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JOINS

```
SQL> create table deprt(department_id number(10),department_name varchar(16),manager_id
number(10),location_id number(10));

Table created.

SQL> desc deprt;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DEPARTMENT_ID                                      NUMBER(10)
 DEPARTMENT_NAME                                    VARCHAR2(16)
 MANAGER_ID                                         NUMBER(10)
 LOCATION_ID                                        NUMBER(10)

SQL> insert into deprt values(10,'admininstration',200,1700);

1 row created.

SQL> insert into deprt values(20,'marketing',201,1700);

1 row created.

SQL> insert into deprt values(30,'purchasing',202,1800);

1 row created.

SQL> insert into deprt values(40,'humanresource',203,1900);

1 row created.

SQL> insert into deprt values(50,'payroll',204,1700);

1 row created.

SQL> insert into deprt values(60,'shipping',205,1900);

1 row created.

SQL> insert into deprt values(70,'sales',206,1700);

1 row created.

SQL> insert into deprt values(80,'contracting',207,1700);

1 row created.

SQL> select * from deprt;

DEPARTMENT_ID DEPARTMENT_NAME  MANAGER_ID LOCATION_ID
------------- ---------------- ---------- -----------
        10                admininstration        200       1700
```

20	marketing	201	1700
30	purchasing	202	1800
40	humanresource	203	1900
50	payroll	204	1700
60	shipping	205	1900
70	sales	206	1700
80	contracting	207	1700

8 rows selected.

```
SQL> create table empl(emp_id number(10),first_name varchar(10),last_name varchar(10),hire_date
varchar(13),job_id varchar(10),salary varchar(10),commission_pct varchar(10),manager_id
number(10),department_id number(10));

Table created.

SQL> desc empl;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMP_ID                                    NUMBER(10)
 FIRST_NAME                                VARCHAR2(10)
 LAST_NAME                                 VARCHAR2(10)
 HIRE_DATE                                 VARCHAR2(13)
 JOB_ID                                    VARCHAR2(10)
 SALARY                                    VARCHAR2(10)
 COMMISSION_PCT                            VARCHAR2(10)
 MANAGER_ID                                NUMBER(10)
 DEPARTMENT_ID                             NUMBER(10)

SQL> insert into empl values(100,'swetha','jenifer','10-DEC-2021','M_P',70000.00,0.10,201,20);

1 row created.

SQL> insert into empl values(101,'chandler','bing','11-AUG-2021','HR',45000.00,0.19,203,40);

1 row created.

SQL> insert into empl values(102,'monica','geller','24-SEP-2021','P_EMP',13000.00,0.20,202,30);

1 row created.

SQL> insert into empl values(103,'racheal','green','10-SEP-2020','A_VP',25000.00,0.16,200,10);

1 row created.

SQL> insert into empl values(104,'phoebe','buffay','11-FEB-2021','M_VP',60000.00,0.30,201,20);

1 row created.

SQL> insert into empl values(105,'ross','geller','18-MAY-2022','S_EMP',10000.00,0.13,206,70);

1 row created.

SQL> insert into empl values(106,'dinesh','kumar','17-MAR-2022','PY_EMP',12000.00,0.16,204,50);

1 row created.
```

```
SQL> insert into empl values(107,'hari','prasath','09-OCT-2021','C_MD',45000.00,0.18,207,80);

1 row created.

SQL> insert into empl values(108,'yoga','eshwari','01-SEP-2021','S_EXE',35000.00,0.10,206,70);

1 row created.

SQL> insert into empl values(109,'rolex','suriya','11-NOV-2021','A_EXE',50000.00,0.11,200,10);

1 row created.

SQL> insert into empl values(110,'newlin','blessy','09-JUN-2021','P_EXE',25000.00,0.10,202,30);

1 row created.

SQL> insert into empl values(111,'joshwa','peter','18-JUL-2020','SP_EXE',36000.00,0.16,205,60);

1 row created.

SQL> insert into empl values(112,'sam','victor','09-JAN-2020','CNTR',40000.00,0.14,207,80);

1 row created.

SQL> insert into empl values(113,'harish','umesh','03-DEC-2021','S_MD',23000.00,0.10,206,70);

1 row created.

SQL> select * from empl;

   EMP_ID FIRST_NAME LAST_NAME  HIRE_DATE     JOB_ID     SALARY     COMMISSION
---------- ---------- ---------- ------------- ---------- ---------- ----------
MANAGER_ID DEPARTMENT_ID
---------- -------------
       100 swetha     jenifer    10-DEC-2021   M_P        70000      .1
       201          20

       101 chandler   bing       11-AUG-2021   HR         45000      .19
       203          40

       102 monica     geller     24-SEP-2021   P_EMP      13000      .2
       202          30


   EMP_ID FIRST_NAME LAST_NAME  HIRE_DATE     JOB_ID     SALARY     COMMISSION
---------- ---------- ---------- ------------- ---------- ---------- ----------
MANAGER_ID DEPARTMENT_ID
---------- -------------
       103 racheal    green      10-SEP-2020   A_VP       25000      .16
       200          10

       104 phoebe     buffay     11-FEB-2021   M_VP       60000      .3
       201          20

       105 ross       geller     18-MAY-2022   S_EMP      10000      .13
       206          70
```

```
   EMP_ID FIRST_NAME LAST_NAME  HIRE_DATE     JOB_ID     SALARY     COMMISSION
---------- ---------- ---------- ------------- ---------- ---------- ----------
MANAGER_ID DEPARTMENT_ID
---------- -------------
      106 dinesh     kumar      17-MAR-2022   PY_EMP     12000      .16
      204          50

      107 hari       prasath    09-OCT-2021   C_MD       45000      .18
      207          80

      108 yoga       eshwari    01-SEP-2021   S_EXE      35000      .1
      206          70


   EMP_ID FIRST_NAME LAST_NAME  HIRE_DATE     JOB_ID     SALARY     COMMISSION
---------- ---------- ---------- ------------- ---------- ---------- ----------
MANAGER_ID DEPARTMENT_ID
---------- -------------
      109 rolex      suriya     11-NOV-2021   A_EXE      50000      .11
      200          10

      110 newlin     blessy     09-JUN-2021   P_EXE      25000      .1
      202          30

      111 joshwa     peter      18-JUL-2020   SP_EXE     36000      .16
      205          60


   EMP_ID FIRST_NAME LAST_NAME  HIRE_DATE     JOB_ID     SALARY     COMMISSION
---------- ---------- ---------- ------------- ---------- ---------- ----------
MANAGER_ID DEPARTMENT_ID
---------- -------------
      112 sam        victor     09-JAN-2020   CNTR       40000      .14
      207          80

      113 harish     umesh      03-DEC-2021   S_MD       23000      .1
      206          70


14 rows selected.
```

