer_name;**
- Image:



```
SQL> select a.customer_name, b.customer_name from customer a, customer b where a.customer_city=b.customer_ci
ty and a.customer_name <> b.customer_name;

CUSTOMER_NAME
--------------------------------------------------------------------------------
CUSTOMER_NAME
--------------------------------------------------------------------------------
Kathan Shah
Poojan Gandhi

Poojan Gandhi
Kathan Shah

Sanikaa Tambhad
Meet Patel
```

5. Display details of the customers whose name is the longest.

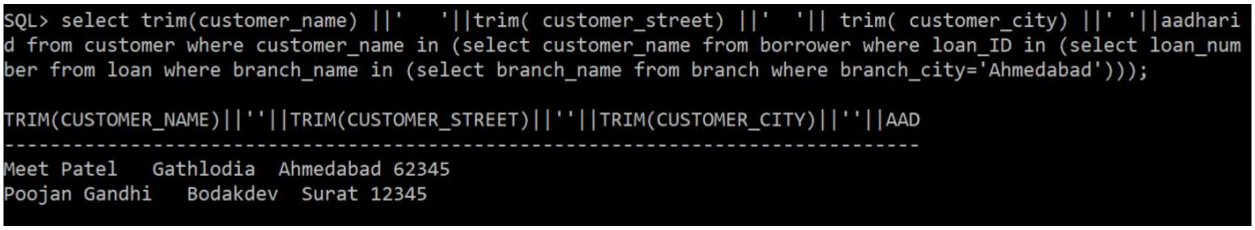
- Query: **select trim(customer_name) ||' '||trim(customer_street) ||' '|| trim(customer_city) ||' '||aadharid from customer where length(customer_name)= (select max(length(customer_name)) from customer);**
- Image:



```
SQL> select trim(customer_name) ||'   '||trim( customer_street) ||'  '|| trim( customer_city) ||' '||aadhari
d from customer where length(customer_name)= (select max(length(customer_name)) from customer);

TRIM(CUSTOMER_NAME)||''||TRIM(CUSTOMER_STREET)||''||TRIM(CUSTOMER_CITY)||''||AAD
--------------------------------------------------------------------------------
Sanikaa Tambhad   DriveInRoad  Ahmedabad 72345
```

6. Display details of borrowers who have taken loan from 'Ahmedabad' branch

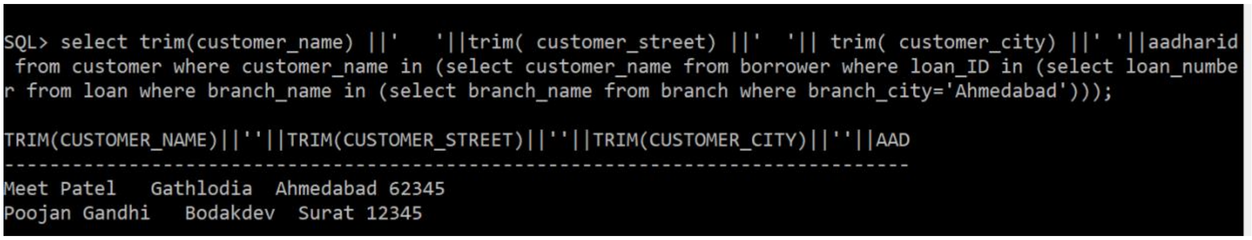
- Query: **select trim(customer_name) ||' '||trim(customer_street) ||' '|| trim(customer_city) ||' '||aadharid from customer where customer_name in (select customer_name from borrower where loan_ID in (select loan_number from loan where branch_name in (select branch_name from branch where branch_city='Ahmedabad')));**
- Image:



```
SQL> select trim(customer_name) ||'   '||trim( customer_street) ||'  '|| trim( customer_city) ||' '||aadhari
d from customer where customer_name in (select customer_name from borrower where loan_ID in (select loan_num
ber from loan where branch_name in (select branch_name from branch where branch_city='Ahmedabad')));

TRIM(CUSTOMER_NAME)||''||TRIM(CUSTOMER_STREET)||''||TRIM(CUSTOMER_CITY)||''||AAD
--------------------------------------------------------------------------------
Meet Patel   Gathlodia  Ahmedabad 62345
Poojan Gandhi   Bodakdev  Surat 12345
```

7. Display details of borrowers who have taken total loan of more than Rs. 50,00,000.

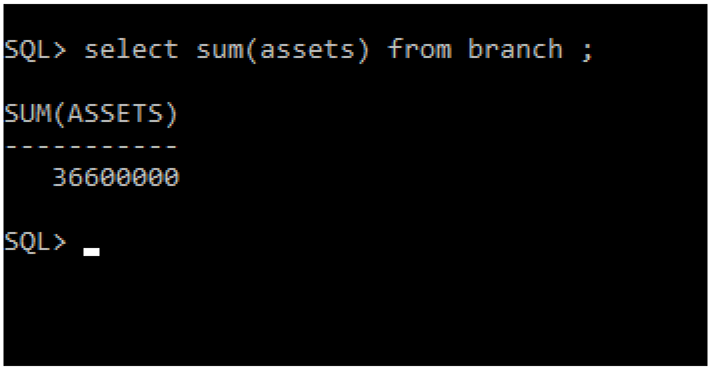
- Query: **select trim(customer_name) ||' '||trim(customer_street) ||' '|| trim(customer_city) ||' '||aadharid from customer where customer_name in (select customer_name from borrower where loan_ID in (select loan_number from loan where branch_name in (select branch_name from branch where branch_city='Ahmedabad')));**
- Image:



```
SQL> select trim(customer_name) ||'   '||trim( customer_street) ||'  '|| trim( customer_city) ||' '||aadharid
 from customer where customer_name in (select customer_name from borrower where loan_ID in (select loan_numbe
r from loan where branch_name in (select branch_name from branch where branch_city='Ahmedabad')));

TRIM(CUSTOMER_NAME)||''||TRIM(CUSTOMER_STREET)||''||TRIM(CUSTOMER_CITY)||''||AAD
--------------------------------------------------------------------------------
Meet Patel   Gathlodia  Ahmedabad 62345
Poojan Gandhi   Bodakdev  Surat 12345
```

8. Display total assets of all the branches.

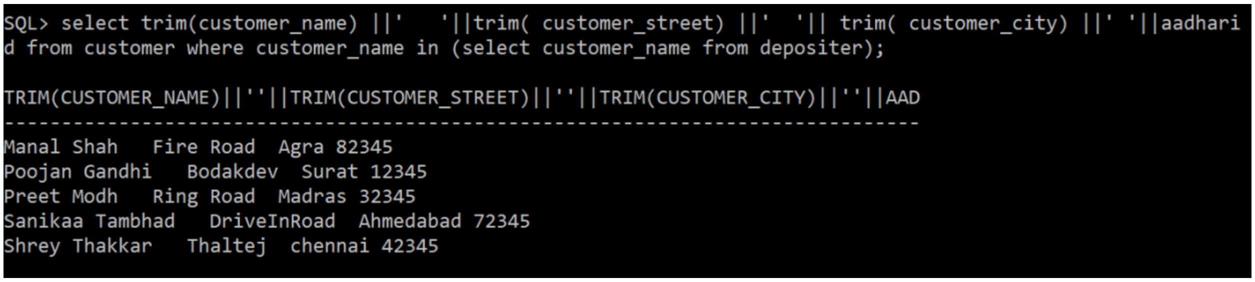
- Query: **select sum(assets) from branch ;**
- Image:



```
SQL> select sum(assets) from branch ;

SUM(ASSETS)
-----------
   36600000

SQL> _
```

9. Display details of customers who are depositors

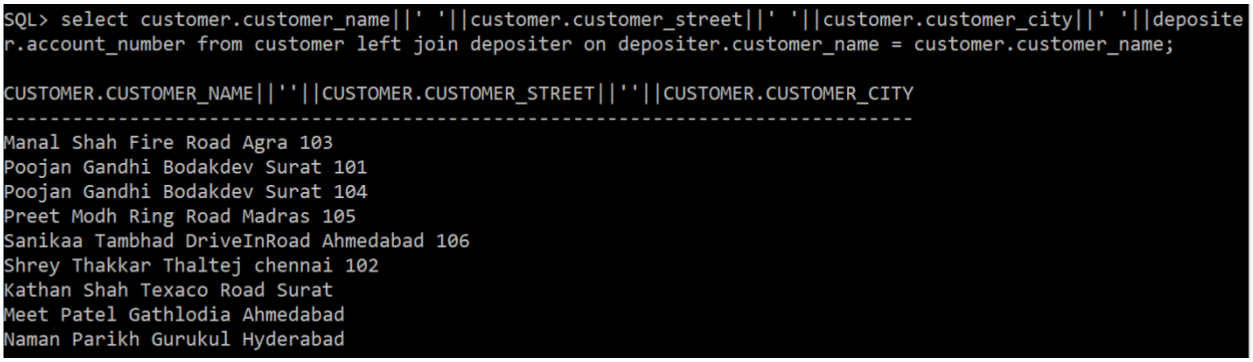
- Query: **select trim(customer_name) ||' '||trim(customer_street) ||' '|| trim(customer_city) ||' '||aadharid from customer where customer_name in (select customer_name from depositer);**
- Image:



```
SQL> select trim(customer_name) ||'   '||trim( customer_street) ||'  '|| trim( customer_city) ||' '||aadhari
d from customer where customer_name in (select customer_name from depositer);

TRIM(CUSTOMER_NAME)||''||TRIM(CUSTOMER_STREET)||''||TRIM(CUSTOMER_CITY)||''||AAD
--------------------------------------------------------------------------------
Manal Shah   Fire Road  Agra 82345
Poojan Gandhi   Bodakdev  Surat 12345
Preet Modh   Ring Road  Madras 32345
Sanikaa Tambhad   DriveInRoad  Ahmedabad 72345
Shrey Thakkar   Thaltej  chennai 42345
```

