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1805: Database management Systems

CIA -2 Assginment

This file is submitted as an assignment for CIA-2 for the subject Database System Management.

LAB EXERCISES 20-21 DATE: 13-1-2021

1. CREATE THE DEPARTMENT AND EMPLOYEE TABLE WITH THE GIVEN TABLE STRUCTURE AND CONSTRAINTS.

Lab Assignment

1. Create table Department with below given table structure and constraints.

Column Name	Datatype	Constraints	Remarks
Dno	Number(2)	Primary Key	Department Number
Dname	Varchar2(15)	Unique	Department Name
Location	Varchar2(15)		Default value must be set as Ahmedabad

2. Check the table structure of Department table.

3. Create table Employee with below given table structure and constraints.

Column Name	Datatype	Constraints	Remarks
Eno	Number(4)	Primary Key	Employee Number
Name	Varchar2(15)		Employee Name
Surname	Varchar2(15)		Employee last name
DOB	Date		Employee's date of birth
DOJ	Date		Employee's date of joining
Designation	Varchar2(15)	Not Null	Designation/Post of employee
Reporting_To	Number(4)		Boss of the employee
Salary	Number(9,2)		Minimum 5000
Conveyance	Number(7,2)		Conveyance allowance, maximum 10000
Dno	Number(2)	Foreign Key	Department number of employee
Ensure that DOJ is greater than DOB for each employee.			

Create table Department(
Dno number(2) primary key,
Dname varchar2(15) unique,
Location varchar2(15) DEFAULT 'Ahmedabad');

```
SQL> Create table Department(
  2  Dno number(2) primary key,
  3  Dname varchar2(15) unique,
  4  Location varchar2(15) DEFAULT 'Ahmedabad');

Table created.
```

create table Employee(
Eno number(4) primary key,
Name varchar2(15),
Surname varchar(15),
DOB date,
DOJ date,
Designation varchar2(15) Not Null,

Reporting_To number(4),
Salary number(9,2),
Conveyance Number(7,2),
Dno Number(2) constraint fk_dno references Department(Dno),
constraint chk_date check(DOJ>DOB)
);

```
SQL> create table Employee(
  2  Eno number(4) primary key,
  3  Name varchar2(15),
  4  Surname varchar(15),
  5  DOB date,
  6  DOJ date,
  7  Designation varchar2(15) Not Null,
  8  Reporting_To number(4),
  9  Salary number(9,2),
 10  Conveyance Number(7,2),
 11  Dno Number(2) constraint  fk_dno  references Department(Dno),
 12  constraint chk_date check(DOJ>DOB)
 13  );

Table created.
```

2. DISPLAY BOTH THE TABLE STRUCTURES.

desc Department;

```
SQL> desc Department;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DNO                                       NOT NULL NUMBER(2)
 DNAME                                              VARCHAR2(15)
 LOCATION                                           VARCHAR2(15)
```

desc Employee;

```
SQL> desc Employee;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ENO                                       NOT NULL NUMBER(4)
 NAME                                               VARCHAR2(15)
 SURNAME                                            VARCHAR2(15)
 DOB                                                DATE
 DOJ                                                DATE
 DESIGNATION                               NOT NULL VARCHAR2(15)
 REPORTING_TO                                       NUMBER(4)
 SALARY                                             NUMBER(9,2)
 CONVEYANCE                                         NUMBER(7,2)
 DNO                                                NUMBER(2)
```

a. **ENTER THE FOLLOWING DETAILS IN TO THE TABLES.**

Enter the following data in Employee table.

Eno	Name	Surname	DOB	DOJ	Designation	Reporting_To	Salary	Conveyance	Dno
1001	Alap	Mehta	12-01-75	05-05-02	Manager		38000	4500	10
1002	Ramesh	Triveci	24-01-72	07-10-98	Salesman	1001	26000	3500	10
1003	Manu	Sheth	04-05-80	08-11-08	Programmer	1006	32000	0	30
1004	Tarak	Gandhi	26-08-81	30-10-05	Salesman	1001	25750	3500	10
1005	Haresh		16-03-80	25-09-06	Analyst	1006	40000	0	30
1006	Alap	Shah	04-11-76	25-02-07	Manager		42000		30
1007	Allan		03-12-70	19-06-98	Programmer	1006	34400		30
1008	Himanshu	Joshi	14-04-84	01-07-08	Clerk	1012	18500		40
1009	Naresh	Modi	22-02-82	15-04-09	Officer	1012	28700		40
1010	Prerak		11-08-86	01-04-11	Assistant	1012	15000		40
1012	Rakesh	Patel	09-09-80	05-03-07	Management		40000		40
1014	Sachin	Vala	17-05-83	15-10-10	Cashier	1012	20000		40
1015	Azhar		30-06-84	01-02-10	Salesman	1001	26000	3500	10
1016	Roshan		07-07-85	05-01-11	Clerk	1012	18500		40
1018	Mit	Shah	10-12-84	15-06-10	Clerk	1012	19250		40

b.

