

SQL\*Plus: Release 19.0.0.0.0 - Production on Sun Apr 7 17:46:44 2024

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Enter user-name: sys as sysdba

Enter password:

SQL> create table sailor(sid int primary key,sname varchar(10),rating int,age float);

Table created.

SQL> create table boat(bid int primary key,bname varchar(10),color varchar(10));

Table created.

SQL> create table reserve (sid int,foreign key(sid) references sailor(sid),bid int,foreign key(bid) references boat(bid),day date);

Table created.

SQL> insert into sailor values(&sid,'&sname',&rating,&age);

Enter value for sid: 22

Enter value for sname: Dustin

Enter value for rating: 7

Enter value for age: 45.0

old 1: insert into sailor values(&sid,'&sname',&rating,&age)

new 1: insert into sailor values(22,'Dustin',7,45.0)

1 row created.

SQL> /

Enter value for sid: 29

Enter value for sname: Brutus

Enter value for rating: 1

Enter value for age: 33.0

old 1: insert into sailor values(&sid,&sname,&rating,&age)

new 1: insert into sailor values(29,'Brutus',1,33.0)

1 row created.

SQL> /

Enter value for sid: 31

Enter value for sname: Lubber

Enter value for rating: 8

Enter value for age: 55.5

old 1: insert into sailor values(&sid,&sname,&rating,&age)

new 1: insert into sailor values(31,'Lubber',8,55.5)

1 row created.

SQL> /

Enter value for sid: 32

Enter value for sname: Andy

Enter value for rating: 8

Enter value for age: 25.5

old 1: insert into sailor values(&sid,&sname,&rating,&age)

new 1: insert into sailor values(32,'Andy',8,25.5)

1 row created.

SQL> /

Enter value for sid: 58

Enter value for sname: Ruby

Enter value for rating: 10

Enter value for age: 35.0

old 1: insert into sailor values(&sid,&sname,&rating,&age)

new 1: insert into sailor values(58,'Ruby',10,35.0)

1 row created.

SQL> /

Enter value for sid: 64

Enter value for sname: Horatio

Enter value for rating: 7

Enter value for age: 35.0

old 1: insert into sailor values(&sid,&sname,&rating,&age)

new 1: insert into sailor values(64,'Horatio',7,35.0)

1 row created.

SQL> /

Enter value for sid: 71

Enter value for sname: Zorba

Enter value for rating: 10

Enter value for age: 16.0

old 1: insert into sailor values(&sid,&sname,&rating,&age)

new 1: insert into sailor values(71,'Zorba',10,16.0)

1 row created.

SQL> /

Enter value for sid: 74

Enter value for sname: Horato2

Enter value for rating: 9

Enter value for age: 35.0

old 1: insert into sailor values(&sid,&sname',&rating,&age)

new 1: insert into sailor values(74,'Horato2',9,35.0)

1 row created.

SQL> /

Enter value for sid: 85

Enter value for sname: Art

Enter value for rating: 3

Enter value for age: 25.5

old 1: insert into sailor values(&sid,'&sname',&rating,&age)

new 1: insert into sailor values(85,'Art',3,25.5)

1 row created.

SQL> /

Enter value for sid: 95

Enter value for sname: Bob

Enter value for rating: 3

Enter value for age: 63.5

old 1: insert into sailor values(&sid,'&sname',&rating,&age)

new 1: insert into sailor values(95,'Bob',3,63.5)

1 row created.

SQL> select \* from sailor;

SID	SNAME	RATING	AGE
-----			
22	Dustin	7	45
29	Brutus	1	33
31	Lubber	8	55.5
32	Andy	8	25.5
58	Ruby	10	35
64	Horatio	7	35
71	Zorba	10	16
74	Horato2	9	35
85	Art	3	25.5
95	Bob	3	63.5

10 rows selected.

```
SQL> insert into boat values(&bid,&bname,&color);
```

Enter value for bid: 101

Enter value for bname: Interlake

Enter value for color: Blue

```
old 1: insert into boat values(&bid,&bname,&color')
```

```
new 1: insert into boat values(101,'Interlake','Blue')
```

1 row created.

```
SQL> /
```

Enter value for bid: 102

Enter value for bname: Interlake

Enter value for color: Red

```
old 1: insert into boat values(&bid,&bname,&color')
```

```
new 1: insert into boat values(102,'Interlake','Red')
```

1 row created.