1.Write a SQL query to find the first name, last name, department number, and department name for each employee.

```
SQL> SELECT E.first_name , E.last_name , E.department_id , D.department_name FROM empl E JOIN
deprt D ON E.department_id = D.department_id;

FIRST_NAME LAST_NAME  DEPARTMENT_ID DEPARTMENT_NAME
---------- ---------- ------------- ----------------
swetha     jenifer             20 marketing
chandler   bing                40 humanresource
monica     geller              30 purchasing
racheal    green               10 admininstration
phoebe     buffay              20 marketing
ross       geller              70 sales
dinesh     kumar               50 payroll
hari       prasath             80 contracting
```

```
yoga      eshwari            70 sales
rolex     suriya              10 admininstration
newlin    blessy             30 purchasing

FIRST_NAME LAST_NAME  DEPARTMENT_ID DEPARTMENT_NAME
---------- ---------- ------------- ----------------
joshwa    peter              60 shipping
sam       victor             80 contracting
harish    umesh               70 sales

14 rows selected.
```

2. write a SQL query to find the first name, last name, department, for each employee

```
SQL> SELECT E.first_name , E.last_name, D.department_name FROM empl E JOIN deprt D ON
E.department_id = D.department_id;

FIRST_NAME LAST_NAME  DEPARTMENT_NAME
---------- ---------- ----------------
swetha    jenifer    marketing
chandler  bing       humanresource
monica    geller     purchasing
racheal   green      admininstration
phoebe    buffay     marketing
ross      geller     sales
dinesh    kumar      payroll
hari      prasath    contracting
yoga      eshwari    sales
rolex     suriya     admininstration
newlin    blessy     purchasing

FIRST_NAME LAST_NAME  DEPARTMENT_NAME
---------- ---------- ----------------
joshwa    peter      shipping
sam       victor     contracting
harish    umesh      sales

14 rows selected.
```

3. write a SQL query to find the first name, last name, salary, and job grade for all employees.

```
SQL> create table job_grades(grade_level varchar(1),lowest_sal varchar(10),highest varchar(10));

Table created.

SQL>
SQL> insert into job_grades values('A',10000.00,12000.00);

1 row created.

SQL> insert into job_grades values('B',13000.00,15000.00);

1 row created.

SQL> insert into job_grades values('C',20000.00,25000.00);

1 row created.
```

```
SQL> insert into job_grades values('D',30000.00,39000.00);

1 row created.

SQL> insert into job_grades values('E',40000.00,70000.00);

1 row created.

SQL> select * from job_grades;

G LOWEST_SAL HIGHEST
- ---------- ----------
A 10000      12000
B 13000      15000
C 20000      25000
D 30000      39000
E 40000      70000

SQL> SELECT E.first_name, E.last_name, E.salary, J.grade_level FROM empl E JOIN job_grades J ON
E.salary BETWEEN J.lowest_sal AND J.highest;

FIRST_NAME LAST_NAME  SALARY     G
---------- ---------- ---------- -
ross       geller     10000      A
dinesh     kumar      12000      A
monica     geller     13000      B
racheal    green      25000      C
newlin     blessy     25000      C
harish     umesh      23000      C
yoga       eshwari    35000      D
joshwa     peter      36000      D
swetha     jenifer    70000      E
chandler   bing       45000      E
phoebe     buffay     60000      E

FIRST_NAME LAST_NAME  SALARY     G
---------- ---------- ---------- -
hari       prasath    45000      E
rolex      suriya     50000      E
sam        victor     40000      E

14 rows selected.
```