Enter the following data in Department table.

Dno	Dname	Location
10	Marketing	Mumbai
20	Production	Ahmedabad
30	EDP	Ahmedabad
40	Finance	Ahmedabad
50	Purcahse	Mumbai

Verify the contents of Department table.

b.

```
insert into Department values(10,'Markseting','Mumbai');

insert into Department values(20,'Production', default);

insert into Department values(30,'EDP', default);

insert into Department values(40,'Finance', default);

insert into Department values(50,'Purchase','Mumbai');
```

```
SQL> insert into Department values(10,'Markseting','Mumbai');

1 row created.

SQL> insert into Department values(20,'Production', default);

1 row created.

SQL> insert into Department values(30,'EDP', default);

1 row created.

SQL> insert into Department values(40,'Finance', default);

1 row created.

SQL> insert into Department values(50,'Purchase','Mumbai');

1 row created.
```

a.

```
insert into Employee values(1001 ,'Alap','Mehta','12-JAN-75','05-MAY-02', 'Manager',NULL,38000,4500,10);

insert into Employee values(1002 ,'Ramesh','Trivedi','24-JAN-72','07-OCT-02', 'Salesman',1001 ,26000,3500,10);

insert into Employee values(1003 ,'Manu','Sheth','04-MAY-80','08-NOV-08', 'Programmer',1006,32000,0,30);

insert into Employee values(1004 ,'Tarak','Gandhi','26-AUG-81','30-OCT-05', 'Salesman',1001,25750,3500,10);

insert into Employee values(1005 ,'Haresh',NULL ,'16-MARCH-80','25-SEP-06', 'Analyst',1006,40000,0,30);

insert into Employee values(1006 ,'Alap','Shah' ,'04-NOV-76','25-FEB-07', 'Manager',NULL,42000,NULL,30);

insert into Employee values(1007 ,'Alian',NULL ,'03-DEC-70','19-JUN-98', 'Programmer',1006,34400,NULL,30);

insert into Employee values(1008 ,'Himanshu','Joshi' ,'14-APR-84','01-JUL-08', 'Clerk',1012,18500,NULL,40);

insert into Employee values(1009 ,'Naresh','Mod' ,'22-FEB-82','15-APR-09', 'Officer',1012,28700,NULL,40);

insert into Employee values(1012,'Rakesh','Patel' ,'09-SEP-80' ,'05-MAR-07', 'Management',NULL ,40000,NULL,40);

insert into Employee values(1014 ,'Sachin','Vala' ,'13-MAY-83','15-OCT-10', 'Cashier',1012,20000,NULL,40);

insert into Employee values(1015,'Azhar',NULL ,'30-JUN-84','01-FEB-10', 'Salesman', 1001, 40000,3500 ,10);

insert into Employee values(1016,'Roshan',NULL ,'07-JUL-87' ,'05-JAN-11' , 'Clerk',1012,18500,NULL, 40);

insert into Employee values(1018,'Mit','Shah' ,'10-DEC-84' ,'15-JUN-10', 'Clerk' ,1012,19250,3500, 40);
```

```
SQL> insert into Employee values(1001 ,'Alap','Mehta','12-JAN-75','05-MAY-02', 'Manager',NULL,38000,4500,10);
1 row created.
SQL> insert into Employee values(1002 ,'Ramesh','Trivedi','24-JAN-72','07-OCT-02', 'Salesman',1001 ,26000,3500,10);
1 row created.
SQL> insert into Employee values(1003 ,'Manu','Sheth','04-MAY-80','08-NOV-08', 'Programmer',1006,32000,0,30);
1 row created.
SQL> insert into Employee values(1004 ,'Tarak','Gandhi','26-AUG-81','30-OCT-05', 'Salesman',1001,25750,3500,10);
1 row created.
SQL> insert into Employee values(1005 ,'Haresh',NULL ,'16-MARCH-80','25-SEP-06', 'Analyst',1006,40000,0,30);
1 row created.
SQL> insert into Employee values(1006 ,'Alap','Shah' ,'04-NOV-76','25-FEB-07', 'Manager',NULL,42000,NULL,30);
1 row created.
SQL> insert into Employee values(1007 ,'Alian',NULL ,'03-DEC-70','19-JUN-98', 'Programmer',1006,34400,NULL,30);
1 row created.
SQL> insert into Employee values(1008 ,'Himanshu','Joshi' ,'14-APR-84','01-JUL-08', 'Clerk',1012,18500,NULL,40);
1 row created.
SQL> insert into Employee values(1009 ,'Naresh','Mod' ,'22-FEB-82','15-APR-09', 'Officer',1012,28700,NULL,40);
1 row created.
SQL> insert into Employee values(1012,'Rakesh','Patel' ,'09-SEP-80' ,'05-MAR-07', 'Management',NULL ,40000,NULL,40);
1 row created.
SQL> insert into Employee values(1014 ,'Sachin','Vala' ,'13-MAY-83','15-OCT-10', 'Cashier',1012,20000,NULL,40);
1 row created.
SQL> insert into Employee values(1015,'Azhar',NULL ,'30-JUN-84','01-FEB-10', 'Salesman', 1001, 40000,3500 ,10);
1 row created.
```

```
1 row created.
SQL> insert into Employee values(1014 ,'Sachin','Vala' ,'13-MAY-83','15-OCT-10', 'Cashier',1012,20000,NULL,40);
1 row created.
SQL> insert into Employee values(1015,'Azhar',NULL ,'30-JUN-84','01-FEB-10', 'Salesman', 1001, 40000,3500 ,10);
1 row created.
SQL> insert into Employee values(1016,'Roshan',NULL ,'07-JUL-87' ,'05-JAN-11' , 'Clerk',1012,18500,NULL, 40);
1 row created.
SQL> insert into Employee values(1018,'Mit','Shah' ,'10-DEC-84' ,'15-JUN-10', 'Clerk' ,1012,19250,3500, 40);
1 row created.
SQL>
```