SQL> /

Enter value for bid: 103

Enter value for bname: Clipper

Enter value for color: Green

old 1: insert into boat values(&bid,&bname,&color')

new 1: insert into boat values(103,'Clipper','Green')

1 row created.

SQL> /

Enter value for bid: 104

Enter value for bname: Marine

Enter value for color: Red

old 1: insert into boat values(&bid,&bname,&color')

new 1: insert into boat values(104,'Marine','Red')

1 row created.

SQL> select \* from boat;

BID	BNAME	COLOR
101	Interlake	Blue
102	Interlake	Red
103	Clipper	Green
104	Marine	Red

SQL> insert into reserve values(&sid,&bid,&day);

Enter value for sid: 22

Enter value for bid: 101

Enter value for day: 10-Oct-98

old 1: insert into reserve values(&sid,&bid,&day)

new 1: insert into reserve values(22,101,10-Oct-98)

insert into reserve values(22,101,10-Oct-98)

\*

ERROR at line 1:

ORA-00984: column not allowed here

SQL> insert into reserve values(&sid,&bid,'&day');

Enter value for sid: 22

Enter value for bid: 101

Enter value for day: 10-Oct-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(22,101,'10-Oct-98')

1 row created.

SQL> /

Enter value for sid: 22

Enter value for bid: 102

Enter value for day: 10-Oct-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(22,102,'10-Oct-98')

1 row created.

SQL> /

Enter value for sid: 22

Enter value for bid: 103

Enter value for day: 10-Aug-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(22,103,'10-Aug-98')

1 row created.

SQL> /

Enter value for sid: 22

Enter value for bid: 104

Enter value for day: 10-Jul-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(22,104,'10-Jul-98')

1 row created.

SQL> /

Enter value for sid: 31

Enter value for bid: 102

Enter value for day: 11-Oct-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(31,102,'11-Oct-98')

1 row created.

SQL> /

Enter value for sid: 31

Enter value for bid: 103

Enter value for day: 11-Jun-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(31,103,'11-Jun-98')



1 row created.

SQL> /

Enter value for sid: 31

Enter value for bid: 104

Enter value for day: 11-Dec-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(31,104,'11-Dec-98')

1 row created.

SQL> /

Enter value for sid: 64

Enter value for bid: 101

Enter value for day: 09-May-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(64,101,'09-May-98')

1 row created.

SQL> /

Enter value for sid: 64

Enter value for bid: 102

Enter value for day: 09-Aug-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(64,102,'09-Aug-98')

1 row created.

SQL> /

Enter value for sid: 74

Enter value for bid: 103

Enter value for day: 09-Aug-98

old 1: insert into reserve values(&sid,&bid,'&day')

new 1: insert into reserve values(74,103,'09-Aug-98')

1 row created.

SQL> select \* from reserve;

SID	BID DAY
22	101 10-OCT-98
22	102 10-OCT-98
22	103 10-AUG-98
22	104 10-JUL-98
31	102 11-OCT-98
31	103 11-JUN-98
31	104 11-DEC-98
64	101 09-MAY-98
64	102 09-AUG-98
74	103 09-AUG-98

10 rows selected.

SQL> select distinct(sname) from sailor;

SNAME

-----  
Bob

Ruby

Zorba

Andy  
Lubber  
Horatio  
Horato2  
Dustin  
Art  
Brutus

10 rows selected.

SQL> select distinct sname from sailor;

SNAME
-----
Bob
Ruby
Zorba
Andy
Lubber
Horatio
Horato2
Dustin
Art
Brutus

10 rows selected.

