

SQL statement with Oracle

6.1 All Columns, All Row

```
SELECT staffNo, fName, lName,  
position, sex, DOB, salary, branchNo  
FROM Staff;
```

Oracle

SQL Worksheet

1

2

3

SELECT staffNo, fName, lName,

position, sex, DOB, salary, branchNo

FROM Staff;

STAFFNO	FNAME	LNAME	POSITION	SEX	DOB	SALARY	BRANCHNO
SA9	Mary	Howe	Assistant	F	19-FEB-70 12.00.00.000000 PM	9000	B007
SG14	David	Ford	Supervisor	M	24-MAR-58 12.00.00.000000 PM	18000	B003
SG37	Ann	Beech	Assistant	F	10-NOV-60 12.00.00.000000 PM	12000	B003
SG5	Susan	Brand	Manager	F	03-JUN-40 12.00.00.000000 PM	24000	B003
SL21	John	White	Manager	M	01-OCT-45 12.00.00.000000 PM	30000	B005
SL41	Julie	Lee	Assistant	F	13-JUN-65 12.00.00.000000 PM	9000	B005

MariaDB



```
mysql> SELECT staffNo, fName, lName,  
-> position, sex, DOB, salary, branchNo  
-> FROM Staff;
```

staffNo	fName	lName	position	sex	DOB	salary	branchNo
SA9	Mary	Howe	Assistant	F	1970-02-19 00:00:00	9000	B007
SG14	David	Ford	Supervisor	M	1958-03-24 00:00:00	18000	B003
SG37	Ann	Beech	Assistant	F	1960-11-10 00:00:00	12000	B003
SG5	Susan	Brand	Manager	F	1940-06-03 00:00:00	24000	B003
SL21	John	White	Manager	M	1945-10-01 00:00:00	30000	B005
SL41	Julie	Lee	Assistant	F	1965-06-13 00:00:00	9000	B005

6 rows in set (0.00 sec)

```
SELECT *  
FROM Staff;
```

Oracle

SQL Worksheet

```
1 SELECT *
2 FROM Staff;
```

STAFFNO	FNAME	LNAME	POSITION	SEX	DOB	SALARY	BRANCHNO	TELEPHONE	MOBILE	EMAIL
SA9	Mary	Howe	Assistant	F	19-FEB-70 12.00.00.000000 PM	9000	B007	1338	079555 12345	MaryHowe@Dreamhome.co.uk
SG14	David	Ford	Supervisor	M	24-MAR-58 12.00.00.000000 PM	18000	B003	0223	079555 12344	DavidFord@Dreamhome.co.uk
SG37	Ann	Beech	Assistant	F	10-NOV-60 12.00.00.000000 PM	12000	B003	0224	079555 12346	AnnBeech@Dreamhome.co.uk
SG5	Susan	Brand	Manager	F	03-JUN-40 12.00.00.000000 PM	24000	B003	0225	079555 12347	SusanBrand@Dreamhome.co.uk
SL21	John	White	Manager	M	01-OCT-45 12.00.00.000000 PM	30000	B005	1512	090555 12345	JohnWhite@Dreamhome.co.uk
SL41	Julie	Lee	Assistant	F	13-JUN-65 12.00.00.000000 PM	9000	B005	1514	090555 12346	JulieLee@Dreamhome.co.uk

MariaDB

```
mysql> SELECT *
-> FROM Staff;
```

staffNo	fName	lName	position	sex	DOB	salary	branchNo	Telephone	Mobile	Email
SA9	Mary	Howe	Assistant	F	1970-02-19 00:00:00	9000	B007	1338	079555 12345	MaryHowe@Dreamhome.co.uk
SG14	David	Ford	Supervisor	M	1958-03-24 00:00:00	18000	B003	0223	079555 12344	DavidFord@Dreamhome.co.uk
SG37	Ann	Beech	Assistant	F	1960-11-10 00:00:00	12000	B003	0224	079555 12346	AnnBeech@Dreamhome.co.uk
SG5	Susan	Brand	Manager	F	1940-06-03 00:00:00	24000	B003	0225	079555 12347	SusanBrand@Dreamhome.co.uk
SL21	John	White	Manager	M	1945-10-01 00:00:00	30000	B005	1512	090555 12345	JohnWhite@Dreamhome.co.uk
SL41	Julie	Lee	Assistant	F	1965-06-13 00:00:00	9000	B005	1514	090555 12346	JulieLee@Dreamhome.co.uk

6.2 Specific Columns, All Rows

```
SELECT staffNo, fName, lName, salary
FROM Staff;
```

Oracle

SQL Worksheet

```
1 v SELECT staffNo, fName, lName, salary
2 FROM Staff;
```

STAFFNO	FNAME	LNAME	SALARY
SA9	Mary	Howe	9000
SG14	David	Ford	18000
SG37	Ann	Beech	12000
SG5	Susan	Brand	24000
SL21	John	White	30000
SL41	Julie	Lee	9000

MariaDB

```
docker
mysql> SELECT staffNo, fName, lName, salary
      -> FROM Staff;
+-----+-----+-----+-----+
| staffNo | fName | lName | salary |
+-----+-----+-----+-----+
| SA9     | Mary  | Howe  | 9000   |
| SG14    | David | Ford  | 18000  |
| SG37    | Ann   | Beech | 12000  |
| SG5     | Susan | Brand | 24000  |
| SL21    | John  | White | 30000  |
| SL41    | Julie | Lee   | 9000   |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

6.3 Use of DISTINCT

```
SELECT propertyNo
FROM Viewing;
```

Oracle

SQL Worksheet

```
1 v SELECT propertyNo
2 FROM Viewing;
```

PROPERTYNO
PA14
PG36
PG4
PA14
PG4
PA14
PG21
PA14
PG21
PG36
PG16
PG21

MariaDB

```
mysql> SELECT propertyNo  
-> FROM Viewing;
```

propertyNo
PA14
PG36
PG4
PA14
PG4
PA14
PG21
PA14
PG21
PG36
PG16
PG21

```
SELECT DISTINCT propertyNo  
FROM Viewing;
```

Oracle

SQL Worksheet

```
1 SELECT DISTINCT propertyNo
2 FROM Viewing;
```

PROPERTYNO
PG4
PG21
PG16
PG36
PA14

MariaDB

```
mysql> SELECT DISTINCT propertyNo FROM Viewing;
+-----+
| propertyNo |
+-----+
| PA14       |
| PG36       |
| PG4        |
| PG21       |
| PG16       |
+-----+
5 rows in set (0.00 sec)
```

```
SELECT staffNo, fName, lName, salary/12
FROM Staff;
```

Oracle

SQL Worksheet

```
1 v SELECT staffNo, fName, lName, salary/12
2 FROM Staff;
```

STAFFNO	FNAME	LNAME	SALARY/12
SA9	Mary	Howe	750
SG14	David	Ford	1500
SG37	Ann	Beech	1000
SG5	Susan	Brand	2000
SL21	John	White	2500
SL41	Julie	Lee	750

MariaDB

```
mysql> SELECT staffNo, fName, lName, salary/12  
-> FROM Staff;
```

staffNo	fName	lName	salary/12
SA9	Mary	Howe	750.0000
SG14	David	Ford	1500.0000
SG37	Ann	Beech	1000.0000
SG5	Susan	Brand	2000.0000
SL21	John	White	2500.0000
SL41	Julie	Lee	750.0000

```
6 rows in set (0.01 sec)
```

To name column, use AS clause

```
SELECT staffNo, fName, lName, salary/12  
AS monthlySalary  
FROM Staff;
```

Oracle

SQL Worksheet

