

## ORACLE LAB EXERCISE – 4

### JOINS

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**SQL> connect system**

Enter password:

Connected.

**SQL> create table agents(Agent\_code varchar(20),Agent\_name  
varchar(20),Working\_Area varchar(20));**

Table created.

**SQL> create table customers(Customer\_code varchar(20),Customer\_name  
varchar(20),Customer\_Area varchar(20));**

Table created.

**SQL> insert into agents values('A101','agent1','Chennai');**

1 row created.

**SQL> insert into agents values('A102','agent2','Chennai');**

1 row created.

**SQL> insert into agents values('A103','agent3','Bangalore');**

1 row created.

**SQL> insert into agents values('A104','agent4','Bangalore');**

1 row created.

**SQL> insert into customers values('C101','customer1','Chennai');**

1 row created.

**SQL> insert into customers values('C102','customer2','Chennai');**

1 row created.

**SQL> insert into customers values('C103','customer3','Chennai');**

1 row created.

**SQL> insert into customers values('C104','customer4','Bangalore');**

1 row created.

**SQL> insert into customers values('C105','customer5','Bangalore');**

1 row created.

**SQL> select \* from agents;**

AGENT_CODE	AGENT_NAME	WORKING_AREA
-----	-----	-----
A101	agent1	Chennai
A102	agent2	Chennai
A103	agent3	Bangalore
A104	agent4	Bangalore

**SQL> select \* from customers;**

CUSTOMER_CODE	CUSTOMER_NAME	CUSTOMER_AREA
-----	-----	-----
C101	customer1	Chennai
C102	customer2	Chennai
C103	customer3	Chennai
C104	customer4	Bangalore
C105	customer5	Bangalore

**SQL> commit;**

Commit complete.

**SQL> select a.agent\_name,c.customer\_name,c.customer\_area from agents a join customers c on a.working\_area=c.customer\_area;**

AGENT_NAME	CUSTOMER_NAME	CUSTOMER_AREA
-----	-----	-----
agent2	customer1	Chennai
agent1	customer1	Chennai
agent2	customer2	Chennai
agent1	customer2	Chennai
agent2	customer3	Chennai
agent1	customer3	Chennai
agent4	customer4	Bangalore
agent3	customer4	Bangalore
agent4	customer5	Bangalore
agent3	customer5	Bangalore

10 rows selected.

**SQL> insert into agents values('A105','agent5','New York');**

1 row created.

**SQL> insert into customers values('C106','customer6','Delhi');**

1 row created.

**SQL> commit;**

Commit complete.

**SQL> select \* from agents;**

AGENT_CODE	AGENT_NAME	WORKING_AREA
-----	-----	-----
A101	agent1	Chennai
A102	agent2	Chennai

A103	agent3	Bangalore
A104	agent4	Bangalore
A105	agent5	New York

**SQL> select \* from customers;**

CUSTOMER_CODE	CUSTOMER_NAME	CUSTOMER_AREA
-----	-----	-----
C101	customer1	Chennai
C102	customer2	Chennai
C103	customer3	Chennai
C104	customer4	Bangalore
C105	customer5	Bangalore
C106	customer6	Delhi

6 rows selected.

### LEFT OUTER JOIN/LEFT JOIN

**SQL> select agent\_code from agents left outer join customers on agents.working\_area=customers.customer\_area;**

AGENT\_CODE

-----

A102

A101

A102

A101

A102

A101

A104

A103

A104

A103

A105

11 rows selected.

### RIGHT OUTER JOIN/RIGHT JOIN

```
SQL> select * from agents right outer join customers on  
agents.working_area=customers.customer_area;
```

AGENT_CODE	AGENT_NAME	WORKING_AREA	CUSTOMER_CODE	CUSTOMER_NAME	CUSTOMER_AREA
A101	agent1	Chennai	C103	customer3	Chennai
A101	agent1	Chennai	C102	customer2	Chennai
A101	agent1	Chennai	C101	customer1	Chennai
A102	agent2	Chennai	C103	customer3	Chennai
A102	agent2	Chennai	C102	customer2	Chennai
A102	agent2	Chennai	C101	customer1	Chennai
A103	agent3	Bangalore	C105	customer5	Bangalore
A103	agent3	Bangalore	C104	customer4	Bangalore
A104	agent4	Bangalore	C105	customer5	Bangalore
A104	agent4	Bangalore	C104	customer4	Bangalore
			C106	customer6	Delhi

11 rows selected.

```
SQL> select * from agents right join customers on  
agents.working_area=customers.customer_area;
```

AGENT_CODE	AGENT_NAME	WORKING_AREA	CUSTOMER_CODE	CUSTOMER_NAME	CUSTOMER_AREA
A101	agent1	Chennai	C103	customer3	Chennai
A101	agent1	Chennai	C102	customer2	Chennai
A101	agent1	Chennai	C101	customer1	Chennai
A102	agent2	Chennai	C103	customer3	Chennai
A102	agent2	Chennai	C102	customer2	Chennai
A102	agent2	Chennai	C101	customer1	Chennai

A103	agent3	Bangalore	C105	customer5	Bangalore
A103	agent3	Bangalore	C104	customer4	Bangalore
A104	agent4	Bangalore	C105	customer5	Bangalore
A104	agent4	Bangalore	C104	customer4	Bangalore
			C106	customer6	Delhi

11 rows selected.