SQL> select \* from reserve where bid=101;

SID	BID DAY
-----	-----

22	101 10-OCT-98
64	101 09-MAY-98

SQL> select \* from sailor,reserve where sailor.sid=reserve.sid and bid=101;

SID	SNAME	RATING	AGE	SID	BID DAY
22	Dustin	7	45	22	101 10-OCT-98
64	Horatio	7	35	64	101 09-MAY-98

SQL> select distinct(sid) from reserve;

SID
64
31
22
74

SQL> select distinct(reserve.sid) from reserve,sailor where reserve.sid=sailor.sid;

SID
64
31
22
74

SQL> select distinct(reserve.sid),sname from reserve,sailor where reserve.sid=sailor.sid;

SID	SNAME
-----	-------

-----

22 Dustin  
64 Horatio  
74 Horato2  
31 Lubber

SQL> select \* from reserve,boat where reserve.bid=boat.bid and color='Red';

SID	BID DAY	BID BNAME	COLOR
22	102 10-OCT-98	102 Interlake	Red
22	104 10-JUL-98	104 Marine	Red
31	102 11-OCT-98	102 Interlake	Red
31	104 11-DEC-98	104 Marine	Red
64	102 09-AUG-98	102 Interlake	Red

SQL> select sname from sailor,reserve,boat where reserve.bid=boat.bid and color='Red' and reserve.sid=sailor.sid;

SNAME  
-----  
Dustin  
Dustin  
Lubber  
Lubber  
Horatio

SQL> select distinct(sname) from sailor,reserve,boat where reserve.bid=boat.bid and color='Red' and reserve.sid=sailor.sid;

SNAME  
-----

Lubber

Horatio

Dustin

SQL> select distinct(sname),age from sailor,reserve,boat where reserve.bid=boat.bid and color='Red' and reserve.sid=sailor.sid;

SNAME	AGE
Dustin	45
Horatio	35
Lubber	55.5

SQL> select distinct(sname),age from sailor,reserve,boat where reserve.bid=boat.bid and color='Red' and reserve.sid=sailor.sid order by age;

SNAME	AGE
Horatio	35
Dustin	45
Lubber	55.5

SQL> select \* from reserve r1,reserve r2 where r1.sid=r2.sid and r1.day=r2.day and r1.bid <> r2.bid;

SID	BID DAY	SID	BID DAY
22	102 10-OCT-98	22	101 10-OCT-98
22	101 10-OCT-98	22	102 10-OCT-98

SQL> select sname from sailor,reserve r1,reserve r2 where r1.sid=r2.sid and r1.day=r2.day and r1.bid <> r2.bid and sailor.sid=r1.sid;

SNAME

-----

Dustin

Dustin

SQL> select sname from sailor, reserve r1, reserve r2 where r1.sid=r2.sid and r1.day=r2.day and r1.bid  
<> r2.bid and sailor.sid=r2.sid;

SNAME

-----

Dustin

Dustin

SQL> select sname from sailor, reserve r1, reserve r2 where sailor.sid=r2.sid and r1.day=r2.day and  
r1.bid <> r2.bid and sailor.sid=r1.sid;

SNAME

-----

Dustin

Dustin

SQL> select distinct(sname) from sailor, reserve r1, reserve r2 where sailor.sid=r2.sid and  
r1.day=r2.day and r1.bid <> r2.bid and sailor.sid=r1.sid;

SNAME

-----

Dustin

SQL> select distinct(sname) from sailor, reserve r1, reserve r2 where sailor.sid=r2.sid and  
r1.day=r2.day and r1.bid <> r2.bid and sailor.sid=r1.sid;

SNAME

-----

Dustin

SQL> select distinct(sname),sailor.sid from sailor,reserve r1,reserve r2 where sailor.sid=r2.sid and  
r1.day=r2.day and r1.bid <> r2.bid and sailor.sid=r1.sid;

SNAME        SID

-----

Dustin       22

SQL> -----Set Operations

SQL> select \* from reserve,boat where reserve.bid=boat.bid and color='Red' or color='Green';

SID    BID DAY        BID BNAME    COLOR

-----

22	102 10-OCT-98	102 Interlake	Red
31	102 11-OCT-98	102 Interlake	Red
64	102 09-AUG-98	102 Interlake	Red
22	101 10-OCT-98	103 Clipper	Green
22	102 10-OCT-98	103 Clipper	Green
22	103 10-AUG-98	103 Clipper	Green
22	104 10-JUL-98	103 Clipper	Green
31	102 11-OCT-98	103 Clipper	Green
31	103 11-JUN-98	103 Clipper	Green
31	104 11-DEC-98	103 Clipper	Green
64	101 09-MAY-98	103 Clipper	Green

SID    BID DAY        BID BNAME    COLOR

-----

64	102 09-AUG-98	103 Clipper	Green
----	---------------	-------------	-------



74	103 09-AUG-98	103 Clipper	Green
22	104 10-JUL-98	104 Marine	Red
31	104 11-DEC-98	104 Marine	Red

15 rows selected.