```
1 v SELECT staffNo, fName, lName, salary/12
2 AS monthlySalary
3 FROM Staff;
```

STAFFNO	FNAME	LNAME	MONTHLYSALARY
SA9	Mary	Howe	750
SG14	David	Ford	1500
SG37	Ann	Beech	1000
SG5	Susan	Brand	2000
SL21	John	White	2500
SL41	Julie	Lee	750

```
mysql> SELECT staffNo, fName, lName, salary/12  
nthlySalary  
FR    -> AS monthlySalary  
    -> FROM Staff;
```

staffNo	fName	lName	monthlySalary
SA9	Mary	Howe	750.0000
SG14	David	Ford	1500.0000
SG37	Ann	Beech	1000.0000
SG5	Susan	Brand	2000.0000
SL21	John	White	2500.0000
SL41	Julie	Lee	750.0000

6 rows in set (0.00 sec)

6.5 Comparison Search Condition

```
SELECT staffNo, fName, lName, position, salary  
FROM Staff  
WHERE salary > 10000;
```

Oracle

SQL Worksheet

```
1 v SELECT staffNo, fName, lName, position, salary
2 FROM Staff
3 WHERE salary > 10000;
```

STAFFNO	FNAME	LNAME	POSITION	SALARY
SG14	David	Ford	Supervisor	18000
SG37	Ann	Beech	Assistant	12000
SG5	Susan	Brand	Manager	24000
SL21	John	White	Manager	30000

MariaDB

```
docker
mysql> SELECT staffNo, fName, lName, position, salary
-> FROM Staff
-> WHERE salary > 10000;
+-----+-----+-----+-----+-----+
| staffNo | fName | lName | position | salary |
+-----+-----+-----+-----+-----+
| SG14    | David | Ford  | Supervisor | 18000 |
| SG37    | Ann   | Beech | Assistant  | 12000 |
| SG5     | Susan | Brand | Manager    | 24000 |
| SL21    | John  | White | Manager    | 30000 |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

List addresses of all branch offices in London or Glasgow.

```
SELECT *
FROM Branch
WHERE city = 'London' OR city = 'Glasgow';
```

Oracle

SQL Worksheet

```
1 v SELECT *
2 FROM Branch
3 WHERE city = 'London' OR city = 'Glasgow';
```

BRANCHNO	STREET	CITY	POSTCODE
B002	56 Cover Drive	London	NW10 6EU
B003	163 Main Street	Glasgow	G11 9QX
B005	22 Deer Road	London	SW1 4EH

MariaDB

```
mysql> SELECT *
->
WHEREFROM Branch
-> WHERE city = 'London' OR city = 'Glasgow';
+-----+-----+-----+-----+
| branchNo | street          | city    | postcode |
+-----+-----+-----+-----+
| B002     | 56 Cover Drive  | London  | NW10 6EU |
| B003     | 163 Main Street | Glasgow | G11 9QX  |
| B005     | 22 Deer Road    | London  | SW1 4EH  |
+-----+-----+-----+-----+
3 rows in set (0.01 sec)
```

6.7 Range Search Condition

```
SELECT staffNo, fName, lName, position, salary
FROM Staff
WHERE salary BETWEEN 20000 AND 30000;
```

Oracle

SQL Worksheet

```
1 SELECT staffNo, fName, lName, position, salary
2 FROM Staff
3 WHERE salary BETWEEN 20000 AND 30000;
```

STAFFNO	FNAME	LNAME	POSITION	SALARY
SG5	Susan	Brand	Manager	24000
SL21	John	White	Manager	30000

MariaDB

```
mysql> SELECT staffNo, fName, lName, position, salary
-> FROM Staff
-> WHERE salary BETWEEN 20000 AND 30000;
+-----+-----+-----+-----+-----+
| staffNo | fName | lName | position | salary |
+-----+-----+-----+-----+-----+
| SG5     | Susan | Brand | Manager  | 24000  |
| SL21    | John  | White | Manager  | 30000  |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

BETWEEN does not add much to SQL's expressive power.

```
SELECT staffNo, fName, lName, position, salary
FROM Staff
WHERE salary >= 20000 AND salary <= 30000;
```

Oracle

```

1 v SELECT staffNo, fName, lName, position, salary
2 FROM Staff
3 WHERE salary >= 20000 AND salary <= 30000;

```

STAFFNO	FNAME	LNAME	POSITION	SALARY
SG5	Susan	Brand	Manager	24000
SL21	John	White	Manager	30000

MariaDB

```

mysql> SELECT staffNo, fName, lName, position, salary
-> FROM Staff
-> WHERE salary >= 20000 AND salary <= 30000;
+-----+-----+-----+-----+-----+
| staffNo | fName | lName | position | salary |
+-----+-----+-----+-----+-----+
| SG5     | Susan | Brand | Manager  | 24000  |
| SL21    | John  | White | Manager  | 30000  |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

```

6.8 Set Membership

```

SELECT staffNo, fName, lName, position
FROM Staff
WHERE position IN ('Manager', 'Supervisor');

```

Oracle

```
1 v SELECT staffNo, fName, lName, position, salary
2 FROM Staff
3 WHERE salary >= 20000 AND salary <= 30000;
```

STAFFNO	FNAME	LNAME	POSITION	SALARY
SG5	Susan	Brand	Manager	24000
SL21	John	White	Manager	30000

MariaDB

```
mysql> SELECT staffNo, fName, lName, position, salary
-> FROM Staff
-> WHERE salary >= 20000 AND salary <= 30000;
+-----+-----+-----+-----+-----+
| staffNo | fName | lName | position | salary |
+-----+-----+-----+-----+-----+
| SG5     | Susan | Brand | Manager  | 24000  |
| SL21    | John  | White | Manager  | 30000  |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
SELECT staffNo, fName, lName, position
FROM Staff
WHERE position='Manager' OR
position='Supervisor';
```

Oracle

```

1 v SELECT staffNo, fName, lName, position, salary
2 FROM Staff
3 WHERE salary >= 20000 AND salary <= 30000;

```

STAFFNO	FNAME	LNAME	POSITION	SALARY
SG5	Susan	Brand	Manager	24000
SL21	John	White	Manager	30000

MariaDB

```

mysql> SELECT staffNo, fName, lName, position, salary
-> FROM Staff
-> WHERE salary >= 20000 AND salary <= 30000;
+-----+-----+-----+-----+-----+
| staffNo | fName | lName | position | salary |
+-----+-----+-----+-----+-----+
| SG5     | Susan | Brand | Manager  | 24000  |
| SL21    | John  | White | Manager  | 30000  |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

```

6.9 Pattern Matching

```

SELECT clientNo, fName, lName, Region, telNo
FROM client
WHERE Region LIKE '%Glasgow%';

```

Oracle

SQL Worksheet

```
1 v SELECT clientNo, fName, lName, Region, telNo
2 FROM client
3 WHERE Region LIKE '%Glasgow%';
```

CLIENTNO	FNAME	LNAME	REGION	TELNO
-	Bruce	Wayne	Glasgow	555 6789

MariaDB

```
mysql> SELECT clientNo, fName, lName, Region, telNo
E Regi -> FROM client
-> WHERE Region LIKE '%Glasgow%';
+-----+-----+-----+-----+-----+
| clientNo | fName | lName | Region | telNo |
+-----+-----+-----+-----+-----+
| NULL     | Bruce | Wayne | Glasgow | 555 6789 |
+-----+-----+-----+-----+-----+
1 row in set (0.01 sec)
```

6.10 NULL Search Condition