10. Display left outer join of customer and depositor table

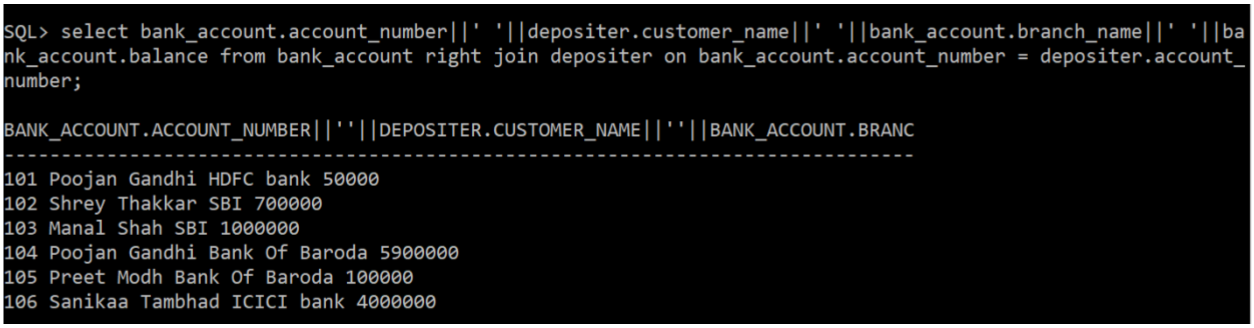
- Query: **select customer.customer_name||' '||customer.customer_street||' '||customer.customer_city||' '||depositer.account_number from customer left join depositer on depositer.customer_name = customer.customer_name;**
- Image:



```
SQL> select customer.customer_name||' '||customer.customer_street||' '||customer.customer_city||' '||deposite
r.account_number from customer left join depositer on depositer.customer_name = customer.customer_name;

CUSTOMER.CUSTOMER_NAME||''||CUSTOMER.CUSTOMER_STREET||''||CUSTOMER.CUSTOMER_CITY
--------------------------------------------------------------------------------
Manal Shah Fire Road Agra 103
Poojan Gandhi Bodakdev Surat 101
Poojan Gandhi Bodakdev Surat 104
Preet Modh Ring Road Madras 105
Sanikaa Tambhad DriveInRoad Ahmedabad 106
Shrey Thakkar Thaltej chennai 102
Kathan Shah Texaco Road Surat
Meet Patel Gathlodia Ahmedabad
Naman Parikh Gurukul Hyderabad
```

11. Display right outer join of account and depositor table.

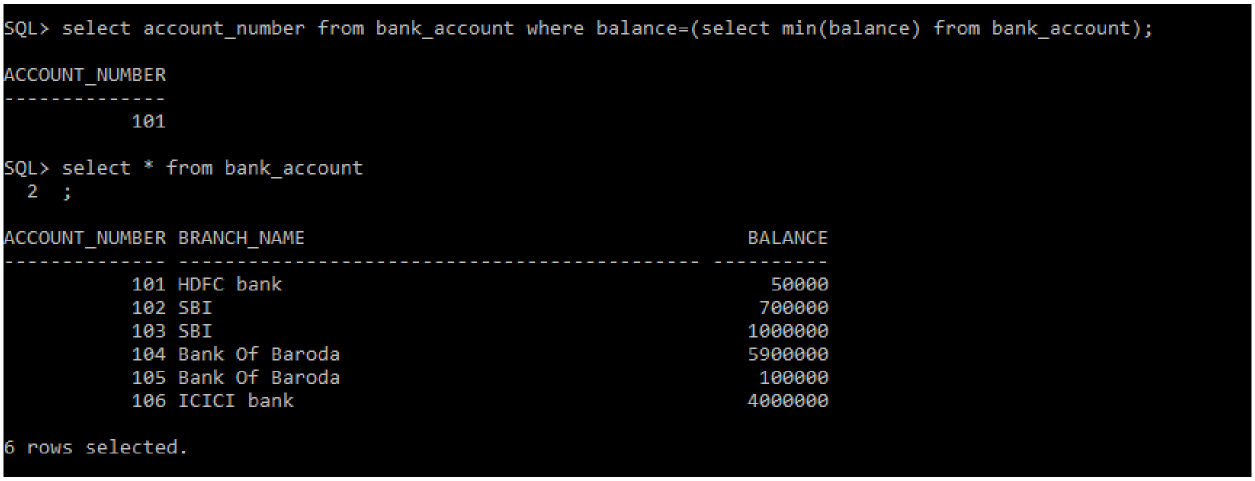
- Query: **select bank_account.account_number||' '||depositer.customer_name||' '||bank_account.branch_name||' '||bank_account.balance from bank_account right join depositer on bank_account.account_number = depositer.account_number;**
- Image:



```
SQL> select bank_account.account_number||' '||depositer.customer_name||' '||bank_account.branch_name||' '||ba
nk_account.balance from bank_account right join depositer on bank_account.account_number = depositer.account_
number;

BANK_ACCOUNT.ACCOUNT_NUMBER||''||DEPOSITER.CUSTOMER_NAME||''||BANK_ACCOUNT.BRANC
--------------------------------------------------------------------------------
101 Poojan Gandhi HDFC bank 50000
102 Shrey Thakkar SBI 700000
103 Manal Shah SBI 1000000
104 Poojan Gandhi Bank Of Baroda 5900000
105 Preet Modh Bank Of Baroda 100000
106 Sanikaa Tambhad ICICI bank 4000000
```

12. Display account number in which balance is minimum.

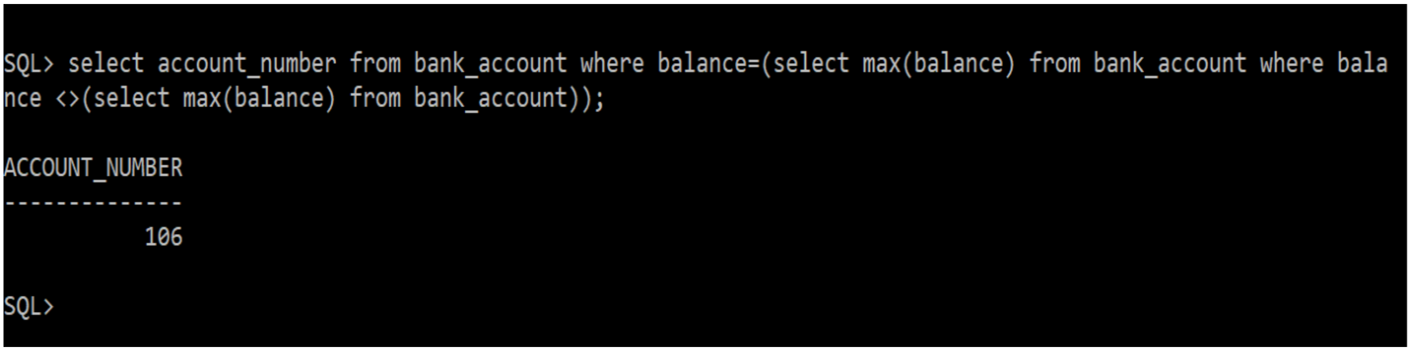
- Query: **select account_number from bank_account where balance=(select min(balance) from bank_account);**
- Image:



```
SQL> select account_number from bank_account where balance=(select min(balance) from bank_account);

ACCOUNT_NUMBER
--------------
           101

SQL> select * from bank_account
  2  ;

ACCOUNT_NUMBER BRANCH_NAME                                         BALANCE
-------------- --------------------------------------------- ----------
           101 HDFC bank                                            50000
           102 SBI                                                 700000
           103 SBI                                                1000000
           104 Bank Of Baroda                                     5900000
           105 Bank Of Baroda                                      100000
           106 ICICI bank                                         4000000

6 rows selected.
```