SQL> select sid from reserve,boat where reserve.bid=boat.bid and color='Red' or color='Green';

SID  
-----

22

31

64

22

22

22

22

31

31

31

64

SID  
-----

64

74

22

31

15 rows selected.

```
SQL> select distinct sid from reserve,boat where reserve.bid=boat.bid and color='Red' or color='Green';
```

```
SID
-----
64
31
22
74
```

```
SQL> select sid from reserve,boat where reserve.bid=boat.bid and color='Red' union select sid from reserve,boat where reserve.bid=boat.bid and color='Green';
```

```
SID
-----
22
31
64
74
```

```
SQL> select sid,color from reserve,boat where reserve.bid=boat.bid and color='Red' union select sid,color from reserve,boat where reserve.bid=boat.bid and color='Green';
```

```
SID COLOR
-----
22 Green
22 Red
31 Green
31 Red
64 Red
74 Green
```

6 rows selected.

```
SQL> select sid from reserve where bid=103;
```

SID
22
31
74

```
SQL> select sid from sailor intersect select sid from reserve where bid=103;
```

SID
22
31
74

```
SQL> select sid,sname from sailor intersect select reserve.sid,sname from reserve,sailor where  
bid=103 and reserve.sid=sailor.sid;
```

SID	SNAME
22	Dustin
31	Lubber
74	Horato2

```
SQL> select min(age) from sailor;
```

MIN(AGE)

-----

16

SQL> select min(age) from sailor;

MIN(AGE)

-----

16

SQL> select age from sailor intersect select min(age) from sailor;

AGE

-----

16

SQL> select rating from sailor union select min(age) from sailor;

RATING

-----

1

3

7

8

9

10

16

7 rows selected.

SQL> select age from sailor union select min(age) from sailor;

AGE
16
25.5
33
35
45
55.5
63.5

7 rows selected.

SQL> select age from sailor intersect select min(age) from sailor;

AGE
16

SQL> select sname from sailor where age=(select min(age) from sailor);

SNAME
Zorba

SQL> select sname,age from sailor where age=(select min(age) from sailor);

SNAME	AGE
Zorba	16

```
SQL> select sname,age from sailor intersect select sname,age from sailor where age=(select min(age)
from sailor);
```

SNAME	AGE
-----	
Zorba	16

```
SQL> select sid from reserve group by sid;
```

SID
-----
64
31
22
74

```
SQL> select sid,count(*) from reserve group by sid;
```

SID	COUNT(*)
-----	-----
64	2
31	3
22	4
74	1

```
SQL> select sid,count(*) from reserve group by sid having count(*)>(select count(*) from boat);
```

no rows selected

```
SQL> select count(*) from reserve group by sid intersect select count(*) from boat;
```

COUNT(\*)

-----

4

SQL> select sid from reserve group by sid having count(\*)=(select count(\*) from reserve group by sid intersect select count(\*) from boat);

SID

-----

22

SQL> select sid from reserve group by sid having count(sid)=(select count(\*) from reserve group by sid intersect select count(\*) from boat);

SID

-----

22

SQL> select sid from reserve group by sid having count(sid)=(select count(\*) from reserve group by sid intersect select count(\*) from boat);

SID

-----

22

SQL> select sailor.sid from reserve,sailor where reserve.sid=sailor.sid group by reserve.sid having count(reserve.sid)=(select count(\*) from reserve group by sid intersect select count(\*) from boat);

SID

-----

22

```
SQL> select count(*) from reserve group by sid intersect select count(*) from boat;
```

```
COUNT(*)
```

```
-----
```

```
4
```

```
SQL> select sid from reserve group by sid having count(*)=(select count(*) from reserve group by sid intersect select count(*) from boat);
```

```
SID
```

```
-----
```

```
22
```

```
SQL> select sname from sailor where sid=(select sid from reserve group by sid having count(*)=(select count(*) from reserve group by sid intersect select count(*) from boat));
```

```
SNAME
```

```
-----
```

```
Dustin
```

```
SQL> select count(*) from boat;
```

```
COUNT(*)
```

```
-----
```

```
4
```

```
SQL> select sid,count(bid) from reserve group by sid;
```

```
SID COUNT(BID)
```

```
-----
```

```
64      2
```

```
31      3
```