```
SELECT clientID, viewDate
FROM Viewing
WHERE propertyNo = 'PG4' AND
comment IS NULL;
```

Oracle

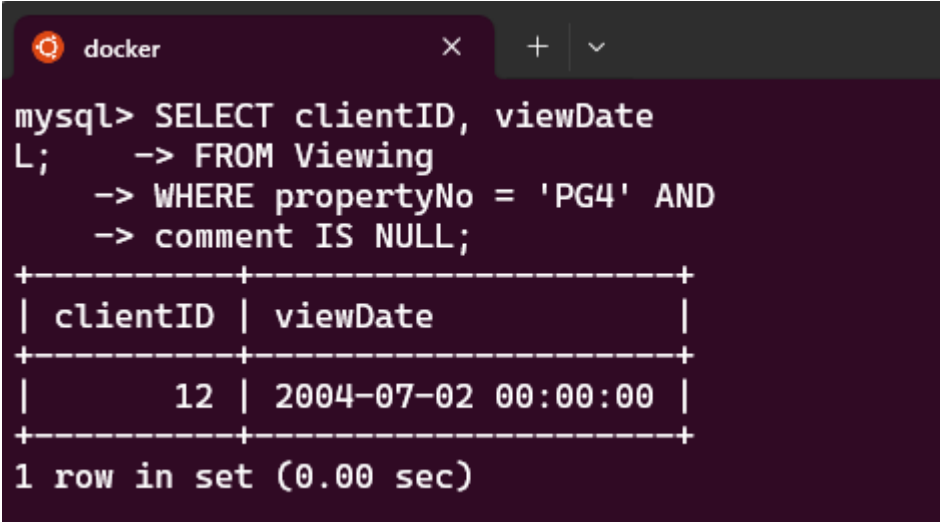
SQL Worksheet

Clear Find Actions Save

```
1 SELECT clientID, viewDate
2 FROM Viewing
3 WHERE propertyNo = 'PG4' AND
4 'Comment' IS NULL;
```

SQL Statement Output

MariaDB



The screenshot shows a terminal window titled 'docker' with a MySQL prompt. The query entered is: `mysql> SELECT clientID, viewDate
L; -> FROM Viewing
-> WHERE propertyNo = 'PG4' AND
-> comment IS NULL;` The output is a table with two columns: `clientID` and `viewDate`. The first row contains the values `12` and `2004-07-02 00:00:00`. Below the table, it says `1 row in set (0.00 sec)`.

clientID	viewDate
12	2004-07-02 00:00:00


1 row in set (0.00 sec)

6.11 Single Column Ordering

```
SELECT staffNo, fName, lName, salary
FROM Staff
ORDER BY salary DESC;
```

Oracle

SQL Worksheet

 Clear

```
1 v SELECT staffNo, fName, lName, salary
2 FROM Staff
3 ORDER BY salary DESC;
```

STAFFNO	FNAME	LNAME	SALARY
SL21	John	White	30000
SG5	Susan	Brand	24000
SG14	David	Ford	18000
SG37	Ann	Beech	12000
SA9	Mary	Howe	9000
SL41	Julie	Lee	9000

MariaDB

```
mysql> SELECT staffNo, fName, lName, salary  
-> FROM Staff  
-> ORDER BY salary DESC;
```

staffNo	fName	lName	salary
SL21	John	White	30000
SG5	Susan	Brand	24000
SG14	David	Ford	18000
SG37	Ann	Beech	12000
SA9	Mary	Howe	9000
SL41	Julie	Lee	9000

```
6 rows in set (0.01 sec)
```

6.12 Multiple Column Ordering

```
SELECT propertyNo, type, rooms, rent  
FROM PropertyForRent  
ORDER BY type;
```

Oracle

SQL Worksheet

```
1 v SELECT propertyNo, type, rooms, rent
2 FROM PropertyForRent
3 ORDER BY type;
```

PROPERTYNO	TYPE	ROOMS	RENT
PG36	Flat	3	375
PG4	Flat	3	350
PL94	Flat	4	400
PG16	Flat	4	450
PG21	House	5	600
PG97	House	3	380
PA14	House	6	650

MariaDB

```
mysql> SELECT propertyNo, type, rooms, rent  
-> FROM PropertyForRent  
-> ORDER BY type;
```

propertyNo	type	rooms	rent
PG16	Flat	4	450
PG36	Flat	3	375
PG4	Flat	3	350
PL94	Flat	4	400
PA14	House	6	650
PG21	House	5	600
PG97	House	3	380

7 rows in set (0.00 sec)

```
SELECT propertyNo, type, rooms, rent  
FROM PropertyForRent  
ORDER BY type, rent DESC;
```

Oracle

SQL Worksheet

```
1 v SELECT propertyNo, type, rooms, rent
2 FROM PropertyForRent
3 ORDER BY type, rent DESC;
```

PROPERTYNO	TYPE	ROOMS	RENT
PG16	Flat	4	450
PL94	Flat	4	400
PG36	Flat	3	375
PG4	Flat	3	350
PA14	House	6	650
PG21	House	5	600
PG97	House	3	380

```
mysql> SELECT propertyNo, type, rooms, rent  
-> FROM PropertyForRent  
-> ORDER BY type, rent DESC;
```

propertyNo	type	rooms	rent
PG16	Flat	4	450
PL94	Flat	4	400
PG36	Flat	3	375
PG4	Flat	3	350
PA14	House	6	650
PG21	House	5	600
PG97	House	3	380

7 rows in set (0.01 sec)

6.13 Use of COUNT(*)

```
SELECT COUNT(*) AS myCount  
FROM PropertyForRent  
WHERE rent > 350;
```

Oracle

SQL Worksheet

```
1 v SELECT COUNT(*) AS myCount
2 FROM PropertyForRent
3 WHERE rent > 350;
```

MYCOUNT
6

MariaDB

```
mysql> SELECT COUNT(*) AS myCount
orRent
WHER    -> FROM PropertyForRent
        -> WHERE rent > 350;
+-----+
| myCount |
+-----+
|        6 |
+-----+
1 row in set (0.01 sec)
```

6.14 Use of COUNT(DISTINCT)

```
SELECT COUNT(DISTINCT propertyNo) AS myCount
FROM Viewing
WHERE viewDate BETWEEN '1-May-04'
AND '31-May-04';
```

Oracle

SQL Worksheet

```

1 v SELECT COUNT(DISTINCT propertyNo) AS myCount
2   FROM Viewing
3  WHERE viewDate BETWEEN '1-May-04'
4     AND '31-May-04';

```

MYCOUNT

0

MariaDB

```

docker x + v
mysql> SELECT COUNT(DISTINCT propertyNo) AS myCount
FROM V    -> FROM Viewing
        -> WHERE viewDate BETWEEN '1-May-04'
31-May-04';    -> AND '31-May-04';
+-----+
| myCount |
+-----+
|      0 |
+-----+
1 row in set, 24 warnings (0.02 sec)
mysql>

```

6.15 Use of COUNT and SUM

```

SELECT COUNT(staffNo) AS myCount,
SUM(salary) AS mySum

```

```
FROM Staff
WHERE position = 'Manager';
```

Oracle

SQL Worksheet

```
1 v SELECT COUNT(staffNo) AS myCount,
2   SUM(salary) AS mySum
3   FROM Staff
4   WHERE position = 'Manager';
```

MYCOUNT	MYSUM
2	54000

MariaDB