c. DISPLAY THE CONTENTS OF EMPLOYEE TABLE.

select * from Employee;

```
SQL> select * from Employee;

       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
REPORTING_TO     SALARY CONVEYANCE        DNO
------------ ---------- ---------- ----------
      1001 Alap            Mehta           12-JAN-75 05-MAY-02 Manager
                  38000       4500         10

      1002 Ramesh          Trivedi         24-JAN-72 07-OCT-02 Salesman
        1001      26000       3500         10

      1003 Manu            Sheth           04-MAY-80 08-NOV-08 Programmer
        1006      32000          0         30


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
REPORTING_TO     SALARY CONVEYANCE        DNO
------------ ---------- ---------- ----------
      1004 Tarak           Gandhi          26-AUG-81 30-OCT-05 Salesman
        1001      25750       3500         10

      1005 Haresh                          16-MAR-80 25-SEP-06 Analyst
        1006      40000          0         30

      1006 Alap            Shah            04-NOV-76 25-FEB-07 Manager
                  42000                    30


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
REPORTING_TO     SALARY CONVEYANCE        DNO
------------ ---------- ---------- ----------
      1007 Alian                           03-DEC-70 19-JUN-98 Programmer
        1006      34400                    30

      1008 Himanshu        Joshi           14-APR-84 01-JUL-08 Clerk
        1012      18500                    40

      1009 Naresh          Mod             22-FEB-82 15-APR-09 Officer
        1012      28700                    40


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
REPORTING_TO     SALARY CONVEYANCE        DNO
------------ ---------- ---------- ----------
```

```
       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
REPORTING_TO     SALARY CONVEYANCE        DNO
------------ ---------- ---------- ----------
      1007 Alian                          03-DEC-70 19-JUN-98 Programmer
        1006      34400                   30

      1008 Himanshu       Joshi           14-APR-84 01-JUL-08 Clerk
        1012      18500                   40

      1009 Naresh         Mod             22-FEB-82 15-APR-09 Officer
        1012      28700                   40


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
REPORTING_TO     SALARY CONVEYANCE        DNO
------------ ---------- ---------- ----------
      1012 Rakesh         Patel           09-SEP-80 05-MAR-07 Management
                  40000                   40

      1014 Sachin         Vala            13-MAY-83 15-OCT-10 Cashier
        1012      20000                   40

      1015 Azhar                          30-JUN-84 01-FEB-10 Salesman
        1001      40000       3500        10


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
REPORTING_TO     SALARY CONVEYANCE        DNO
------------ ---------- ---------- ----------
      1016 Roshan                         07-JUL-87 05-JAN-11 Clerk
        1012      18500                   40

      1018 Mit            Shah            10-DEC-84 15-JUN-10 Clerk
        1012      19250       3500        40


14 rows selected.
```

d. ADD EMAIL ID AND PHONE FIELD TO THE EMPLOYEE TABLE.

alter table Employee add(Email_Id Varchar2(30));
alter table Employee add(Phone Number(10));

```
SQL> alter table Employee add(Email_Id Varchar2(30));

Table altered.

SQL> alter table Employee add(Phone Number(10));

Table altered.
```

e. CHANGE THE DATA TYPE PF PHONE FIELD FROM NUMBER TO VARCHAR 10

alter table Employee modify(Phone Varchar(10));

```
SQL> alter table Employee modify(Phone Varchar(10));

Table altered.
```

f. ADD CONSTRAINT UNIQUE TO BOTH THE FIELDS.