13. Display account number in which balance is second highest

- Query: **select account_number from bank_account where balance=(select max(balance) from bank_account where balance <>(select max(balance) from bank_account));**
- Image:



```
SQL> select account_number from bank_account where balance=(select max(balance) from bank_account where bala
nce <>(select max(balance) from bank_account));

ACCOUNT_NUMBER
--------------
           106

SQL>
```

14. Display branch name, branch city, account number, customer name and customer city in ascending order of customer city and descending order of branch city

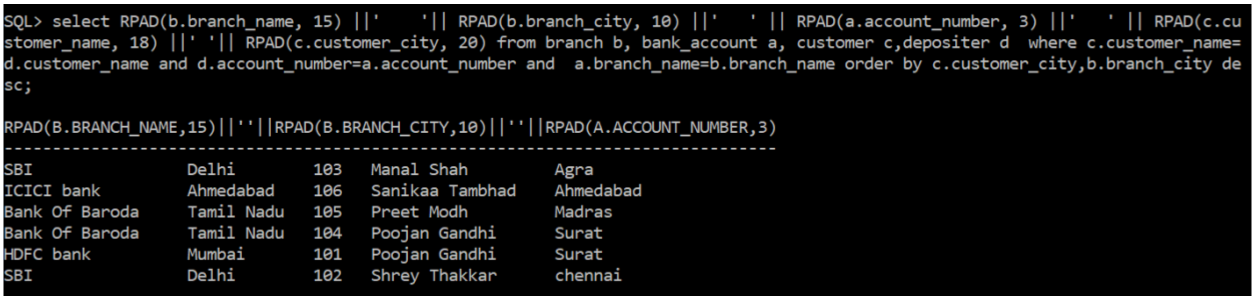
Query: **select b.branch_name||'   '||b.branch_city||'   '||a.account_number||' '||c.customer_name||''||c.customer_city from**

branch b, bank_account a, customer c,depositer d where c.customer_name=d.customer_name and d.account_number=a.account_number and a.branch_name=b.branch_name order by c.customer_city,b.branch_city desc;

OR

select RPAD(b.branch_name, 15) ||'   '|| RPAD(b.branch_city, 10) ||' ' || RPAD(a.account_number, 3) ||' ' || RPAD(c.customer_name, 18) ||' '|| RPAD(c.customer_city, 20) from branch b, bank_account a, customer c,depositer d where c.customer_name=d.customer_name and d.account_number=a.account_number and a.branch_name=b.branch_name order by c.customer_city,b.branch_city desc;

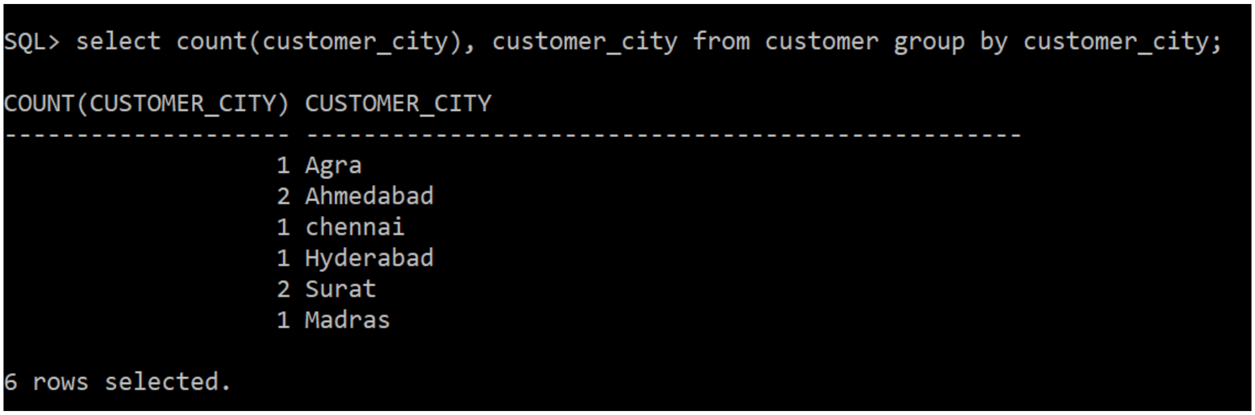
Image:



```
SQL> select RPAD(b.branch_name, 15) ||'    '|| RPAD(b.branch_city, 10) ||'   ' || RPAD(a.account_number, 3) ||'   ' || RPAD(c.cu
stomer_name, 18) ||' '|| RPAD(c.customer_city, 20) from branch b, bank_account a, customer c,depositer d  where c.customer_name=
d.customer_name and d.account_number=a.account_number and  a.branch_name=b.branch_name order by c.customer_city,b.branch_city de
sc;

RPAD(B.BRANCH_NAME,15)||''||RPAD(B.BRANCH_CITY,10)||''||RPAD(A.ACCOUNT_NUMBER,3)
--------------------------------------------------------------------------------
SBI                  Delhi        103   Manal Shah         Agra
ICICI bank           Ahmedabad    106   Sanikaa Tambhad    Ahmedabad
Bank Of Baroda       Tamil Nadu   105   Preet Modh         Madras
Bank Of Baroda       Tamil Nadu   104   Poojan Gandhi      Surat
HDFC bank            Mumbai       101   Poojan Gandhi      Surat
SBI                  Delhi        102   Shrey Thakkar      chennai
```

15. Display total no. of customers in each city

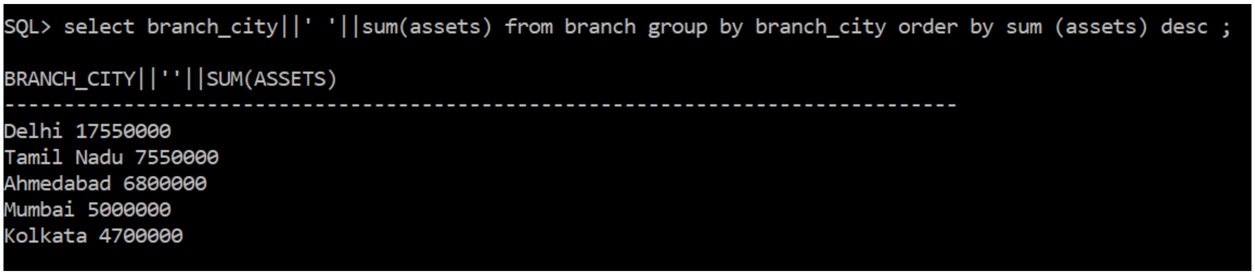
- Query: **select count(customer_city), customer_city from customer group by customer_city;**
- Image:



```
SQL> select count(customer_city), customer_city from customer group by customer_city;

COUNT(CUSTOMER_CITY) CUSTOMER_CITY
-------------------- --------------------------------------------------
                   1 Agra
                   2 Ahmedabad
                   1 chennai
                   1 Hyderabad
                   2 Surat
                   1 Madras

6 rows selected.
```

16. Display city wise total assets in descending order of total assets.

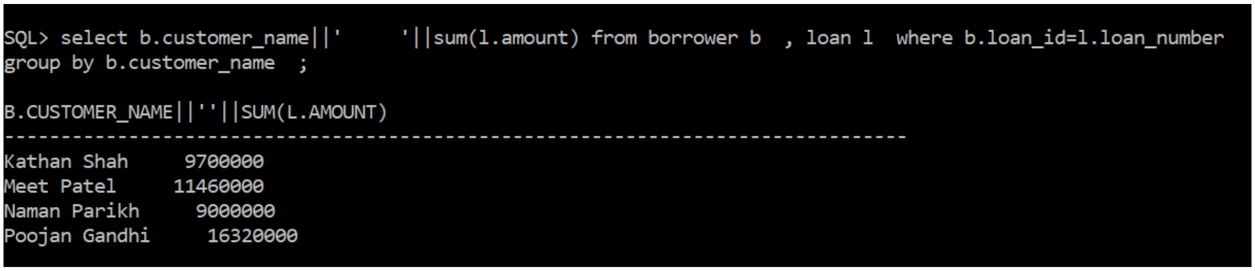
- Query: **select branch_city||' '||sum(assets) from branch group by branch_city order by sum (assets) desc ;**
- Image:



```
SQL> select branch_city||' '||sum(assets) from branch group by branch_city order by sum (assets) desc ;

BRANCH_CITY||''||SUM(ASSETS)
--------------------------------------------------------------------------------
Delhi 17550000
Tamil Nadu 7550000
Ahmedabad 6800000
Mumbai 5000000
Kolkata 4700000
```