```
mysql> SELECT COUNT(staffNo) AS myCount,
      mySum
      -> SUM(salary) AS mySum
FROM      -> FROM Staff
      -> WHERE position = 'Manager';
+-----+-----+
| myCount | mySum |
+-----+-----+
|      2 | 54000 |
+-----+-----+
1 row in set (0.01 sec)
```

```
SELECT MIN(salary) AS myMin,  
MAX(salary) AS myMax,  
AVG(salary) AS myAvg  
FROM Staff;
```

Oracle

SQL Worksheet

```
1 v SELECT MIN(salary) AS myMin,  
2   MAX(salary) AS myMax,  
3   AVG(salary) AS myAvg  
4   FROM Staff;
```

MYMIN	MYMAX	MYAVG
9000	30000	17000

MariaDB

```
mysql> SELECT MIN(salary) AS myMin,  
-> MAX(salary) AS myMax,  
-> AVG(salary) AS myAvg  
-> FROM Staff;
```

```
+-----+-----+-----+  
| myMin | myMax | myAvg |  
+-----+-----+-----+  
|  9000 | 30000 | 17000.0000 |  
+-----+-----+-----+  
1 row in set (0.02 sec)
```

```
SELECT branchNo,  
COUNT(staffNo) AS myCount,  
SUM(salary) AS mySum  
FROM Staff  
GROUP BY branchNo  
ORDER BY branchNo;
```

Oracle

SQL Worksheet

```
1 v SELECT branchNo,  
2   COUNT(staffNo) AS myCount,  
3   SUM(salary) AS mySum  
4   FROM Staff  
5   GROUP BY branchNo  
6   ORDER BY branchNo;
```

BRANCHNO	MYCOUNT	MYSUM
B003	3	54000
B005	2	39000
B007	1	9000

MariaDB

```
mysql> SELECT branchNo,  
ORDER BY branchNo;    -> COUNT(staffNo) AS myCount,  
    -> SUM(salary) AS mySum  
    -> FROM Staff  
    -> GROUP BY branchNo  
    -> ORDER BY branchNo;
```

branchNo	myCount	mySum
B003	3	54000
B005	2	39000
B007	1	9000

3 rows in set (0.01 sec)

6.18 Use of HAVING

```
SELECT branchNo,  
COUNT(staffNo) AS myCount,  
SUM(salary) AS mySum  
FROM Staff  
GROUP BY branchNo  
HAVING COUNT(staffNo) > 1  
ORDER BY branchNo;
```

Oracle

SQL Worksheet

```
1 v SELECT branchNo,  
2   COUNT(staffNo) AS myCount,  
3   SUM(salary) AS mySum  
4 FROM Staff  
5 GROUP BY branchNo  
6 HAVING COUNT(staffNo) > 1  
7 ORDER BY branchNo;
```

BRANCHNO	MYCOUNT	MYSUM
B003	3	54000
B005	2	39000

MariaDB


```
mysql> SELECT branchNo,  
-> COUNT(staffNo) AS myCount,  
-> SUM(salary) AS mySum  
-> FROM Staff  
-> GROUP BY branchNo  
-> HAVING COUNT(staffNo) > 1  
BY br    -> ORDER BY branchNo;  
+-----+-----+-----+  
| branchNo | myCount | mySum |  
+-----+-----+-----+  
| B003     | 3       | 54000 |  
| B005     | 2       | 39000 |  
+-----+-----+-----+  
2 rows in set (0.00 sec)
```

```
SELECT staffNo, fName, lName, position
FROM Staff
WHERE branchNo =
(SELECT branchNo
FROM Branch
WHERE street = '163 Main St');
```

```
SELECT staffNo, fName, lName, position
FROM Staff
WHERE branchNo = 'B003';
```

Oracle

SQL Worksheet



```
1 SELECT staffNo, fName, lName, position
2 FROM Staff
3 WHERE branchNo = 'B003';
```

STAFFNO	FNAME	LNAME	POSITION
SG14	David	Ford	Supervisor
SG37	Ann	Beech	Assistant
SG5	Susan	Brand	Manager

MariaDB


```
mysql> SELECT staffNo, fName, lName, position
-> FROM Staff
-> WHERE branchNo = 'B003';
```

staffNo	fName	lName	position
SG14	David	Ford	Supervisor
SG37	Ann	Beech	Assistant
SG5	Susan	Brand	Manager

3 rows in set (0.00 sec)

6.20 Subquery with Aggregate

```
SELECT staffNo, fName, lName, position,
salary - (SELECT AVG(salary) FROM Staff) As SalDiff
FROM Staff
WHERE salary >
(SELECT AVG(salary)
FROM Staff);
```

Oracle

SQL Worksheet

Clear

Find

Ac

```
1 v SELECT staffNo, fName, lName, position,
2 salary - (SELECT AVG(salary) FROM Staff) As SalDiff
3 FROM Staff
4 WHERE salary >
5 (SELECT AVG(salary)
6 FROM Staff);
```

STAFFNO	FNAME	LNAME	POSITION	SALDIFF
SG14	David	Ford	Manager	1876.7142857142857142857142857143
SG5	Susan	Brand	Manager	8596.7142857142857142857142857143
SL21	John	White	Manager	14776.7142857142857142857142857143

MariaDB

```
mysql> SELECT staffNo, fName, lName, position,
CT AVG(salary - (SELECT AVG(salary) FROM Staff) As SalDiff
-> FROM Staff
-> WHERE salary >
-> (SELECT AVG(salary)
-> FROM Staff);
```


staffNo	fName	lName	position	SalDiff
SG14	David	Ford	Supervisor	1000.0000
SG5	Susan	Brand	Manager	7000.0000
SL21	John	White	Manager	13000.0000

3 rows in set (0.03 sec)

```
SELECT staffNo, fName, lName, position,
salary - 17000 As salDiff
FROM Staff
WHERE salary > 17000;
```

Oracle

SQL Worksheet

 Clear

```
1 v SELECT staffNo, fName, lName, position,  
2 salary - 17000 As salDiff  
3 FROM Staff  
4 WHERE salary > 17000;
```

STAFFNO	FNAME	LNAME	POSITION	SALDIFF
SG14	David	Ford	Supervisor	1000
SG5	Susan	Brand	Manager	7000
SL21	John	White	Manager	13000


MariaDB

```
mysql> SELECT staffNo, fName, lName, position,  
-> salary - 17000 As salDiff  
-> FROM Staff  
-> WHERE salary > 17000;  
+-----+-----+-----+-----+-----+  
| staffNo | fName | lName | position | salDiff |  
+-----+-----+-----+-----+-----+  
| SG14    | David | Ford  | Supervisor | 1000    |  
| SG5     | Susan | Brand | Manager    | 7000    |  
| SL21    | John  | White | Manager    | 13000   |  
+-----+-----+-----+-----+-----+  
3 rows in set (0.01 sec)
```

```
SELECT propertyNo, street, city, postcode, type, rooms, rent
FROM PropertyForRent
WHERE staffNo IN
(SELECT staffNo
FROM Staff
WHERE branchNo =
(SELECT branchNo
FROM Branch
WHERE street = '163 Main St'));
```

Oracle

SQL Worksheet

 Clear

```
1 v SELECT propertyNo, street, city, postcode, type, rooms, rent
2 FROM PropertyForRent
3 WHERE staffNo IN
4 (SELECT staffNo
5 FROM Staff
6 WHERE branchNo =
7 (SELECT branchNo
8 FROM Branch
9 WHERE street = '163 Main St'));
```

no data found

MariaDB