22	4
74	1

SQL> select sid,count(distinct(bid)) from reserve group by sid;

SID COUNT(DISTINCT(BID))	
-----	
64	2
31	3
22	4
74	1

SQL> select sid,count(distinct(bid)) from reserve group by sid having count(distinct(sid))>(select count(\*) from boat);

no rows selected

SQL> select sid,count(distinct(bid)) from reserve group by sid having count(distinct(bid))>(select count(\*) from boat);

no rows selected

SQL> select sid,count(distinct(bid)) from reserve group by sid having count(distinct(bid))>=(select count(\*) from boat);

SID COUNT(DISTINCT(BID))	
-----	
22	4

SQL> select sid from reserve group by sid having count(distinct(bid))>=(select count(\*) from boat);

SID

-----

22

SQL> select sailor.sid from reserve,sailor where reserve.sid=sailor.sid group by reserve.sid having count(distinct(bid))>=(select count(\*) from boat);

SID

-----

22

SQL> select sname from sailor where age=(select min(age) from sailor);

SNAME

-----

Zorba

SQL> select sname,age from sailor where age=(select min(age) from sailor);

SNAME        AGE

-----

Zorba        16

SQL> select count(rating)from sailor group by rating;

COUNT(RATING)

-----

2

1

2

2

1

2

6 rows selected.

SQL> select rating ,count(rating)from sailor group by rating;

RATING COUNT(RATING)

-----

7 2

1 1

8 2

10 2

9 1

3 2

6 rows selected.

SQL> select rating ,avg(age)from sailor group by rating;

RATING AVG(AGE)

-----

7 40

1 33

8 40.5

10 25.5

9 35

3 44.5

6 rows selected.

```
SQL> select count(distinct(sname)) from sailor;
```

```
COUNT(DISTINCT(SNAME))
```

```
-----
```

```
10
```

```
SQL> select count(distinct(sname)) as count from sailor;
```

```
COUNT
```

```
-----
```

```
10
```

```
SQL> select avg(age) from sailor;
```

```
AVG(AGE)
```

```
-----
```

```
36.9
```

```
SQL> select sid from reserve where bid=103;
```

```
SID
```

```
-----
```

```
22
```

```
31
```

```
74
```

```
SQL> select sname from sailor where sid in (select sid from reserve where bid=103);
```

```
SNAME
```

```
-----
```

```
Dustin
```

Lubber

Horato2

```
SQL> select sname,age from sailor where age in (select avg(age) from sailor);
```

no rows selected

```
SQL> select avg(age) from sailor;
```

AVG(AGE)

-----

36.9

```
SQL> select sname,age from sailor where age in (select min(age) from sailor);
```

SNAME	AGE
-------	-----

-----

Zorba	16
-------	----

```
SQL> select count(*) from boat;
```

COUNT(\*)

-----

4

```
SQL> select sid,count(bid) from reserve group by sid;
```

SID	COUNT(BID)
-----	------------

-----

64	2
----	---

31	3
----	---

22	4
74	1

SQL> select sid from reserve group by sid having count(bid) in (select count(\*) from boat);

SID
-----
22

SQL> select sname from sailor where sid in (select sid from reserve group by sid having count(bid) in (select count(\*) from boat));

SNAME
-----
Dustin

SQL> select rating,count(rating) from sailor group by rating;

RATING	COUNT(RATING)
-----	-----
7	2
1	1
8	2
10	2
9	1
3	2

6 rows selected.

SQL> select rating,avg(age) from sailor group by rating;

RATING	AVG(AGE)
--------	----------

-----

7	40
1	33
8	40.5
10	25.5
9	35
3	44.5

6 rows selected.

SQL> select rating,min(age) from sailor group by rating;

RATING	MIN(AGE)
--------	----------

-----

7	35
1	33
8	25.5
10	16
9	35
3	25.5

6 rows selected.

SQL>