

SQL COMMANDS – JOINS & SUB QUERIES

SQL> connect system

Enter password:

Connected.

SQL> create table Agents (Agent_Code varchar(5),Agent_Name varchar(10),Working_Area varchar(10));

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> select * from Agents;

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

SQL> commit;

Commit complete.

SQL> create table Customers (Customer_Code varchar(5),Customer_Name varchar(10),Customer_Area varchar(10));

Table 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> commit;

Commit complete.

SQL> select * from Customers;

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

INNER JOIN - EquiJoins

SQL> select a.Agent_Name,c.Customer_Name,c.Customer_Area from Agents a join Customers c on a.Working_Area = c.Customer_Area; (Using Alias)

SQL> select agents.Agent_Name,customers.Customer_Name,customers.Customer_Area from Agents join Customers on agents.Working_Area = customers.Customer_Area; (Using Table Name)

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.

Non-EquiJoins

**SQL> select agents.Agent_Name,customers.Customer_Name,customers.Customer_Area from Agents
join Customers on agents.Working_Area <> customers.Customer_Area;**

AGENT_NAME CUSTOMER_NAME CUSTOMER_AREA

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agent1	customer4	Bangalore
agent1	customer5	Bangalore
agent2	customer4	Bangalore
agent2	customer5	Bangalore
agent3	customer1	chennai
agent3	customer2	chennai
agent3	customer3	chennai
agent4	customer1	chennai
agent4	customer2	chennai
agent4	customer3	chennai

10 rows selected.

OUTER JOIN - Left Join or Left Outer Join

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

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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
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C101	customer1	chennai
C102	customer2	chennai
C103	customer3	chennai
C104	customer4	Bangalore
C105	customer5	Bangalore
C106	customer6	Delhi

6 rows selected.

SQL> select * from Agents left outer join Customers on agents.Working_Area = customers.Customer_Area;

select * from Agents left join Customers on agents.Working_Area = customers.Customer_Area;

select * from Agents,Customers Where agents.Working_Area = customers.Customer_Area(+);

AGENT_CODE	AGENT_NAME	WORKING_AREA	CUSTOMER_CODE	CUSTOMER_NAME	CUSTOMER_AREA
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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
A105	agent5	New York			

11 rows selected.

Right Join or Right Outer Join

SQL> select * from Agents right outer join Customers on agents.Working_Area = customers.Customer_Area;

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.

Full Join

SQL> select * from Agents full outer join Customers on agents.Working_Area = customers.Customer_Area;

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.

Self Join

SQL> select a.Agent_Code,b.Agent_Name from Agents a,Agents b where a.Working_Area = b.Working_Area;

AGENT_CODE AGENT_NAME

AGENT_CODE	AGENT_NAME
A102	agent1
A101	agent1
A102	agent2
A101	agent2
A104	agent3
A103	agent3
A104	agent4
A103	agent4
A105	agent5

9 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

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
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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 QUERIES – Single & Multi

S - 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

M - 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
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