17. Display borrower names with total loan amount taken.

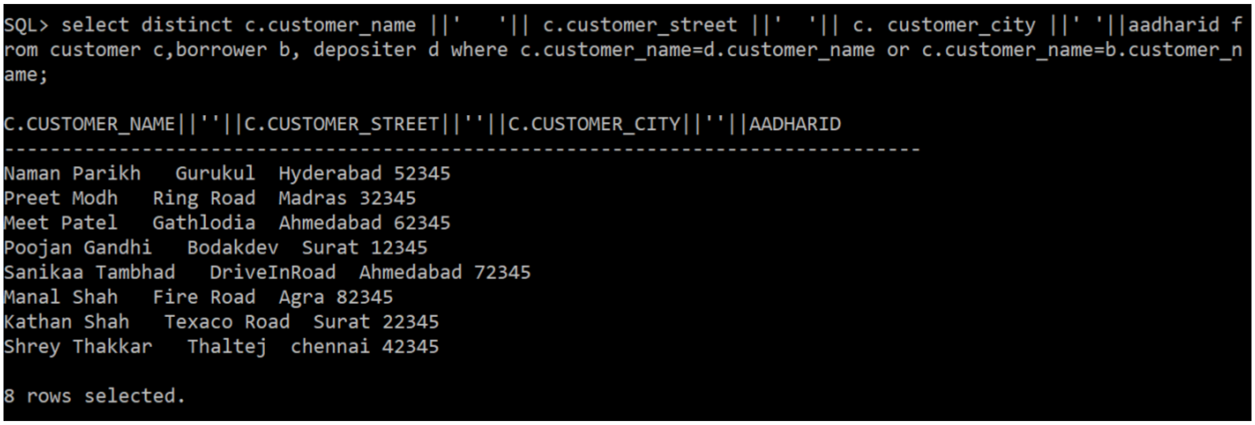
- Query: **select b.customer_name||'   '||sum(l.amount) from borrower b , loan l where b.loan_id=l.loan_number group by b.customer_name ;**
- Image:



```
SQL> select b.customer_name||'     '||sum(l.amount) from borrower b  , loan l  where b.loan_id=l.loan_number
group by b.customer_name  ;

B.CUSTOMER_NAME||''||SUM(L.AMOUNT)
--------------------------------------------------------------------------------
Kathan Shah     9700000
Meet Patel     11460000
Naman Parikh     9000000
Poojan Gandhi     16320000
```

18. Display details of the customers who are depositors as well as borrower.

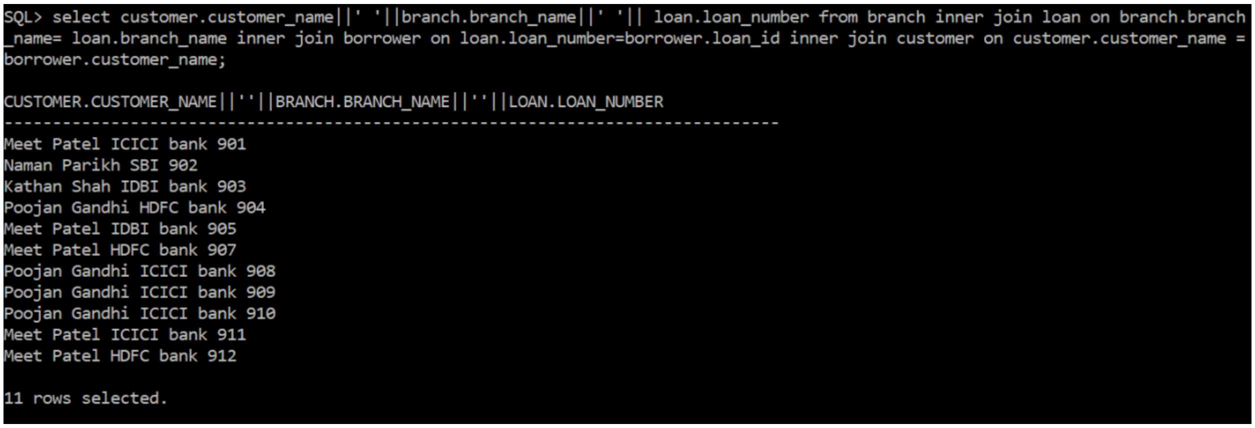
- Query: **select distinct c.customer_name ||' '|| c.customer_street ||' '|| c. customer_city ||' '||aadharid from customer c,borrower b, depositer d where c.customer_name=d.customer_name or c.customer_name=b.customer_name;**
- Image:



```
SQL> select distinct c.customer_name ||'   '|| c.customer_street ||'  '|| c. customer_city ||' '||aadharid f
rom customer c,borrower b, depositer d where c.customer_name=d.customer_name or c.customer_name=b.customer_n
ame;

C.CUSTOMER_NAME||''||C.CUSTOMER_STREET||''||C.CUSTOMER_CITY||''||AADHARID
--------------------------------------------------------------------------------
Naman Parikh   Gurukul  Hyderabad 52345
Preet Modh   Ring Road  Madras 32345
Meet Patel   Gathlodia  Ahmedabad 62345
Poojan Gandhi   Bodakdev  Surat 12345
Sanikaa Tambhad   DriveInRoad  Ahmedabad 72345
Manal Shah   Fire Road  Agra 82345
Kathan Shah   Texaco Road  Surat 22345
Shrey Thakkar   Thaltej  chennai 42345

8 rows selected.
```

19. Display inner join of customer, borrower, loan and branch.

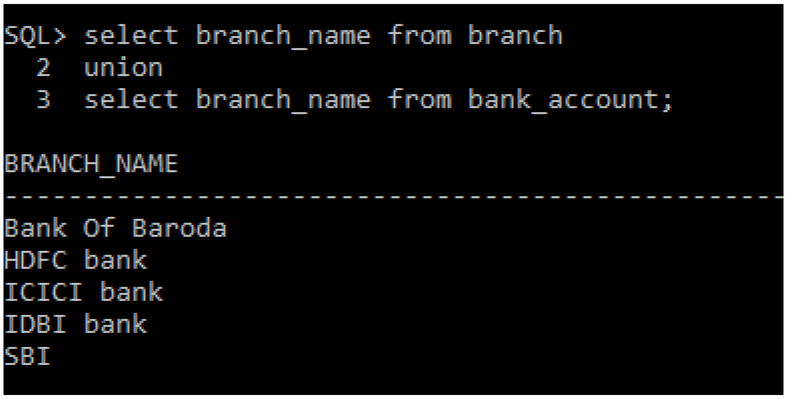
- Query: **select customer.customer_name||' '||branch.branch_name||' '|| loan.loan_number from branch inner join loan on branch.branch_name= loan.branch_name inner join borrower on loan.loan_number=borrower.loan_id inner join customer on customer.customer_name =borrower.customer_name;**
- Image:



```
SQL> select customer.customer_name||' '||branch.branch_name||' '|| loan.loan_number from branch inner join loan on branch.branch
_name= loan.branch_name inner join borrower on loan.loan_number=borrower.loan_id inner join customer on customer.customer_name =
borrower.customer_name;

CUSTOMER.CUSTOMER_NAME||''||BRANCH.BRANCH_NAME||''||LOAN.LOAN_NUMBER
--------------------------------------------------------------------------------
Meet Patel ICICI bank 901
Naman Parikh SBI 902
Kathan Shah IDBI bank 903
Poojan Gandhi HDFC bank 904
Meet Patel IDBI bank 905
Meet Patel HDFC bank 907
Poojan Gandhi ICICI bank 908
Poojan Gandhi ICICI bank 909
Poojan Gandhi ICICI bank 910
Meet Patel ICICI bank 911
Meet Patel HDFC bank 912

11 rows selected.
```

20. Display union of branch and account. (Use “union” operator)

- Query: **select branch_name from branch union select branch_name from bank_account;**
- Image:



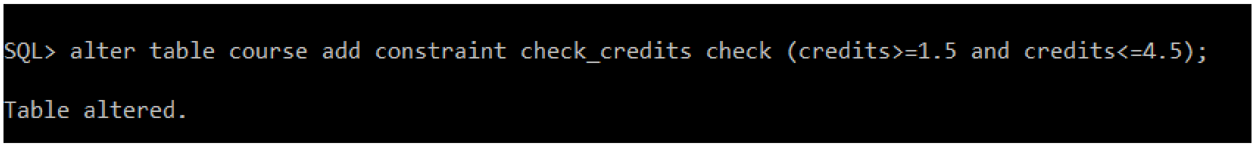
```
SQL> select branch_name from branch
  2  union
  3  select branch_name from bank_account;

BRANCH_NAME
--------------------------------------------------
Bank Of Baroda
HDFC bank
ICICI bank
IDBI bank
SBI
```

2ND TABLE

1. Add constraints:

i. Credits in course table should be minimum 1.5 and maximum 4.5

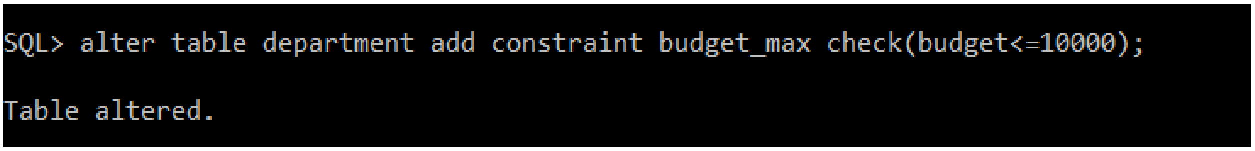
- Query:**alter table course add constraint check_credits check (credits>=1.5 and credits<=4.5);**
- Image:



```
SQL> alter table course add constraint check_credits check (credits>=1.5 and credits<=4.5);

Table altered.
```

ii. Budget in department table can’t exceed Rs. 10,000.