alter table Employee
add constraint unq unique(Email_Id,Phone);

```
SQL> alter table Employee
  2  add constraint unq unique(Email_Id,Phone);

Table altered.
```

g. REMOVE THE REPORTING FIELD FROM EMPLOYEE TABLE.

alter table Employee
drop column Reporting_to;

```
SQL> alter table Employee
  2  drop column Reporting_to;

Table altered.
```

h. CHANGE THE NAME OF EMPLOYEE TABLE TO EMP_MASTER

alter table Employee
rename to Emp_Master;

```
SQL> alter table Employee
  2  rename to Emp_Master;

Table altered.
```

i. LIST OUT THE CONSTARINTS GIVEN ON THE EMPLOYEE TABLE

SELECT COLUMN_NAME, CONSTRAINT_NAME FROM USER_CONS_COLUMNS
WHERE TABLE_NAME='EMP_MASTER';

```
SQL> SELECT COLUMN_NAME, CONSTRAINT_NAME FROM USER_CONS_COLUMNS
  2  WHERE TABLE_NAME='EMP_MASTER';

COLUMN_NAME
--------------------------------------------------------------------------------
CONSTRAINT_NAME
------------------------------
DESIGNATION
SYS_C007212

DOB
CHK_DATE

DOJ
CHK_DATE


COLUMN_NAME
--------------------------------------------------------------------------------
CONSTRAINT_NAME
------------------------------
ENO
SYS_C007214

DNO
FK_DNO

EMAIL_ID
UNQ


COLUMN_NAME
--------------------------------------------------------------------------------
CONSTRAINT_NAME
------------------------------
PHONE
UNQ


7 rows selected.
```

j. DELETE THE EARLIER CREATED STUDENT TABLE.

drop table student;

```
SQL> drop table student;

Table dropped.
```

k. RENAME THE dno FIELD TO 'DID'

alter table Emp_master rename column dno to did;

```
SQL> alter table Emp_master rename column dno to did;

Table altered.
```

19-1-2021

1. **Display the employee details whose salary is above 10000 and belonging to did=30.**

   select * from emp_master where salary>10000 and did=20;

```
SQL> Select * from emp_master where salary>10000 and did=20;

no rows selected
```

2. **Display the employees who has joined in the time period of 2005 and 2010.**

select * from emp_master where doj>='01-JAN-2005' and doj <= '31-DEC-2010';

select * from emp_master where doj between '01-JAN-2005' and '31-DEC-2010';

```
SQL> select * from emp_master where doj between '01-JAN-2005' and '31-DEC-2010';

       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1003 Manu            Sheth           04-MAY-80 08-NOV-08 Programmer
     32000          0         30

      1004 Tarak           Gandhi          26-AUG-81 30-OCT-05 Salesman
     25750       3500         10

      1005 Haresh                          16-MAR-80 25-SEP-06 Analyst
     40000          0         30


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1006 Alap            Shah            04-NOV-76 25-FEB-07 Manager
     42000                    30

      1008 Himanshu        Joshi           14-APR-84 01-JUL-08 Clerk
     18500                    40

      1009 Naresh          Mod             22-FEB-82 15-APR-09 Officer
     28700                    40


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1012 Rakesh          Patel           09-SEP-80 05-MAR-07 Management
     40000                    40

      1014 Sachin          Vala            13-MAY-83 15-OCT-10 Cashier
     20000                    40

      1015 Azhar                           30-JUN-84 01-FEB-10 Salesman
     40000       3500         10


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
```

```
       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1018 Mit             Shah            10-DEC-84 15-JUN-10 Clerk
     19250       3500         40

10 rows selected.
```

3. **Display the employee details who having salary exactly 26000, 15250, 18000**

select * from emp_master where salary in (26000,15250,18000);

```
10 rows selected.

SQL> select * from emp_master where salary in (26000,15250,18000);

       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1002 Ramesh          Trivedi         24-JAN-72 07-OCT-02 Salesman
     26000       3500         10
```

4. **Dispay the employee details of employees whose name begin with ‘r’ and end with ‘n’.**

select * from emp_master where name like ’R%n’;

```
SQL> select * from emp_master where name like ’R%n’;

       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1016 Roshan                          07-JUL-87 05-JAN-11 Clerk
     18500                    40
```

5. **List the names of managers whose name ends with ‘p’.**

select * from emp_master where name like ‘%p’ ;

```
SQL> select * from emp_master where name like '%p’ ;

       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1001 Alap            Mehta           12-JAN-75 05-MAY-02 Manager
     38000       4500         10

      1006 Alap            Shah            04-NOV-76 25-FEB-07 Manager
     42000                    30
```

6. **Dispay the employee details of employees whose name begin with ‘r’ and end with ‘n and whose salary is above 15000**

select * from emp_master where name like ’R%n’ and salary > 15000;

```
SQL> select * from emp_master where name like ’R%n’ and salary > 15000;

       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1016 Roshan                          07-JUL-87 05-JAN-11 Clerk
     18500                    40
```