4. Write a SQL query to find all those employees who work in department ID 80 or 40. Return first name, last name, department number and department name.

```
SQL> SELECT E.first_name , E.last_name , E.department_id , D.department_name FROM empl E JOIN
deprt D ON E.department_id = D.department_id AND E.department_id IN (80 , 40) ORDER BY
E.last_name;

FIRST_NAME LAST_NAME  DEPARTMENT_ID DEPARTMENT_NAME
---------- ---------- ------------- ----------------
chandler   bing                40 humanresource
hari       prasath             80 contracting
sam        victor              80 contracting
```

5. Write a SQL query to find those employees whose first name contains the letter 'z'. Return first name, last name, department_name.

```
SQL> SELECT E.first_name,E.last_name,D.department_name FROM empl E JOIN deprt D ON
E.department_id = D.department_id WHERE E.first_name LIKE '%c%';

FIRST_NAME LAST_NAME  DEPARTMENT_NAME
---------- ---------- ---------------
racheal    green      admininstration
monica     geller     purchasing
chandler   bing       humanresource

SQL> SELECT E.first_name,E.last_name,D.department_name FROM empl E JOIN deprt D ON
E.department_id = D.department_id WHERE E.first_name LIKE '%z%';

no rows selected
```

6. write a SQL query to find all departments, including those without employees. Return first name, last name, department ID, department name.

```
SQL> SELECT E.first_name, E.last_name, D.department_id, D.department_name  FROM empl E  RIGHT
OUTER JOIN deprt D ON E.department_id = D.department_id;

FIRST_NAME LAST_NAME  DEPARTMENT_ID DEPARTMENT_NAME
---------- ---------- ------------- ----------------
swetha     jenifer            20 marketing
chandler   bing               40 humanresource
monica     geller             30 purchasing
racheal    green              10 admininstration
phoebe     buffay              20 marketing
ross       geller              70 sales
dinesh     kumar               50 payroll
hari       prasath             80 contracting
yoga       eshwari             70 sales
rolex      suriya             10 admininstration
newlin     blessy             30 purchasing

FIRST_NAME LAST_NAME  DEPARTMENT_ID DEPARTMENT_NAME
---------- ---------- ------------- ----------------
joshwa               peter            60             shipping
sam                  victor           80             contracting
harish               umesh             70              sales

14 rows selected.
```

7. write a SQL query to find the employees who earn less than the employee of ID 182. Return first name, last name and salary.

```
SQL> SELECT E.first_name, E.last_name, E.salary FROM empl E JOIN empl S ON E.salary < S.salary AND
S.emp_id = 111;

FIRST_NAME LAST_NAME  SALARY
---------- ---------- ----------
monica     geller     13000
racheal    green      25000
ross       geller     10000
dinesh     kumar      12000
yoga       eshwari    35000
newlin     blessy     25000
harish     umesh      23000
```

7 rows selected.

8. write a SQL query to find the employees and their managers. These managers do not work under any manager. Return the first name of the employee and manager.

```
SQL>
SQL> SELECT E.first_name AS "Employee Name" FROM empl E  LEFT OUTER JOIN employee M ON
E.manager_id = M.emp_id;
SELECT E.first_name AS "Employee Name" FROM empl E  LEFT OUTER JOIN employee M ON
E.manager_id = M.emp_id
                                          *
ERROR at line 1:
ORA-00942: table or view does not exist


SQL> SELECT E.first_name AS "Employee Name" FROM empl E  LEFT OUTER JOIN empl M ON
E.manager_id = M.emp_id;

Employee N
----------
newlin
monica
phoebe
swetha
dinesh
chandler
rolex
racheal
harish
yoga
ross

Employee N
----------
sam
hari
joshwa

14 rows selected.
```

9. write a SQL query to calculate the difference between the maximum salary of the job and the employee's salary. Return job title, employee name, and salary difference.

```
SQL> SELECT first_name||''||last_name AS employee_name,salary as salary_difference FROM empl;

EMPLOYEE_NAME       SALARY_DIF
-------------------- ----------
swethajenifer       70000
chandlerbing        45000
monicageller        13000
rachealgreen        25000
phoebebuffay        60000
rossgeller          10000
dineshkumar         12000
hariprasath         45000
yogaeshwari         35000
```

rolexsuriya 50000
newlinblessy 25000

EMPLOYEE_NAME SALARY_DIF
---------- ----------
joshwapeter 36000
samvictor 40000
harishumesh 23000

14 rows selected.

10. write a SQL query to calculate the average salary, the number of employees receiving commissions in that department. Return department name, average salary and number of employees.

SQL> SELECT department_name, AVG(salary), COUNT(commission_pct) FROM deprt JOIN empl USING (department_id) GROUP BY department_name;

DEPARTMENT_NAME	AVG(SALARY)	COUNT(COMMISSION_PCT)
purchasing	19000	2
admininstration	37500	2
payroll	12000	1
sales	22666.6667	3
marketing	65000	2
humanresource	45000	1
contracting	42500	2
shipping	36000	1

8 rows selected.