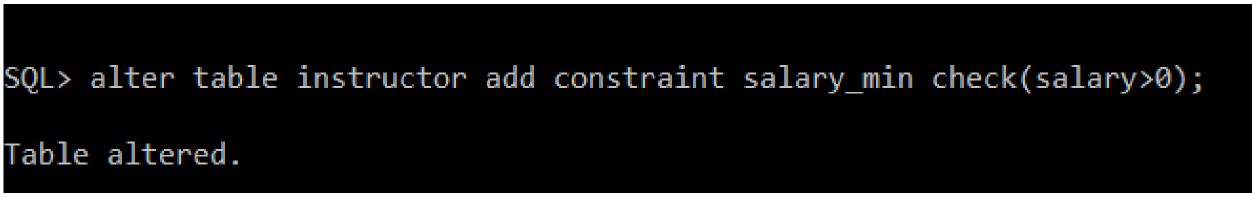
- Query:**alter table department add constraint budget_max check(budget<=10000);**
- Image:



```
SQL> alter table department add constraint budget_max check(budget<=10000);

Table altered.
```

iii. Salary in instructor table should be more than 0.

- Query: **alter table instructor add constraint salary_min check(salary>0);**
- Image:

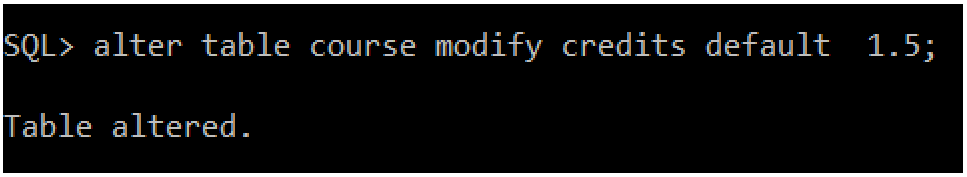


```
SQL> alter table instructor add constraint salary_min check(salary>0);

Table altered.
```

2. Default constraints

i. 1.5 credits in course table.

- Query: **alter table course modify credits default 1.5;**
- Image:

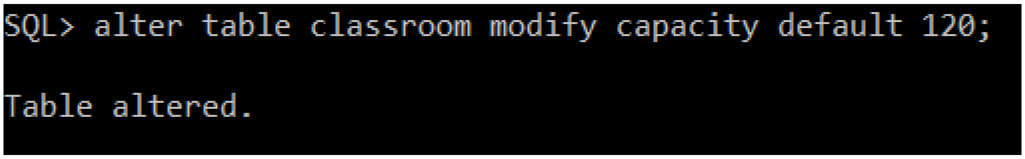


```
SQL> alter table course modify credits default  1.5;

Table altered.
```

ii. 120 capacity in classroom table.

- Query: **alter table classroom modify capacity default 120;**

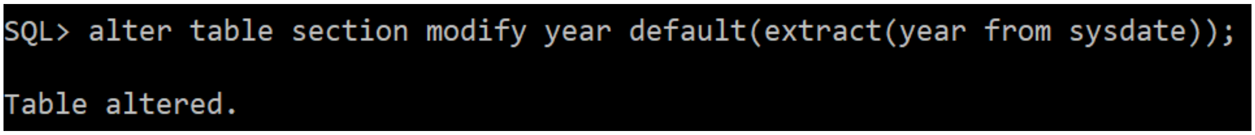
- Image



```
SQL> alter table classroom modify capacity default 120;

Table altered.
```

iii. 2019 (Don't set value directly. Extract year from current date)

- Query:**alter table section modify year default(extract(year from sysdate));**
- Image:

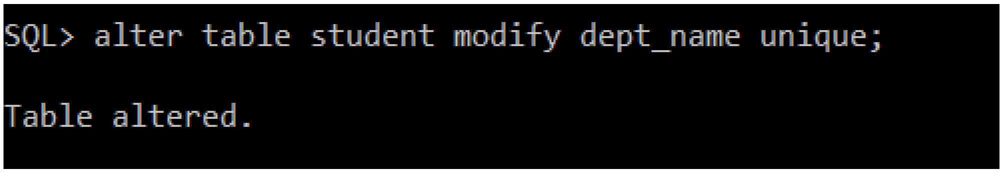


```
SQL> alter table section modify year default(extract(year from sysdate));

Table altered.
```

3. Unique constraints:

i. Dept_name in student table.

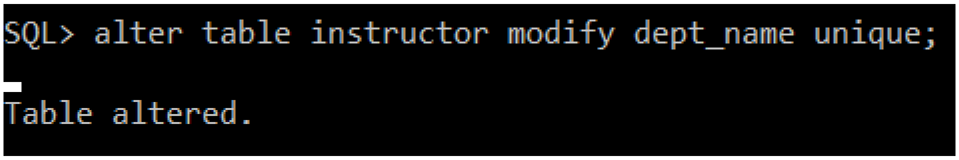
- Query: **alter table student modify dept_name unique;**
- Image:



```
SQL> alter table student modify dept_name unique;

Table altered.
```

ii. Dept_name in instructor table.

- Query: **alter table instructor modify dept_name unique;**
- Image:

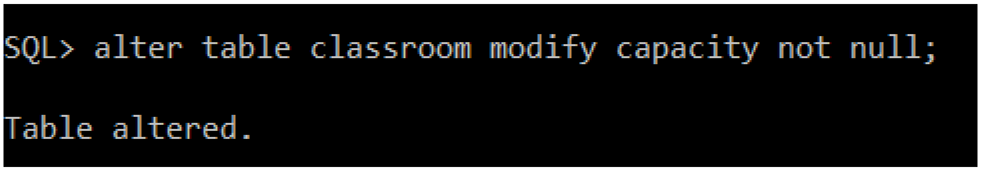


```
SQL> alter table instructor modify dept_name unique;

Table altered.
```

4. NOT NULL

i. Capacity in classroom table.

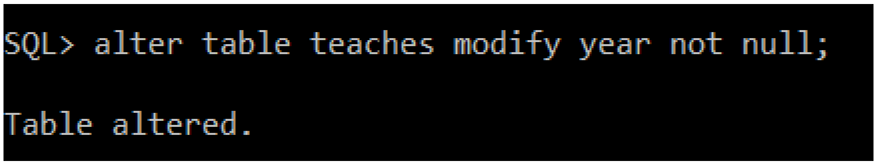
- Query: **alter table classroom modify capacity not null;**
- Image:



```
SQL> alter table classroom modify capacity not null;

Table altered.
```

ii. Year in teaches table

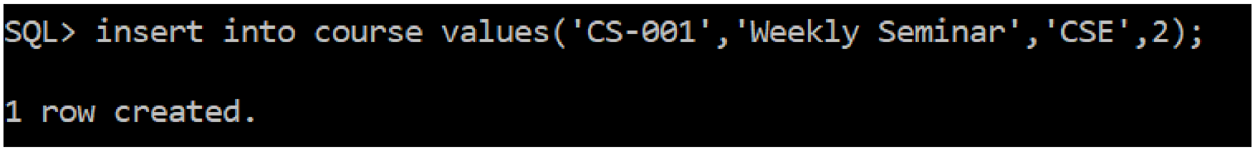
- Query: **alter table teaches modify year not null;**
- Image:



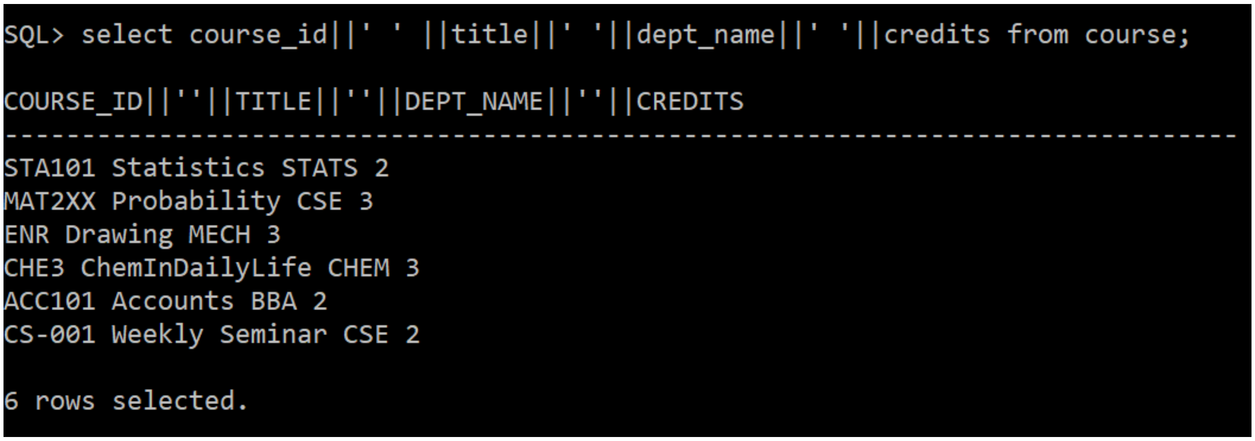
```
SQL> alter table teaches modify year not null;

Table altered.
```

5. Create a new course “CS-001”, titled “Weekly Seminar”, with 2 credits.

- Query: **insert into course values('CS-001','Weekly Seminar','CSE',2);**
- Image:



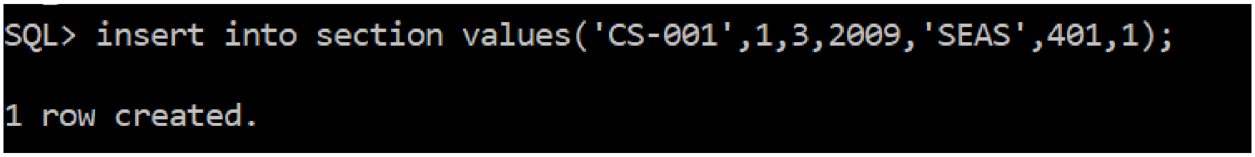
```
SQL> insert into course values('CS-001','Weekly Seminar','CSE',2);

1 row created.
```



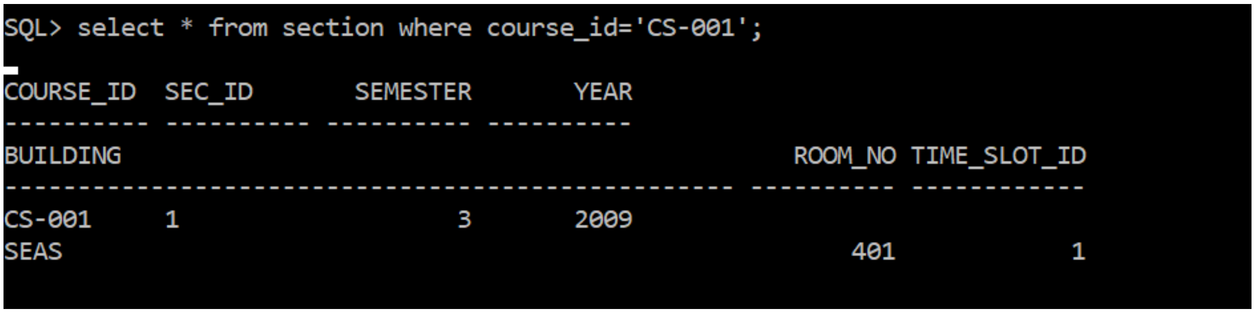
```
SQL> select course_id||' ' ||title||' '||dept_name||' '||credits from course;

COURSE_ID||''||TITLE||''||DEPT_NAME||''||CREDITS
--------------------------------------------------------------------------------
STA101 Statistics STATS 2
MAT2XX Probability CSE 3
ENR Drawing MECH 3
CHE3 ChemInDailyLife CHEM 3
ACC101 Accounts BBA 2
CS-001 Weekly Seminar CSE 2

6 rows selected.
```

6. Create a section of the course “CS-001” in Autumn 2009, with sec_id of 1

- ○ Query:**insert into section values('CS-001',1,3,2009,'SEAS',401,1);**
- ○ Image:



```
SQL> insert into section values('CS-001',1,3,2009,'SEAS',401,1);

1 row created.
```

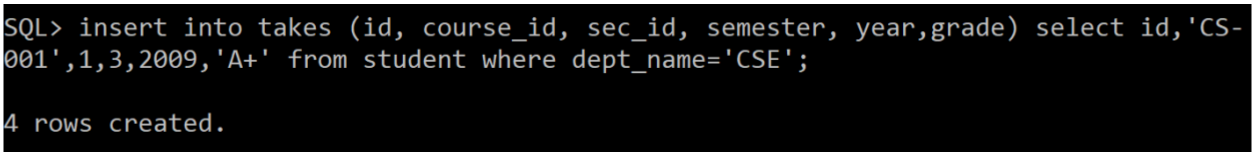


```
SQL> select * from section where course_id='CS-001';

COURSE_ID  SEC_ID       SEMESTER       YEAR
---------- ---------- ---------- ----------
BUILDING                                           ROOM_NO TIME_SLOT_ID
-------------------------------------------------- ---------- ------------
CS-001     1                   3       2009
SEAS                                                   401            1
```

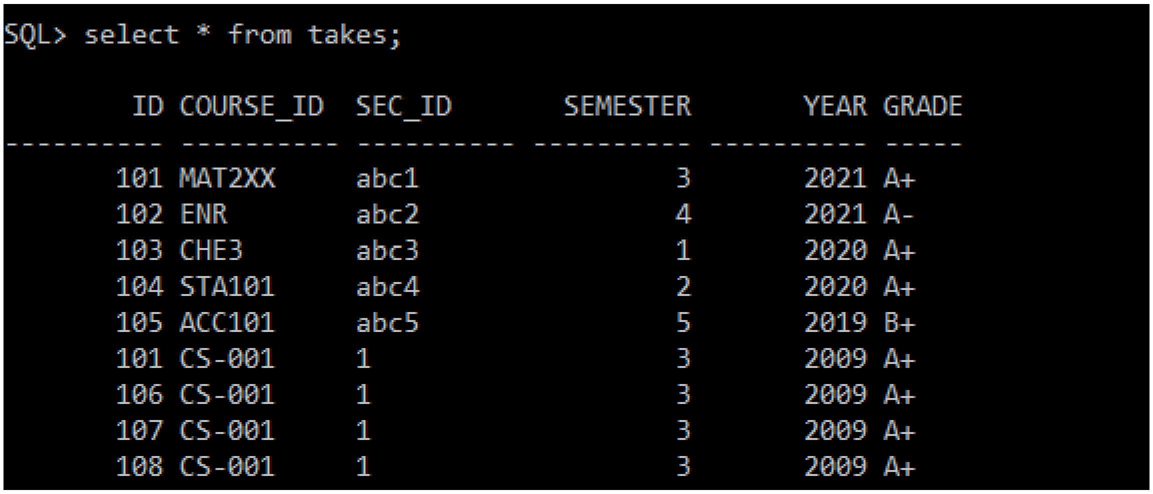
7. Enroll every student in the Comp. Sci. department in section 1.

- Query: **insert into takes (id, course_id, sec_id, semester, year,grade) select id,'CS-001',1,3,2009,'A+' from student where dept_name='CSE';**

- Image:



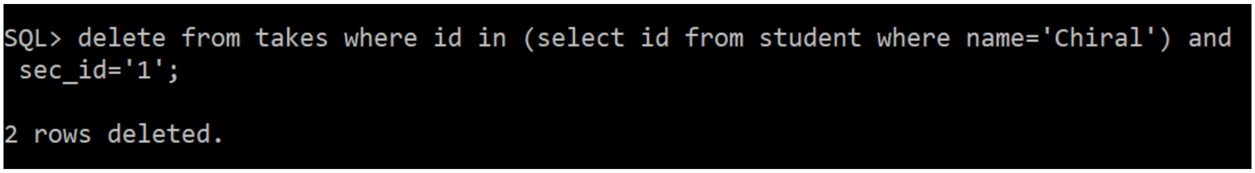
```
SQL> insert into takes (id, course_id, sec_id, semester, year,grade) select id,'CS-
001',1,3,2009,'A+' from student where dept_name='CSE';

4 rows created.
```



```
SQL> select * from takes;

        ID COURSE_ID  SEC_ID       SEMESTER       YEAR GRADE
---------- ---------- ---------- ---------- ---------- -----
       101 MAT2XX     abc1                3       2021 A+
       102 ENR        abc2                4       2021 A-
       103 CHE3       abc3                1       2020 A+
       104 STA101     abc4                2       2020 A+
       105 ACC101     abc5                5       2019 B+
       101 CS-001     1                   3       2009 A+
       106 CS-001     1                   3       2009 A+
       107 CS-001     1                   3       2009 A+
       108 CS-001     1                   3       2009 A+
```