7. **Display the employee name and salary including the commission.**

select name , salary+conveyance as total_sal from emp_master;

```
SQL> select name , salary+conveyance as total_sal from emp_master;

NAME            TOTAL_SAL
--------------- ----------
Alap                 42500
Ramesh               29500
Manu                 32000
Tarak                29250
Haresh               40000
Alap
Alian
Himanshu
Naresh
Rakesh
Sachin

NAME            TOTAL_SAL
--------------- ----------
Azhar                43500
Roshan
Mit                  22750

14 rows selected.
```

8. **Display the name of employee as the concatenation of name and surname.**

Select concat(name, surname) as name from emp_master;

```
SQL> select concat(name,surname) as name from emp_master;

NAME
------------------------------
AlapMehta
RameshTrivedi
ManuSheth
TarakGandhi
Haresh
AlapShah
Alian
HimanshuJoshi
NareshMod
RakeshPatel
SachinVala

NAME
------------------------------
Azhar
Roshan
MitShah

14 rows selected.
```

9. **Display the sum of salary and conveyance as total salary.**

select salary+nvl(conveyance) as ‘total salary’ from emp_master;

```
SQL> select salary+nvl(conveyance,0) as total_salary from emp_master;

TOTAL_SALARY
------------
       42500
       29500
       32000
       29250
       40000
       42000
       34400
       18500
       28700
       40000
       20000

TOTAL_SALARY
------------
       43500
       18500
       22750

14 rows selected.
```

10. Create a new table employee from the existing table

Create table employee as (select * from emp_master);

```
SQL> Create table employee as (select * from emp_master);

Table created.
```

11. Insert data from department table to dept table.

insert into dept(did,name) select dno,dname from department;

```
SQL> insert into dept(did,name) select dno,dname from department;

5 rows created.
```

12. Update the salary by giving 10 percent increment

update emp_master set salary = salary+salary*.10;

```
SQL> update emp_master set salary = salary+salary*.10;

14 rows updated.
```

13. Change the designation of manager as senior manager

update emp_master set designation = ’Senior manager’ where designation =’Manager’;

```
SQL> update emp_master set designation = ’Senior manager’ where designation =’Manager’;

2 rows updated.
```

14. **Delete the records having salary less than 15000**

delete from emp_master where salary < 15000;

```
SQL> delete from emp_master where salary < 15000;

0 rows deleted.
```

15. **Remove the foreign key constraint**

alter table emp_master drop constraint FK_DNO;

```
SQL> alter table emp_master drop  constraint FK_DNO;

Table altered.
```

16. **Add the foreign key constraint such as on deleting the records from parent table those values in child are set to null.**

alter table emp_master add constraint fk foreign key(did) references department(dno) on delete set NULL;

```
SQL> alter table emp_master add constraint fk foreign key(did) references department(dno) on delete set NULL;

Table altered.
```

17. **Sort the employee table using the name field in ascending order.**

    select * from emp_master order by name;

```
SQL> select * from emp_master order by name;

       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1001 Alap            Mehta           12-JAN-75 05-MAY-02 Senior manager
     41800       4500         10

      1006 Alap            Shah            04-NOV-76 25-FEB-07 Senior manager
     46200                    30

      1007 Alian                           03-DEC-70 19-JUN-98 Programmer
     37840                    30


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1015 Azhar                           30-JUN-84 01-FEB-10 Salesman
     44000       3500         10

      1005 Haresh                          16-MAR-80 25-SEP-06 Analyst
     44000          0         30

      1008 Himanshu        Joshi           14-APR-84 01-JUL-08 Clerk
     20350                    40


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
      1003 Manu            Sheth           04-MAY-80 08-NOV-08 Programmer
     35200          0         30

      1018 Mit             Shah            10-DEC-84 15-JUN-10 Clerk
     21175       3500         40

      1009 Naresh          Mod             22-FEB-82 15-APR-09 Officer
     31570                    40


       ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
---------- --------------- --------------- --------- --------- ---------------
    SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
---------- ---------- ---------- ------------------------------ ----------
```

```
      ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
--------- --------------- --------------- --------- --------- ---------------
   SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
--------- ---------- ---------- ------------------------------ ----------
     1003 Manu            Sheth           04-MAY-80 08-NOV-08 Programmer
    35200          0         30

     1018 Mit             Shah            10-DEC-84 15-JUN-10 Clerk
    21175       3500         40

     1009 Naresh          Mod             22-FEB-82 15-APR-09 Officer
    31570                    40


      ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
--------- --------------- --------------- --------- --------- ---------------
   SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
--------- ---------- ---------- ------------------------------ ----------
     1012 Rakesh          Patel           09-SEP-80 05-MAR-07 Management
    44000                    40

     1002 Ramesh          Trivedi         24-JAN-72 07-OCT-02 Salesman
    28600       3500         10

     1016 Roshan                          07-JUL-87 05-JAN-11 Clerk
    20350                    40


      ENO NAME            SURNAME         DOB       DOJ       DESIGNATION
--------- --------------- --------------- --------- --------- ---------------
   SALARY CONVEYANCE        DID EMAIL_ID                       PHONE
--------- ---------- ---------- ------------------------------ ----------
     1014 Sachin          Vala            13-MAY-83 15-OCT-10 Cashier
    22000                    40

     1004 Tarak           Gandhi          26-AUG-81 30-OCT-05 Salesman
    28325       3500         10


14 rows selected.
```