```
mysql> SELECT staffNo, fName, lName, position,
-> salary - 17000 As salDiff
-> FROM Staff
-> WHERE salary > 17000;
+-----+-----+-----+-----+-----+
| staffNo | fName | lName | position | salDiff |
+-----+-----+-----+-----+-----+
| SG14    | David | Ford  | Supervisor | 1000    |
| SG5     | Susan | Brand | Manager    | 7000    |
| SL21    | John  | White | Manager    | 13000   |
+-----+-----+-----+-----+-----+
3 rows in set (0.01 sec)

mysql> SELECT propertyNo, street, city, postcode, type, rooms, rent
-> FROM PropertyForRent
-> WHERE staffNo IN
-> (SELECT staffNo
-> FROM Staff
-> WHERE branchNo =
(SELECT
-> (SELECT branchNo
-> FROM Branch
-> WHERE street = '163 Main St'));
Empty set (0.01 sec)
```

6.22 Use of ANY/SOME

```
SELECT staffNo, fName, lName, position, salary
FROM Staff
WHERE salary > SOME
(SELECT salary
FROM Staff
WHERE branchNo = 'B003');
```

Oracle

SQL Worksheet

Clear Find

```
1 v SELECT staffNo, fName, lName, position, salary
2 FROM Staff
3 WHERE salary > SOME
4 (SELECT salary
5 FROM Staff
6 WHERE branchNo = 'B003');
```

STAFFNO	FNAME	LNAME	POSITION	SALARY
SL21	John	White	Manager	30000
SG5	Susan	Brand	Manager	24000
SG14	David	Ford	Supervisor	18000

MariaDB

```
mysql> SELECT propertyNo, street, city, postcode, type, rooms, rent
-> FROM PropertyForRent
-> WHERE staffNo IN
-> (SELECT staffNo
-> FROM Staff
-> WHERE branchNo =
(SL  -> (SELECT branchNo
-> FROM Branch
-> WHERE street = '163 Main St'));
Empty set (0.01 sec)

mysql> SELECT staffNo, fName, lName, position, salary
-> FROM Staff
-> WHERE salary > SOME
-> (SELECT salary
-> FROM Staff
-> WHERE branchNo = 'B003');
+-----+-----+-----+-----+-----+
| staffNo | fName | lName | position | salary |
+-----+-----+-----+-----+-----+
| SG14    | David | Ford  | Supervisor | 18000 |
| SG5     | Susan | Brand | Manager    | 24000 |
| SL21    | John  | White | Manager    | 30000 |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

6.23 Use of ALL

```
SELECT staffNo, fName, lName, position, salary
FROM Staff
WHERE salary > ALL
(SELECT salary
FROM Staff
WHERE branchNo = 'B003');
```

Oracle

SQL Worksheet

```
1 v SELECT staffNo, fName, lName, position, salary
2 FROM Staff
3 WHERE salary > ALL
4 (SELECT salary
5 FROM Staff
6 WHERE branchNo = 'B003');
```

STAFFNO	FNAME	LNAME	POSITION	SALARY
SL21	John	White	Manager	30000

MariaDB

```
mysql> SELECT staffNo, fName, lName, position, salary
FROM Staff
  -> FROM Staff
  -> WHERE salary > ALL
  -> (SELECT salary
  -> FROM Staff
  -> WHERE branchNo = 'B003');
```

staffNo	fName	lName	position	salary
SL21	John	White	Manager	30000


1 row in set (0.01 sec)

6.24 Simple Join

```
SELECT c.clientNo, fName, lName,
propertyNo, 'comments'
FROM Client c, Viewing v
WHERE c.ID = v.clientID;
```

Oracle

SQL Worksheet

 Clear Find

```
1 v SELECT c.clientNo, fName, lName,  
2   propertyNo, comments  
3 FROM Client c, Viewing v  
4 WHERE c.ID = v.clientID;
```

CLIENTNO	FNAME	LNAME	PROPERTYNO	COMMENTS
CR56	Fred	Flintstone	PA14	-
CR74	Albert	Johnstone	PG36	-
CR77	Clark	Kent	PG4	Tidy but too small
CR79	Joe	Bloggs	PA14	-
CR83	Edward	Scissorhands	PG4	-
CR62	Wilma	Flintstone	PA14	-
CR62	Wilma	Flintstone	PG21	-
CR62	Wilma	Flintstone	PA14	-
CR77	Clark	Kent	PG21	Not bad at all.
CR77	Clark	Kent	PG36	Kitchen too small.
CR77	Clark	Kent	PG16	-

MariaDB

```
mysql> SELECT c.clientNo, fName, lName,
-> propertyNo, 'comments'
-> FROM Client c, Viewing v
-> WHERE c.ID = v.clientID;
```

clientNo	fName	lName	propertyNo	comments
CR56	Fred	Flintstone	PA14	comments
CR74	Albert	Johnstone	PG36	comments
CR77	Clark	Kent	PG4	comments
CR79	Joe	Bloggs	PA14	comments
CR83	Edward	Scissorhands	PG4	comments
CR62	Wilma	Flintstone	PA14	comments
CR62	Wilma	Flintstone	PG21	comments
CR62	Wilma	Flintstone	PA14	comments
CR77	Clark	Kent	PG21	comments
CR77	Clark	Kent	PG36	comments
CR77	Clark	Kent	PG16	comments
NULL	Bruce	Wayne	PG21	comments

12 rows in set (0.00 sec)

6.25 Sorting a join

```
SELECT s.branchNo, s.staffNo, fName, lName,
propertyNo
FROM Staff s, PropertyForRent p
WHERE s.staffNo = p.staffNo
ORDER BY s.branchNo, s.staffNo, propertyNo;
```

Oracle

SQL Worksheet

 Clear

```
1 v SELECT s.branchNo, s.staffNo, fName, lName,  
2    propertyNo  
3 FROM Staff s, PropertyForRent p  
4 WHERE s.staffNo = p.staffNo  
5 ORDER BY s.branchNo, s.staffNo, propertyNo;
```

BRANCHNO	STAFFNO	FNAME	LNAME	PROPERTYNO
B003	SG14	David	Ford	PG16
B003	SG37	Ann	Beech	PG21
B003	SG37	Ann	Beech	PG36
B005	SL41	Julie	Lee	PL94
B007	SA9	Mary	Howe	PA14
B007	SA9	Mary	Howe	PG4
B007	SA9	Mary	Howe	PG97

MariaDB

```
mysql> SELECT s.branchNo, s.staffNo, fName, lName,
propertyNo
FROM   -> propertyNo
       -> FROM Staff s, PropertyForRent p
       -> WHERE s.staffNo = p.staffNo
       -> ORDER BY s.branchNo, s.staffNo, propertyNo;
```

branchNo	staffNo	fName	lName	propertyNo
B003	SG14	David	Ford	PG16
B003	SG37	Ann	Beech	PG21
B003	SG37	Ann	Beech	PG36
B005	SL41	Julie	Lee	PL94
B007	SA9	Mary	Howe	PA14
B007	SA9	Mary	Howe	PG4
B007	SA9	Mary	Howe	PG97


7 rows in set (0.01 sec)

6.26 Three Table Join

```
SELECT b.branchNo, b.city, s.staffNo, fName, lName,
propertyNo
FROM Branch b, Staff s, PropertyForRent p
WHERE b.branchNo = s.branchNo AND
s.staffNo = p.staffNo
ORDER BY b.branchNo, s.staffNo, propertyNo;
```