8. Delete enrollment in section 1 where student name is Chiral

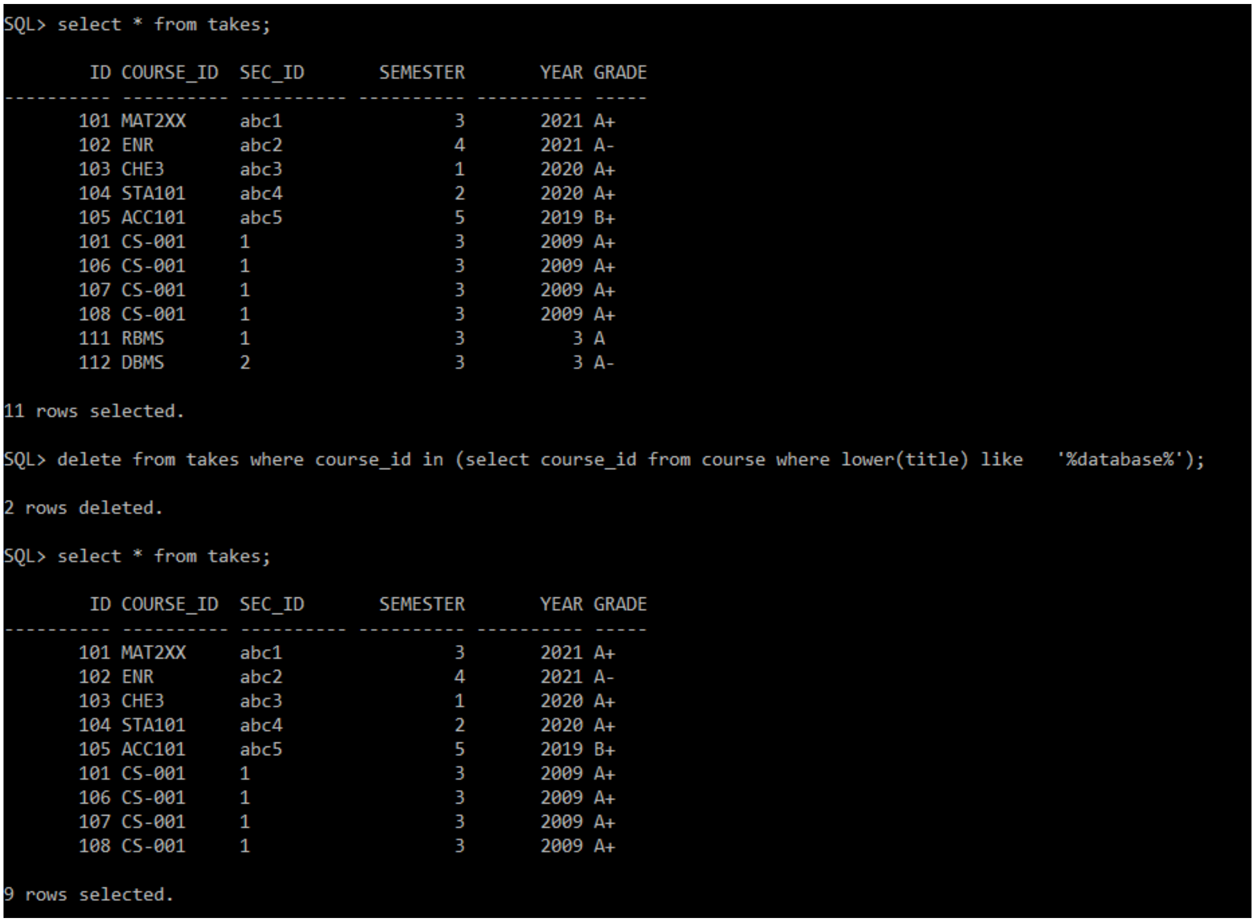
- Query: **delete from takes where id in (select id from student where name='Chiral') and sec_id='1';**
- Image:



```
SQL> delete from takes where id in (select id from student where name='Chiral') and
 sec_id='1';

2 rows deleted.
```

9. Delete all “takes” tuples corresponding to any section of any course with the word “database” as a part of the title, ignore case when matching the word with the title.

- Query: **delete from takes where course_id in (select course_id from course where lower(title) like '%database%');**
- Image:



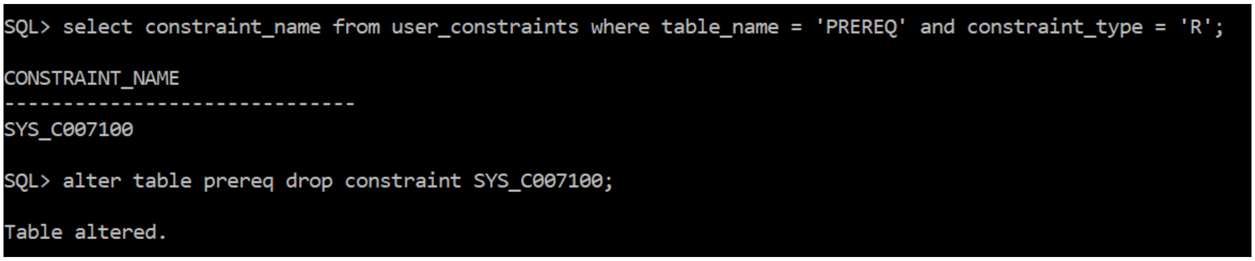
```
SQL> select * from takes;

        ID COURSE_ID  SEC_ID       SEMESTER       YEAR GRADE
---------- ---------- ---------- ---------- ---------- -----
       101 MAT2XX     abc1                3       2021 A+
       102 ENR        abc2                4       2021 A-
       103 CHE3       abc3                1       2020 A+
       104 STA101     abc4                2       2020 A+
       105 ACC101     abc5                5       2019 B+
       101 CS-001     1                   3       2009 A+
       106 CS-001     1                   3       2009 A+
       107 CS-001     1                   3       2009 A+
       108 CS-001     1                   3       2009 A+
       111 RBMS       1                   3          3 A
       112 DBMS       2                   3          3 A-

11 rows selected.

SQL> delete from takes where course_id in (select course_id from course where lower(title) like   '%database%');

2 rows deleted.

SQL> select * from takes;

        ID COURSE_ID  SEC_ID       SEMESTER       YEAR GRADE
---------- ---------- ---------- ---------- ---------- -----
       101 MAT2XX     abc1                3       2021 A+
       102 ENR        abc2                4       2021 A-
       103 CHE3       abc3                1       2020 A+
       104 STA101     abc4                2       2020 A+
       105 ACC101     abc5                5       2019 B+
       101 CS-001     1                   3       2009 A+
       106 CS-001     1                   3       2009 A+
       107 CS-001     1                   3       2009 A+
       108 CS-001     1                   3       2009 A+

9 rows selected.
```

10. Drop “foreign key” constraint from “prereq” table.

Query:

- **select constraint_name from user_constraints where table_name = 'PREREQ' and constraint_type = 'R';**
- **alter table prereq drop constraint SYS_C007100;**

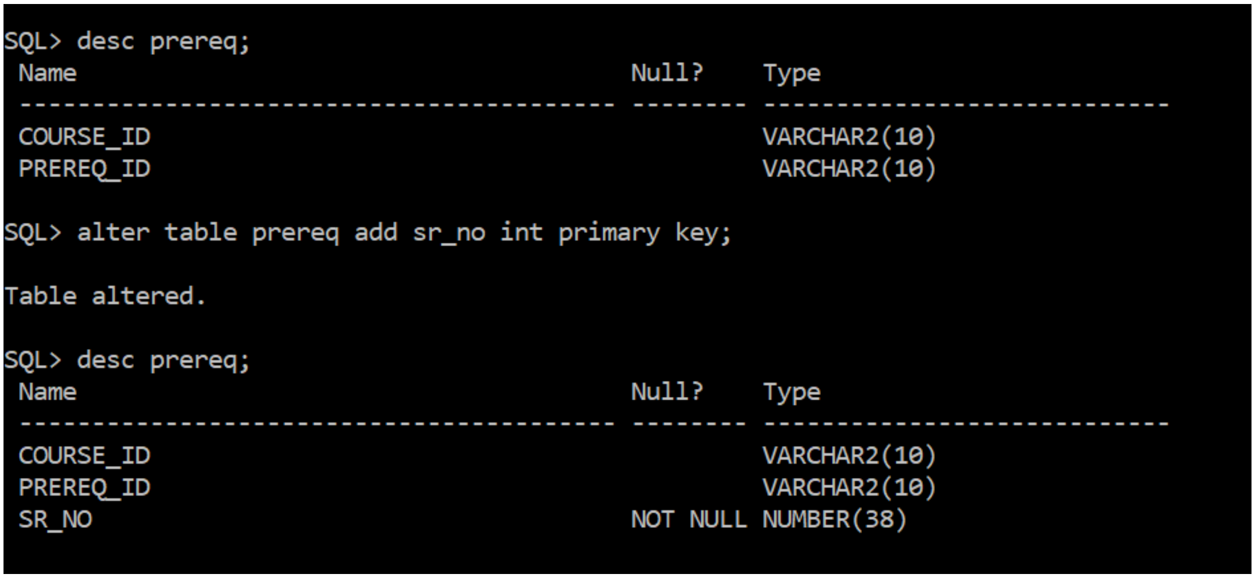
Image:



```
SQL> select constraint_name from user_constraints where table_name = 'PREREQ' and constraint_type = 'R';

CONSTRAINT_NAME
------------------------------
SYS_C007100

SQL> alter table prereq drop constraint SYS_C007100;

Table altered.
```