String Functions

1. Display the employee number, first name in lowercase and last name in uppercase for all employers whose empno is in the range of 1000 and 1150.

select eno, lower(name) as name, upper(surname) as surname from emp_master where eno between 1000 and 1150;

```
SQL> select eno, lower(name) as name, upper(surname) as surname from emp_master where eno between 1000 and 1150;

      ENO NAME            SURNAME
--------- --------------- ---------------
     1001 alap            MEHTA
     1002 ramesh          TRIVEDI
     1003 manu            SHETH
     1004 tarak           GANDHI
     1005 haresh
     1006 alap            SHAH
     1007 alian
     1008 himanshu        JOSHI
     1009 naresh          MOD
     1012 rakesh          PATEL
     1014 sachin          VALA

      ENO NAME            SURNAME
--------- --------------- ---------------
     1015 azhar
     1016 roshan
     1018 mit             SHAH

14 rows selected.
```

2. Generating Email Addresses

a. For all customers – display the last name, first name and email address. The email address will be composed from the first letter of first name concatenated with three first letters of last name concatenated with the string "@mymail.com" (For example : Ram Kedem → RKED@mymail.com).

select surname, name, concat(lower(concat(substr(name,1,1), substr(surname,1,3))),'@mymail.com') as email from emp_master;

```
SQL> select surname, name, concat(lower(concat(substr(name,1,1), substr(surname,1,3))),'@mymail.com')
  2  as email from emp_master;

SURNAME         NAME            EMAIL
--------------- --------------- --------------------------
Mehta           Alap            ameh@mymail.com
Trivedi         Ramesh          rtri@mymail.com
Sheth           Manu            mshe@mymail.com
Gandhi          Tarak           tgan@mymail.com
                Haresh          h@mymail.com
Shah            Alap            asha@mymail.com
                Alian           a@mymail.com
Joshi           Himanshu        hjos@mymail.com
Mod             Naresh          nmod@mymail.com
Patel           Rakesh          rpat@mymail.com
Vala            Sachin          sval@mymail.com

SURNAME         NAME            EMAIL
--------------- --------------- --------------------------
                Azhar           a@mymail.com
                Roshan          r@mymail.com
Shah            Mit             msha@mymail.com

14 rows selected.
```

3. Display the last name and the length of the last name for all employers where last name's length is greater than 9 characters.

select surname, length(surname) as length_of_surname from emp_master where length(surname)>9;

```
SQL> select surname, length(surname) as length_of_surname from emp_master where length(surname)>9;

no rows selected
```

4. Display the system date in the format ('dd-mm-yyyy') use to char.

```
SQL> select to_char(sysdate,'dd-mm-yyyy') from dual;

TO_CHAR(SY
----------
27-01-2021
```

5. Display system time(select to_char(sysdate,'HH24:MI:SS AM') FROM DUAL;)

```
SQL> select to_char(sysdate,'HH24:MI:SS AM') FROM DUAL;

TO_CHAR(SYS
-----------
19:43:48 PM
```

6. DISPLAY THE DOB AND BIRTHDAY OF EMPLOYEES

select dob as birthday, doj from emp_master;

```
SQL> select dob as birthday, doj from emp_master;

BIRTHDAY  DOJ
--------- ---------
12-JAN-75 05-MAY-02
24-JAN-72 07-OCT-02
04-MAY-80 08-NOV-08
26-AUG-81 30-OCT-05
16-MAR-80 25-SEP-06
04-NOV-76 25-FEB-07
03-DEC-70 19-JUN-98
14-APR-84 01-JUL-08
22-FEB-82 15-APR-09
09-SEP-80 05-MAR-07
13-MAY-83 15-OCT-10

BIRTHDAY  DOJ
--------- ---------
30-JUN-84 01-FEB-10
07-JUL-87 05-JAN-11
10-DEC-84 15-JUN-10

14 rows selected.
```