Oracle

SQL Worksheet

 Clear

```
1 v SELECT b.branchNo, b.city, s.staffNo, fName, lName,  
2    propertyNo  
3 FROM Branch b, Staff s, PropertyForRent p  
4 WHERE b.branchNo = s.branchNo AND  
5    s.staffNo = p.staffNo  
6 ORDER BY b.branchNo, s.staffNo, propertyNo;
```

BRANCHNO	CITY	STAFFNO	FNAME	LNAME	PROPERTYNO
B003	Glasgow	SG14	David	Ford	PG16
B003	Glasgow	SG37	Ann	Beech	PG21
B003	Glasgow	SG37	Ann	Beech	PG36
B005	London	SL41	Julie	Lee	PL94
B007	Aberdeen	SA9	Mary	Howe	PA14
B007	Aberdeen	SA9	Mary	Howe	PG4
B007	Aberdeen	SA9	Mary	Howe	PG97

MariaDB

```
mysql> SELECT b.branchNo, b.city, s.staffNo, fName, lName,
-> propertyNo
-> FROM Branch b, Staff s, PropertyForRent p
-> WHERE b.branchNo = s.branchNo AND
-> s.staffNo = p.staffNo
-> ORDER BY b.branchNo, s.staffNo, propertyNo;
```

branchNo	city	staffNo	fName	lName	propertyNo
B003	Glasgow	SG14	David	Ford	PG16
B003	Glasgow	SG37	Ann	Beech	PG21
B003	Glasgow	SG37	Ann	Beech	PG36
B005	London	SL41	Julie	Lee	PL94
B007	Aberdeen	SA9	Mary	Howe	PA14
B007	Aberdeen	SA9	Mary	Howe	PG4
B007	Aberdeen	SA9	Mary	Howe	PG97


7 rows in set (0.00 sec)

6.27 Multiple Grouping Columns

```
SELECT s.branchNo, s.staffNo, COUNT(*) AS myCount
FROM Staff s, PropertyForRent p
WHERE s.staffNo = p.staffNo
GROUP BY s.branchNo, s.staffNo
ORDER BY s.branchNo, s.staffNo;
```

Oracle

SQL Worksheet

 Clear

```
1 SELECT s.branchNo, s.staffNo, COUNT(*) AS myCount
2 FROM Staff s, PropertyForRent p
3 WHERE s.staffNo = p.staffNo
4 GROUP BY s.branchNo, s.staffNo
5 ORDER BY s.branchNo, s.staffNo;
```

BRANCHNO	STAFFNO	MYCOUNT
B003	SG14	1
B003	SG37	2
B005	SL41	1
B007	SA9	3

MariaDB

```
mysql> SELECT s.branchNo, s.staffNo, COUNT(*) AS myCount
-> FROM Staff s, PropertyForRent p
-> WHERE s.staffNo = p.staffNo
-> No, s.sGROUP BY s.branchNo, s.staffNo
-> ORDER BY s.branchNo, s.staffNo;
```

branchNo	staffNo	myCount
B003	SG14	1
B003	SG37	2
B005	SL41	1
B007	SA9	3

4 rows in set (0.00 sec)

6.28 Left Outer Join

```
SELECT b.*, p.*
FROM Branch b LEFT JOIN
```

PropertyForRent p ON b.City = p.City;

Oracle

SQL Worksheet

Clear

Find

Actions

Save

Run

1

SELECT b.*, p.*

2

FROM Branch b LEFT JOIN

3

PropertyForRent p ON b.City = p.City;

BRANCHNO	STREET	CITY	POSTCODE	PROPERTYNO	STREET	CITY	POSTCODE	TYPE	ROOMS	RENT	OWNER
B007	16 Argyll Street	Aberdeen	AB2 3SU	PA14	16 Holhead	Aberdeen	AB7 5SU	House	6	650	C046
B003	163 Main Street	Glasgow	G11 9QX	PG16	5 Novar Drive	Glasgow	G12 9AX	Flat	4	450	C093
B003	163 Main Street	Glasgow	G11 9QX	PG21	18 Dale Road	Glasgow	G12	House	5	600	C087
B003	163 Main Street	Glasgow	G11 9QX	PG36	2 Manor Road	Glasgow	G32 4QX	Flat	3	375	C093
B003	163 Main Street	Glasgow	G11 9QX	PG4	6 Lawrence Street	Glasgow	G11 9QX	Flat	3	350	C040
B007	16 Argyll Street	Aberdeen	AB2 3SU	PG97	Muir Drive	Aberdeen	AB42 1DD	House	3	380	C046

MariaDB


```
mysql> SELECT b.*, p.*
-> FROM Branch b LEFT JOIN
-> PropertyForRent p ON b.City = p.City;
```

branchNo Plan	street	city	postcode	propertyNo	street	city
B002 s/plan1.jpg	56 Cover Drive	London	NW10 6EU	PL94	6 Argyll Street	London
B003 s/plan1.jpg	163 Main Street	Glasgow	G11 9QX	PG4	6 Lawrence Street	Glasgow
B003 s/plan1.jpg	163 Main Street	Glasgow	G11 9QX	PG36	2 Manor Road	Glasgow
B003 s/plan1.jpg	163 Main Street	Glasgow	G11 9QX	PG21	18 Dale Road	Glasgow
B003 s/plan1.jpg	163 Main Street	Glasgow	G11 9QX	PG16	5 Novar Drive	Glasgow
B004	32 Manse Road	Bristol	BS99 1NZ	NULL	NULL	NULL
B005 s/plan1.jpg	22 Deer Road	London	SW1 4EH	PL94	6 Argyll Street	London
B007 s/plan1.jpg	16 Argyll Street	Aberdeen	AB2 3SU	PG97	Muir Drive	Aberdeen
B007 s/plan1.jpg	16 Argyll Street	Aberdeen	AB2 3SU	PA14	16 Holhead	Aberdeen

6.29 Right Outer Join

```
SELECT b.*, p.*
FROM Branch b RIGHT JOIN
PropertyForRent p ON b.City = p.City;
```

Oracle

SQL Worksheet

Clear

Find

Actions

Save

Run

```

1 SELECT b.*, p.*
2 FROM Branch b RIGHT JOIN
3 PropertyForRent p ON b.City = p.City;

```

BRANCHNO	STREET	CITY	POSTCODE	PROPERTYNO	STREET	CITY	POSTCODE	TYPE	ROOMS	RENT	OWNERN
B002	56 Cover Drive	London	NW10 6EU	PL94	6 Argyll Street	London	NW2	Flat	4	400	C087
B003	163 Main Street	Glasgow	G11 9QX	PG16	5 Novar Drive	Glasgow	G12 9AX	Flat	4	450	C093
B003	163 Main Street	Glasgow	G11 9QX	PG21	18 Dale Road	Glasgow	G12	House	5	600	C087
B003	163 Main Street	Glasgow	G11 9QX	PG36	2 Manor Road	Glasgow	G32 4QX	Flat	3	375	C093
B003	163 Main Street	Glasgow	G11 9QX	PG4	6 Lawrence Street	Glasgow	G11 9QX	Flat	3	350	C040
B005	22 Deer Road	London	SW1 4EH	PL94	6 Argyll Street	London	NW2	Flat	4	400	C087

MariaDB

```

mysql>
mysql> SELECT b.*, p.*
        -> b RIGHT JOIN Branch b RIGHT JOIN
        -> PropertyForRent p ON b.City = p.City;

