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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)
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
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
107	hari	prasath	09-OCT-2021	C_MD	45000.00	0.18
108	yoga	eshwari	01-SEP-2021	S_EXE	35000.00	0.10
109	rolex	suriya	11-NOV-2021	A_EXE	50000.00	0.11
110	newlin	blessy	09-JUN-2021	P_EXE	25000.00	0.10
111	joshwa	peter	18-JUL-2020	SP_EXE	36000.00	0.16
112	sam	victor	09-JAN-2020	CNTR	40000.00	0.14
113	harish	umesh	03-DEC-2021	S_MD	23000.00	0.10

MANAGER_ID	DEPARTMENT_ID						
103 200	racheal	green	10-SEP-2020	A_VP	25000	.16	
104 201	phoebe	buffay	11-FEB-2021	M_VP	60000	.3	
105 206	ross	geller	18-MAY-2022	S_EMP	10000	.13	

EMP_ID	FIRST_NAME	LAST_NAME	HIRE_DATE	JOB_ID	SALARY	COMMISSION
106 204	dinesh	kumar	17-MAR-2022	PY_EMP	12000	.16
107 207	hari	prasath	09-OCT-2021	C_MD	45000	.18
108 206	yoga	eshwari	01-SEP-2021	S_EXE	35000	.1

MANAGER_ID	DEPARTMENT_ID						
106 204	dinesh	kumar	17-MAR-2022	PY_EMP	12000	.16	
107 207	hari	prasath	09-OCT-2021	C_MD	45000	.18	
108 206	yoga	eshwari	01-SEP-2021	S_EXE	35000	.1	

EMP_ID	FIRST_NAME	LAST_NAME	HIRE_DATE	JOB_ID	SALARY	COMMISSION
109 200	rolex	suriya	11-NOV-2021	A_EXE	50000	.11
110 202	newlin	blessy	09-JUN-2021	P_EXE	25000	.1
111 205	joshwa	peter	18-JUL-2020	SP_EXE	36000	.16

MANAGER_ID	DEPARTMENT_ID						
109 200	rolex	suriya	11-NOV-2021	A_EXE	50000	.11	
110 202	newlin	blessy	09-JUN-2021	P_EXE	25000	.1	
111 205	joshwa	peter	18-JUL-2020	SP_EXE	36000	.16	

EMP_ID	FIRST_NAME	LAST_NAME	HIRE_DATE	JOB_ID	SALARY	COMMISSION
112 207	sam	victor	09-JAN-2020	CNTR	40000	.14
113 206	harish	umesh	03-DEC-2021	S_MD	23000	.1

MANAGER_ID	DEPARTMENT_ID						
112 207	sam	victor	09-JAN-2020	CNTR	40000	.14	
113 206	harish	umesh	03-DEC-2021	S_MD	23000	.1	

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
dept 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.

SQL>