7. DISPLAY THE TOTAL SALARY AS SUM OF SALARY AND COMMISSION USING nvl.

select salary+nvl(conveyance,0) as total_salary from emp_master;

```
SQL> select salary+nvl(conveyance,0) as total_salary from emp_master;

TOTAL_SALARY
------------
       46300
       32100
       35200
       31825
       44000
       46200
       37840
       20350
       31570
       44000
       22000

TOTAL_SALARY
------------
       47500
       20350
       24675

14 rows selected.
```

8. DISPLAY THE NAME, AGE AND EXPERIENCE IN COMPANY FOR ALL EMPLOYERS

select name, trunc(months_between(sysdate,dob)/12) as age, trunc(months_between(doj,dob)/12) as experience from emp_master;

```
SQL> select name, trunc(months_between(sysdate,dob)/12) as age, trunc(months_between(doj,dob)/12) as experience from emp_master;

NAME                 AGE EXPERIENCE
-------------- ---------- ----------
Alap                  46         27
Ramesh                49         30
Manu                  40         28
Tarak                 39         24
Haresh                40         26
Alap                  44         30
Alian                 50         27
Himanshu              36         24
Naresh                38         27
Rakesh                40         26
Sachin                37         27

NAME                 AGE EXPERIENCE
-------------- ---------- ----------
Azhar                 36         25
Roshan                33         23
Mit                   36         25

14 rows selected.
```

9. DISPLAY THE EMPLOYEE NAME AND HIS DEPARTMENT IN DESCRIPTIVE MANNER AS EMPLOYEE DETAILS.(EG: RAM PATEL IS A MANAGER BELONGING TO ACCOUNTS DEPT)

select emp_master.name ||' '||emp_master.surname||' is a ' || emp_master.designation||' belonging to '

|| department.dname||' department.' from emp_master,department where emp_master.did = department.dno;

```
SQL> select emp_master.name ||' '||emp_master.surname||' is a '|| emp_master.designation||' belonging to  '
  2  || department.dname||' department.' from emp_master,department where emp_master.did = department.dno;

EMP_MASTER.NAME||''||EMP_MASTER.SURNAME||'ISA'||EMP_MASTER.DESIGNATION||'BELONGI
--------------------------------------------------------------------------------
Alap Mehta is a Senior manager belonging to  Markseting department.
Ramesh Trivedi is a Salesman belonging to  Markseting department.
Manu Sheth is a Programmer belonging to  EDP department.
Tarak Gandhi is a Salesman belonging to  Markseting department.
Haresh  is a Analyst belonging to  EDP department.
Alap Shah is a Senior manager belonging to  EDP department.
Alian  is a Programmer belonging to  EDP department.
Himanshu Joshi is a Clerk belonging to  Finance department.
Naresh Mod is a Officer belonging to  Finance department.
Rakesh Patel is a Management belonging to  Finance department.
Sachin Vala is a Cashier belonging to  Finance department.

EMP_MASTER.NAME||''||EMP_MASTER.SURNAME||'ISA'||EMP_MASTER.DESIGNATION||'BELONGI
--------------------------------------------------------------------------------
Azhar  is a Salesman belonging to  Markseting department.
Roshan  is a Clerk belonging to  Finance department.
Mit Shah is a Clerk belonging to  Finance department.

14 rows selected.
```

10. WRITE A QUERY TO EXTRACT A SUBSTRING STARTING FROM SECOND ‘A’ OF THE STRING ‘NAVRANGPURA’.

select substr(substr(’NAVRANGPURA’,instr(’NAVRANGPURA’,’A’) +1),instr(substr(’NAVRANGPURA’,instr(’NAVRANGPURA’,’A’) +1),’A’)) from dual;

11. DISPLAY THE LAST 3 LETTERS OF ‘AHMEDABAD’;

select substr(’AHMEDABAD’,-3) from dual;

```
SQL> select substr('AHMEDABAD',-3) from dual;

SUB
---
BAD
```

12. Display the last name for all employees where last name’s length is greater than 5 characters.

select surname from emp_master where length(surname)>5;

```
SQL> select surname from emp_master where length(surname)>5;

SURNAME
---------------
Trivedi
Gandhi
```

13. For each employee, display :first name,salary salary after a raise of 12% as a whole number (ROUND).

select name, round(salary+salary*.12) as salary from emp_master;

```
SQL> select name, round(salary+salary*.12) as salary from emp_master;

NAME                SALARY
--------------- ----------
Alap                 46816
Ramesh               32032
Manu                 39424
Tarak                31724
Haresh               49280
Alap                 51744
Alian                42381
Himanshu             22792
Naresh               35358
Rakesh               49280
Sachin               24640

NAME                SALARY
--------------- ----------
Azhar                49280
Roshan               22792
Mit                  23716

14 rows selected.
```