```

branchNo	street	city	postcode	propertyNo	street	city	postcode	type	rooms	rent	ownerNo	staffNo	branchNo	picture	floorPlan
B007	16 Argyll Street	Aberdeen	AB2 3SU	PA14	16 Holhead	Aberdeen	AB7 5SU	House	6	650	C046	SA9	B007	images/house2.jpg	images/plan1.jpg
B003	163 Main Street	Glasgow	G11 9QX	PG16	5 Novar Drive	Glasgow	G12 9AX	Flat	4	450	C093	SG14	B003	images/house3.jpg	images/plan1.jpg
B003	163 Main Street	Glasgow	G11 9QX	PG21	18 Dale Road	Glasgow	G12	House	5	600	C087	SG37	B003	images/house4.jpg	images/plan1.jpg
B003	163 Main Street	Glasgow	G11 9QX	PG36	2 Manor Road	Glasgow	G32 4QX	Flat	3	375	C093	SG37	B003	images/house5.jpg	images/plan1.jpg
B003	163 Main Street	Glasgow	G11 9QX	PG4	6 Lawrence Street	Glasgow	G11 9QX	Flat	3	350	C040	SA9	B003	images/house2.jpg	images/plan1.jpg
B007	16 Argyll Street	Aberdeen	AB2 3SU	PG97	Muir Drive	Aberdeen	AB42 1DD	House	3	380	C046	SA9	B007	images/house1.jpg	images/plan1.jpg
B005	22 Deer Road	London	SW1 4EH	PL94	6 Argyll Street	London	NW2	Flat	4	400	C087	SL41	B005	images/house3.jpg	images/plan1.jpg
B002	56 Cover Drive	London	NW10 6EU	PL94	6 Argyll Street	London	NW2	Flat	4	400	C087	SL41	B005	images/house3.jpg	images/plan1.jpg

6.30 Full Outer Join

```
SELECT b.*, p.*
FROM Branch b FULL JOIN
PropertyForRent p ON b.City = p.City;
```

Oracle

SQL Worksheet

Clear

Find

Actions

Save

Run

```
1 SELECT b.*, p.*
2 FROM Branch b FULL JOIN
3 PropertyForRent p ON b.City = p.City;
```

BRANCHNO	STREET	CITY	POSTCODE	PROPERTYNO	STREET	CITY	POSTCODE	TYPE	ROOMS	RENT	OWNERN
B007	16 Argyll Street	Aberdeen	AB2 3SU	PA14	16 Holhead	Aberdeen	AB7 5SU	House	6	650	C046
B003	163 Main Street	Glasgow	G11 9QX	PG16	5 Novar Drive	Glasgow	G12 9AX	Flat	4	450	C093
B003	163 Main Street	Glasgow	G11 9QX	PG21	18 Dale Road	Glasgow	G12	House	5	600	C087
B003	163 Main Street	Glasgow	G11 9QX	PG36	2 Manor Road	Glasgow	G32 4QX	Flat	3	375	C093
B003	163 Main Street	Glasgow	G11 9QX	PG4	6 Lawrence Street	Glasgow	G11 9QX	Flat	3	350	C040
B007	16 Argyll Street	Aberdeen	AB2 3SU	PG97	Muir Drive	Aberdeen	AB42 1DD	House	3	380	C046

MariaDB

MariaDB doesn't has full join

```
mysql> SELECT b.*, p.*
-> FROM Branch b FULL JOIN
-> PropertyForRent p ON b.City = p.City;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'FULL JOIN PropertyForRent p ON b.City = p.City' at line 2
mysql>
```

6.31 Query using EXISTS

```
SELECT staffNo, fName, lName, position
FROM Staff s
WHERE EXISTS
(SELECT *
FROM Branch b
WHERE s.branchNo = b.branchNo AND
city = 'London');
```

Oracle

SQL Worksheet



```
1 SELECT staffNo, fName, lName, position
2 FROM Staff s
3 WHERE EXISTS
4 (SELECT *
5 FROM Branch b
6 WHERE s.branchNo = b.branchNo AND
7 city = 'London');
```

STAFFNO	FNAME	LNAME	POSITION
SL21	John	White	Manager
SL41	Julie	Lee	Assistant

MariaDB

```
mysql> SELECT staffNo, fName, lName, position
      -> s
WHERE EXFROM Staff s
      -> WHERE EXISTS
      -> (SELECT *
      OM Br      -> FROM Branch b
      -> WHERE s.branchNo = b.branchNo AND
= 'London');    -> city = 'London');
+-----+-----+-----+-----+
| staffNo | fName | lName | position |
+-----+-----+-----+-----+
| SL21    | John  | White | Manager  |
| SL41    | Julie | Lee   | Assistant|
+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
SELECT staffNo, fName, lName, position FROM Staff
WHERE true;
```

Oracle

oracle cant where true

SQL Worksheet

Clear Find

```
1 SELECT staffNo, fName, lName, position FROM Staff
2 WHERE true;
```

ORA-00920: invalid relational operator

More Details: <https://docs.oracle.com/error-help/db/ora-00920>

MariaDB

```
mysql> SELECT staffNo, fName, lName, position FROM Staff  
-> WHERE true;
```

staffNo	fName	lName	position
SA9	Mary	Howe	Assistant
SG14	David	Ford	Supervisor
SG37	Ann	Beech	Assistant
SG5	Susan	Brand	Manager
SL21	John	White	Manager
SL41	Julie	Lee	Assistant

6 rows in set (0.00 sec)

6.32 Use of UNION

```
SELECT city  
FROM Branch  
WHERE city IS NOT NULL
```

UNION

```
SELECT city  
FROM PropertyForRent  
WHERE city IS NOT NULL;
```

Oracle

oracle cant use ()

SQL Worksheet

```
1 v SELECT city
2 FROM Branch
3 WHERE city IS NOT NULL UNION
4 SELECT city
5 FROM PropertyForRent
6 WHERE city IS NOT NULL;
```

CITY
Aberdeen
Bristol
Glasgow
London

MariaDB

```
mysql> (SELECT city
-> FROM Branch
-> WHERE city IS NOT NULL) UNION
SELE  -> (SELECT city
-> FROM PropertyForRent
-> WHERE city IS NOT NULL);
```

city
London
Glasgow
Bristol
Aberdeen

4 rows in set (0.00 sec)

6.33 Use of INTERSECT

```
SELECT city FROM Branch
INTERSECT
SELECT city FROM PropertyForRent;
```

Oracle


```
1 v SELECT city FROM Branch
2 INTERSECT
3 SELECT city FROM PropertyForRent;
```

CITY
Aberdeen
Glasgow
London

MariaDB

```
mysql> (SELECT city FROM Branch)
-> INTERSECT
-> (SELECT city FROM PropertyForRent);
+-----+
| city |
+-----+
| Glasgow |
| Aberdeen |
| London |
+-----+
3 rows in set (0.01 sec)
```

6.34 Use of EXCEPT

for oracle

```
SELECT city FROM Branch
MINUS
```

```
SELECT city FROM PropertyForRent;
```

for sql(MariaDB)

```
(SELECT city FROM Branch)
EXCEPT
(SELECT city FROM PropertyForRent);
```

Oracle

SQL Worksheet

```
1 v SELECT city FROM Branch
2 MINUS
3 SELECT city FROM PropertyForRent;
```

CITY

Bristol

MariaDB

```
mysql> (SELECT city FROM Branch)
-> EXCEPT
-> (SELECT city FROM PropertyForRent);
+-----+
| city |
+-----+
| Bristol |
+-----+
1 row in set (0.01 sec)
```