11. Add one field sr_no “prereq” table and make it a primary key.

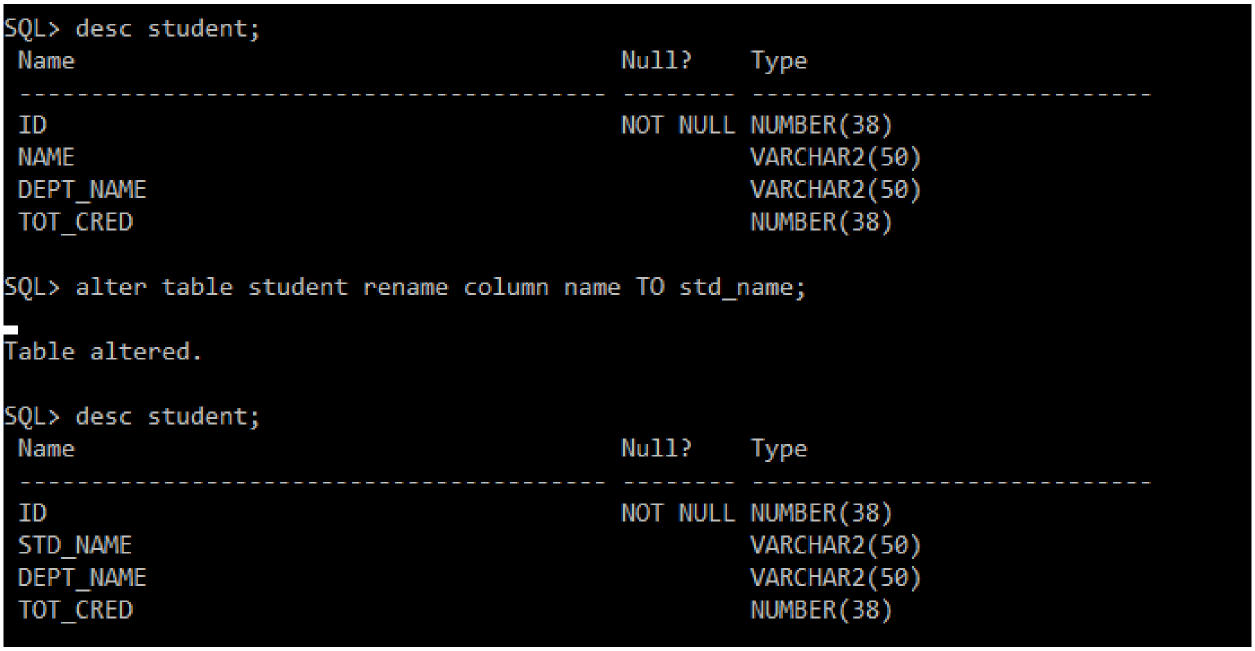
- Query: **alter table prereq add sr_no int primary key;**
- Image:



```
SQL> desc prereq;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 COURSE_ID                                          VARCHAR2(10)
 PREREQ_ID                                          VARCHAR2(10)

SQL> alter table prereq add sr_no int primary key;

Table altered.

SQL> desc prereq;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 COURSE_ID                                          VARCHAR2(10)
 PREREQ_ID                                          VARCHAR2(10)
 SR_NO                                     NOT NULL NUMBER(38)
```

12. Rename “name” field of student table to “std_name”.

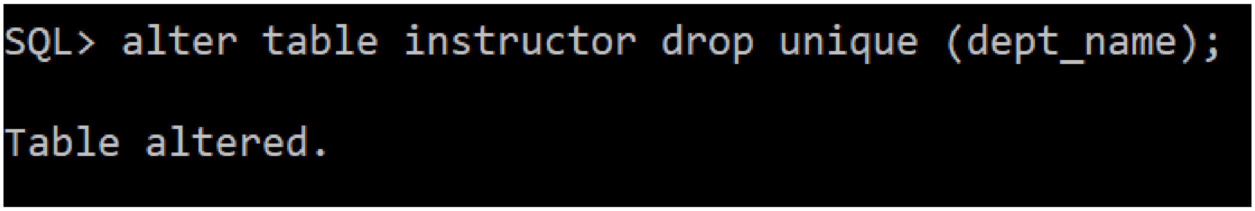
- Query: **alter table student rename column name TO std_name;**
- Image:



```
SQL> desc student;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ID                                        NOT NULL NUMBER(38)
 NAME                                               VARCHAR2(50)
 DEPT_NAME                                          VARCHAR2(50)
 TOT_CRED                                           NUMBER(38)

SQL> alter table student rename column name TO std_name;

Table altered.

SQL> desc student;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ID                                        NOT NULL NUMBER(38)
 STD_NAME                                           VARCHAR2(50)
 DEPT_NAME                                          VARCHAR2(50)
 TOT_CRED                                           NUMBER(38)
```

13. Drop unique constraint from “dept_name” field of instructor table.

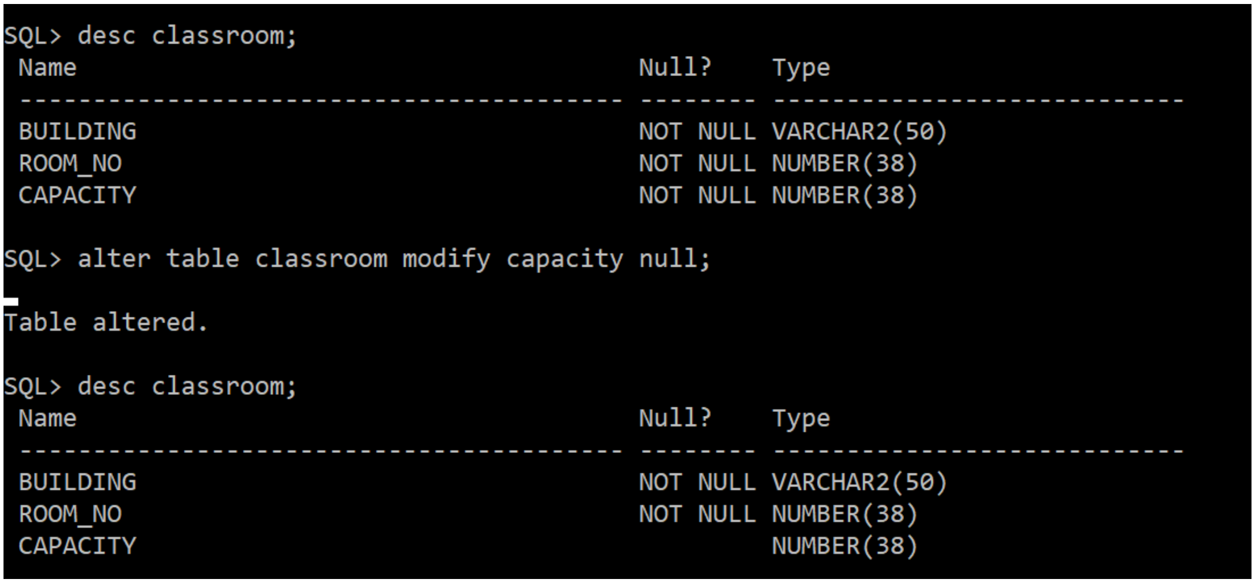
- Query: **alter table instructor drop unique (dept_name);**
- Image:



```
SQL> alter table instructor drop unique (dept_name);

Table altered.
```

14. Drop not null constraint from “capacity” field of “classroom” table.

- Query: **alter table classroom modify capacity null;**
- Image:



```
SQL> desc classroom;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BUILDING                                  NOT NULL VARCHAR2(50)
 ROOM_NO                                   NOT NULL NUMBER(38)
 CAPACITY                                  NOT NULL NUMBER(38)

SQL> alter table classroom modify capacity null;

Table altered.

SQL> desc classroom;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BUILDING                                  NOT NULL VARCHAR2(50)
 ROOM_NO                                   NOT NULL NUMBER(38)
 CAPACITY                                           NUMBER(38)
```