14. For each employee, display the first name, the day of his hire date, and the year of his hire date

select name, extract(day from doj) as day, extract(year from doj) as year from emp_master;

```
SQL> select name, extract(day from doj) as day, extract(year from doj) as year from emp_master;

NAME                DAY       YEAR
--------------- ---------- ----------
Alap                  5       2002
Ramesh                7       2002
Manu                  8       2008
Tarak                30       2005
Haresh               25       2006
Alap                 25       2007
Alian                19       1998
Himanshu              1       2008
Naresh               15       2009
Rakesh                5       2007
Sachin               15       2010

NAME                DAY       YEAR
--------------- ---------- ----------
Azhar                 1       2010
Roshan                5       2011
Mit                  15       2010

14 rows selected.
```

AGGREGATE FUNCTIONS:

1. DISPLAY THE TOTAL NUMBER OF EMPLOYEES IN EACH DEPARTMENT.

select did, count(eno) from Emp_master group by did;

```
SQL> select did, count(eno) from Emp_master group by did;

       DID COUNT(ENO)
---------- ----------
        30          4
        40          6
        10          4
```

2. **Display the minimum,maximum,total salary of the employee.**

select min(salary) as minimum, max(salary) as maximum, sum(salary) as total from emp_master;

```
SQL> select min(salary) as minimum, max(salary) as maximum, sum(salary) as total from emp_master;

   MINIMUM    MAXIMUM      TOTAL
---------- ---------- ----------
     20350      46200     465410
```

3. **LIST THE AVERAGE SALARY FOR EACH DESIGNATION WITHIN EACH DEPT.**

select designation, did, avg(salary)as avg_sal from emp_master group by rollup(did,designation);

```
SQL> select designation, did, avg(salary)as avg_sal from emp_master group by rollup(did,designation);

DESIGNATION           DID    AVG_SAL
-------------- ---------- ----------
Salesman               10 33641.6667
Senior manager         10      41800
                       10   35681.25
Analyst                30      44000
Programmer             30      36520
Senior manager         30      46200
                       30      40810
Clerk                  40      20625
Cashier                40      22000
Officer                40      31570
Management             40      44000

DESIGNATION           DID    AVG_SAL
-------------- ---------- ----------
                       40 26574.1667
                          33243.5714

13 rows selected.
```

??

4. **Display the employers by grouping them according to their designation.**

select designation,count(eno) from emp_master group by designation;

```
SQL> select designation,count(eno) from emp_master group by designation;

DESIGNATION     COUNT(ENO)
--------------- ----------
Programmer               2
Analyst                  1
Clerk                    3
Management               1
Cashier                  1
Senior manager           2
Salesman                 3
Officer                  1

8 rows selected.
```

5. **DISPLAY THE DEPARTMENTS WITH THE TOTAL NUMBER OF EMPLOYEES IN EACH AND HAVING SALARY GREATER THAN 20000.**
   select did,count(eno) from emp_master group by did having salary>20000;

6. **CREATE A NEW EMPLOYEE TABLE AS 'EMP_TEMP' FROM THE EXISTING TABLE**

JOIN:

7. Display the employee details ALONG WITH THE department DETAILS to which they belong.
8. Write a query to extract empno, ename, salary, dname and location from employee and department table where empno = deptno without using joins
9. Write a query to extract ename, salary and designation from employee and department table where deptno is 30 ,40,50..
10. Display all the employee detail and all dept details from employee and department table.
11. Display the employee details along with the employee details(eno, name) to which they report to.(self join)
12. Display the employee details and department name of employees having salary greater than 21000
13. List the dept name and total number of employees in each dept.
14. Display the employee details belonging to purchase department.
15. Display the Cartesian product of emp and dept table.
16. Find the names of all employees in the database who live in the same cities as the companies for which they work.

SUB QUERY:

1. Display the employee names who earn salary more than the average salary of the department.
2. Display the employee details who has salary more than 'Manu'.
3. Display the employee details who Has the same designation as the employees belonging to department number 10.

```
SQL> select ename ,deptname from employ where deptname in(select deptname from employ where ename='SMITH")
  2  ;
ERROR:
ORA-01756: quoted string not properly terminated


SQL> select ename ,deptname from employ where deptname in(select deptname from employ where ename='SMITH');

ENAME      DEPTNAME
---------- ----------
ADAMS      BANKING
KING       BANKING
WARD       BANKING
SMITH      BANKING

SQL> select ename ,sal ,deptnme from employ where sal > all(select avg(sal) from employ group by deptname);
```

search for subqueries and all:

Any, all,

select eno, name, salary, did, (select min(salary)from emp_master) from emp_master order by did;

select eno, name, salary, did, (select avg(salary) from emp_master) from emp_master order by did;

select did from emp_master where name = 'Alap';

select name from emp_master where did = (select did from emp_master where name = 'Alap');

update employ set sal = sal*0.10;

update emp_master set salary = (select salary from emp where name = 'Ramesh') where did = (select did from emp_master where name = 'Ramesh');

subqueries can be used for deleting also.