6.35 INSERT ... VALUES

```
INSERT INTO Staff
VALUES ('SG16', 'Alan', 'Brown', 'Assistant', 'M', Date'1957-05-
25', 8300, 'B003', '12345', '0879890001', 'example@mail.com');
```

this is use for me

```
INSERT INTO Staff
VALUES ('SG16', 'Alan', 'Brown', 'Assistant', 'M', '1945-10-01 00:00:00', 8300,
'B003', '12345', '0879890001', 'example@mail.com');
```

Oracle

SQL Worksheet

```
1 v INSERT INTO Staff
2 VALUES ('SG16', 'Alan', 'Brown', 'Assistant', 'M', Date'1957-02-
3 25', 8300, 'B003', '12345', '0879890001', 'example@mail.com');
```

SQL Statement Output

MariaDB

```
mysql> INSERT INTO Staff
-> LUES ('SGVALUES ('SG16', 'Alan', 'Brown', 'Assistant', 'M', '2024-03-29 15:34:41', 8300, 'B003', '12345
', '0879890001', 'example@mail.com');
Query OK, 1 row affected (0.03 sec)

mysql>
```

6.36 INSERT using Defaults

```
INSERT INTO Staff (staffNo, fName, lName,
position, salary, branchNo)
```

```
VALUES ('SG44', 'Anne', 'Jones',  
'Assistant', 8100, 'B003');
```

Oracle

SQL Worksheet

```
1 v INSERT INTO Staff (staffNo, fName, lName,  
2 position, salary, branchNo)  
3 VALUES ('SG44', 'Anne', 'Jones',  
4 'Assistant', 8100, 'B003');
```

1 row(s) inserted.

MariaDB

```
mysql> INSERT INTO Staff (staffNo, fName, lName,  
-> position, salary, branchNo)  
-> VALUES ('SG44', 'Anne', 'Jones',  
-> 'Assistant', 8100, 'B003');  
Query OK, 1 row affected (0.02 sec)
```

Or

```
INSERT INTO Staff  
VALUES ('SG44', 'Anne', 'Jones', 'Assistant', NULL,  
NULL, 8100, 'B003');
```

6.37 INSERT ... SELECT

```
INSERT INTO StaffPropCount  
(SELECT s.staffNo, fName, lName, COUNT(*))
```

```

FROM Staff s, PropertyForRent p
WHERE s.staffNo = p.staffNo
GROUP BY s.staffNo, fName, lName)
UNION
(SELECT staffNo, fName, lName, 0
FROM Staff
WHERE staffNo NOT IN
(SELECT DISTINCT staffNo
FROM PropertyForRent));

```

run this before (to create table)

```

create table StaffPropCount (
    staffNo varchar2(50),
    fName varchar2(50),
    lName varchar2(50),
    propCnt number
);

```

Oracle

SQL Worksheet

```

1  v INSERT INTO StaffPropCount
2  (SELECT s.staffNo, fName, lName, COUNT(*)
3  FROM Staff s, PropertyForRent p
4  WHERE s.staffNo = p.staffNo
5  GROUP BY s.staffNo, fName, lName)
6  UNION
7  (SELECT staffNo, fName, lName, 0
8  FROM Staff
9  WHERE staffNo NOT IN
10 (SELECT DISTINCT staffNo
11 FROM PropertyForRent));

```

7 row(s) inserted.

MariaDB

```
mysql> INSERT INTO StaffPropCount
-> (SELECT s.staffNo, fName, lName, COUNT(*)
-> FROM Staff s, PropertyForRent p
-> WHERE s.staffNo = p.staffNo
-> GROUP BY s.staffNo, fName, lName)
ION
(
-> UNION
-> (SELECT staffNo, fName, lName, 0
-> FROM Staff
OT IN
(SE
-> WHERE staffNo NOT IN
-> (SELECT DISTINCT staffNo
-> FROM PropertyForRent));
Query OK, 9 rows affected (0.03 sec)
Records: 9 Duplicates: 0 Warnings: 0

mysql>
```

```
mysql> SELECT * FROM StaffPropCount;
+-----+-----+-----+-----+
| staffNo | fName | lName | propCnt |
+-----+-----+-----+-----+
| SA9     | Mary  | Howe  | 3       |
| SG14    | David | Ford  | 1       |
| SG37    | Ann   | Beech | 2       |
| SL41    | Julie | Lee   | 1       |
| SG5     | Susan | Brand | 0       |
| SL21    | John  | White | 0       |
| e       | e     | e     | 0       |
| SG16    | Alan  | Brown | 0       |
| SG44    | Anne  | Jones | 0       |
+-----+-----+-----+-----+
9 rows in set (0.01 sec)
```

Result

6.38/39 UPDATE All Rows

```
UPDATE Staff
SET salary = salary*1.03;
```

Oracle

SQL Worksheet

```
1 v UPDATE Staff
2 SET salary = salary*1.03;
```

7 row(s) updated.

MariaDB

```
mysql> UPDATE Staff
      -> SET salary = salary*1.03;
Query OK, 9 rows affected (0.02 sec)
Rows matched: 10  Changed: 9  Warnings: 0
```

```
mysql> select salary from staff;
```

salary
9270
18540
12360
24720
30900
9270
2
8549
8549
8343

10 rows in set (0.00 sec)

Result

```
UPDATE Staff
SET salary = salary*1.05
WHERE position = 'Manager';
```

```
mysql> select salary from staff;
```

salary
9270
18540
12360
25956
32445
9270
2
8549
8549
8343

10 rows in set (0.00 sec)

Result

6.40 UPDATE Multiple Columns


```
UPDATE Staff
SET position = 'Manager', salary = 18000
WHERE staffNo = 'SG14';
```

Before

```
mysql> select staffNo, fName, position, salary from staff
-> where position = 'Manager';
+-----+-----+-----+-----+
| staffNo | fName | position | salary |
+-----+-----+-----+-----+
| SG5     | Susan | Manager  | 25956  |
| SL21    | John  | Manager  | 32445  |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

After

```
mysql> select staffNo, fName, position, salary from staff where position = 'Manager';
+-----+-----+-----+-----+
| staffNo | fName | position | salary |
+-----+-----+-----+-----+
| SG14    | David | Manager  | 18000  |
| SG5     | Susan | Manager  | 25956  |
| SL21    | John  | Manager  | 32445  |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

Oracle

SQL Worksheet

```
1 select staffNo, fName, position, salary from staff where position = 'Manager';
```

STAFFNO	FNAME	POSITION	SALARY
SG14	David	Manager	18000
SG5	Susan	Manager	24720
SL21	John	Manager	30900

6.41/42 DELETE Specific Rows

```
DELETE FROM Viewing  
WHERE propertyNo = 'PG4';
```

Oracle

SQL Worksheet

```
1 v DELETE FROM Viewing
2 WHERE propertyNo = 'PG4';
```

2 row(s) deleted.

MariaDB

```
mysql> DELETE FROM Viewing
      -> WHERE propertyNo = 'PG4';
Query OK, 2 rows affected (0.02 sec)

mysql>
```

```
DELETE FROM Viewing;
```

Oracle

```
1 DELETE FROM Viewing;
```

```
10 row(s) deleted.
```

MariaDB

```
mysql> DELETE FROM Viewing;  
Query OK, 10 rows affected (0.02 sec)
```

```
mysql> SELECT * FROM Viewing;  
Empty set (0.00 sec)
```

Result