**SQL> select \* from agents,customers on  
agents.working\_area(+)=customers.customer\_area;**

select \* from agents,customers on agents.working\_area(+)=customers.customer\_area

\*

ERROR at line 1:

ORA-00933: SQL command not properly ended

## FULL JOIN

**SQL> select \* from agents full outer join customers on  
agents.working\_area=customers.customer\_area;**

AGENT_CODE	AGENT_NAME	WORKING_AREA	CUSTOMER_CODE	CUSTOMER_NAME	CUSTOMER_AREA
-----	-----	-----	-----	-----	-----
A102	agent2	Chennai	C101	customer1	Chennai
A101	agent1	Chennai	C101	customer1	Chennai
A102	agent2	Chennai	C102	customer2	Chennai
A101	agent1	Chennai	C102	customer2	Chennai
A102	agent2	Chennai	C103	customer3	Chennai
A101	agent1	Chennai	C103	customer3	Chennai
A104	agent4	Bangalore	C104	customer4	Bangalore
A103	agent3	Bangalore	C104	customer4	Bangalore
A104	agent4	Bangalore	C105	customer5	Bangalore
A103	agent3	Bangalore	C105	customer5	Bangalore
			C106	customer6	Delhi
A105	agent5	New York			

12 rows selected.

**SQL> select \* from agents full join customers on agents.working\_area=customers.customer\_area;**

AGENT_CODE	AGENT_NAME	WORKING_AREA	CUSTOMER_CODE	CUSTOMER_NAME	CUSTOMER_AREA
-----	-----	-----	-----	-----	-----
A102	agent2	Chennai	C101	customer1	Chennai
A101	agent1	Chennai	C101	customer1	Chennai
A102	agent2	Chennai	C102	customer2	Chennai
A101	agent1	Chennai	C102	customer2	Chennai
A102	agent2	Chennai	C103	customer3	Chennai
A101	agent1	Chennai	C103	customer3	Chennai
A104	agent4	Bangalore	C104	customer4	Bangalore
A103	agent3	Bangalore	C104	customer4	Bangalore
A104	agent4	Bangalore	C105	customer5	Bangalore
A103	agent3	Bangalore	C105	customer5	Bangalore
			C106	customer6	Delhi
A105	agent5	New York			

12 rows selected.

## CROSS JOIN

**SQL> select agents.agent\_name,customers.customer\_name,customers.customer\_area from agents cross join customers;**

AGENT_NAME	CUSTOMER_NAME	CUSTOMER_AREA
-----	-----	-----
agent1	customer1	Chennai
agent1	customer2	Chennai
agent1	customer3	Chennai
agent1	customer4	Bangalore
agent1	customer5	Bangalore
agent1	customer6	Delhi
agent2	customer1	Chennai

agent2	customer2	Chennai
agent2	customer3	Chennai
agent2	customer4	Bangalore
agent2	customer5	Bangalore
agent2	customer6	Delhi
agent3	customer1	Chennai
agent3	customer2	Chennai
agent3	customer3	Chennai
agent3	customer4	Bangalore
agent3	customer5	Bangalore
agent3	customer6	Delhi
agent4	customer1	Chennai
agent4	customer2	Chennai
agent4	customer3	Chennai
agent4	customer4	Bangalore
agent4	customer5	Bangalore
agent4	customer6	Delhi
agent5	customer1	Chennai
agent5	customer2	Chennai
agent5	customer3	Chennai
agent5	customer4	Bangalore
agent5	customer5	Bangalore
agent5	customer6	Delhi

30 rows selected.

### NATURAL JOIN

**SQL> select agents.agent\_name,customers.customer\_name,customers.customer\_area  
from agents natural join customers;**

AGENT_NAME	CUSTOMER_NAME	CUSTOMER_AREA
-----	-----	-----
agent1	customer1	Chennai



agent1	customer2	Chennai
agent1	customer3	Chennai
agent1	customer4	Bangalore
agent1	customer5	Bangalore
agent1	customer6	Delhi
agent2	customer1	Chennai
agent2	customer2	Chennai
agent2	customer3	Chennai
agent2	customer4	Bangalore
agent2	customer5	Bangalore
agent2	customer6	Delhi
agent3	customer1	Chennai
agent3	customer2	Chennai
agent3	customer3	Chennai
agent3	customer4	Bangalore
agent3	customer5	Bangalore
agent3	customer6	Delhi
agent4	customer1	Chennai
agent4	customer2	Chennai
agent4	customer3	Chennai
agent4	customer4	Bangalore
agent4	customer5	Bangalore
agent4	customer6	Delhi
agent5	customer1	Chennai
agent5	customer2	Chennai
agent5	customer3	Chennai
agent5	customer4	Bangalore
agent5	customer5	Bangalore
agent5	customer6	Delhi

30 rows selected.

## SUB-QUERY

### SINGLE ROW/VALUE SUBQUERY

**SQL> select \* from customers where customer\_area=(select working\_area from agents where agent\_code='A101');**

CUSTOMER_CODE	CUSTOMER_NAME	CUSTOMER_AREA
-----	-----	-----
C101	customer1	Chennai
C102	customer2	Chennai
C103	customer3	Chennai

**SQL> select \* from customers where customer\_area=(select working\_area from agents where agent\_code='A101' or agent\_code='A104');**

select \* from customers where customer\_area=(select working\_area from agents where agent\_code='A101' or agent\_code='A104')

\*

ERROR at line 1:

ORA-01427: single-row subquery returns more than one row

### MULTI ROW SUBQUERY

**SQL> select \* from customers where customer\_area in(select working\_area from agents where agent\_code='A101' or agent\_code='A104');**

CUSTOMER_CODE	CUSTOMER_NAME	CUSTOMER_AREA
-----	-----	-----
C103	customer3	Chennai
C102	customer2	Chennai
C101	customer1	Chennai
C105	customer5	Bangalore
C104	customer4	Bangalore