CREATE VIEW: Creating a new table (virtual table: view) based on existing table

Q57. Create a table so that the manager at branch B5 can see all the details for staff who work in his or her branch office.

(Simple view that can use to update the existing table for any branch)
CREATE OR REPLACE VIEW B5Manager AS
SELECT *
FROM   Staff
WHERE Bno ='B5';

SELECT * FROM B5Manager;

INSERT INTO B5Manager (Sno, FName, LName, Position, Sex, Salary, Bno)
VALUES('SS01', 'Raymond', 'Alvin', 'Technician', 'M', 2500.00, 'B2');

(Simple view that can use to update the existing table for B5 branch only)
CREATE OR REPLACE VIEW B5Manager AS
SELECT *
FROM   Staff
WHERE Bno ='B5'
WITH CHECK OPTION CONSTRAINT check_condition;

INSERT INTO B5Manager (Sno, FName, LName, Position, Sex, Salary, Bno)
VALUES('SS02', 'Raymond', 'Alvin', 'Technician', 'M', 2500.00, 'B2');

ERROR at line 1:
ORA-01402: view WITH CHECK OPTION where-clause violation

(Simple view that cannot use to update the existing table: read only)
CREATE OR REPLACE VIEW B5Manager AS
SELECT *
FROM   Staff
WHERE Bno ='B5'
WITH READ ONLY CONSTRAINT read_only;

INSERT INTO B5Manager (Sno, FName, LName, Position, Sex, Salary, Bno)
VALUES('SS03', 'Raymond', 'Alvin', 'Technician', 'M', 2500.00, 'B5');

ERROR at line 1:
ORA-42399: cannot perform a DML operation on a read-only view

CREATE VIEW: Creating a new view based on another view table

Q58. Create a view so that the staff at branch B5 can see only some of the staff details who work in the same branch office.

CREATE OR REPLACE VIEW   B5Staff   AS
SELECT   Sno, FName, LName, Position, Tel_No
FROM   B5Manager;

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)

Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)

Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)

Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)

Owner (**Ono**, FName, LName, Address, Tel_No)

Viewing (**Rno**, **Pno**, VDate, VComment)

1

DROP VIEW: Removing the view

Q59. Delete the B5Staff view.

DROP VIEW B5Staff;

Retrieving Records with the JOIN - ON clause (2 tables)

Q60. List the names of all renters who have viewed a property along any comment supplied.

SELECT R.Rno, FName, LName, Pno, VComment
FROM   Renter R JOIN Viewing V ON R.Rno = V.Rno;

SELECT R.Rno, FName, LName, Pno, VComment
FROM   Renter R, Viewing V
WHERE R.Rno = V.Rno;

Retrieving Records with the JOIN - ON clause (3 tables)

Q61. For each branch, list the staff who manage properties, including the city in which the branch is located and the properties they manage. Arrange the branch number, staff number and property number in ascending order.

SELECT   B.Bno, B.City, S.Sno, FName, LName, Pno
FROM   Branch B JOIN   Staff S   ON   B.Bno = S.Bno
          JOIN Property_For_Rent P ON S.Sno = P.Sno
ORDER BY B.Bno, S.Sno, Pno;

SELECT   B.Bno, B.City, S.Sno, FName, LName, Pno
FROM   Branch B, Staff S, Property_For_Rent P
WHERE   B.Bno = S.Bno AND S.Sno = P.Sno
ORDER BY B.Bno, S.Sno, Pno;

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)
Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)
Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)
Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)
Owner (**Ono**, FName, LName, Address, Tel_No)
Viewing (**Rno**, **Pno**, VDate, VComment)

Recursive Join

Staff1 : Table

	Sno	FName	LName	Position	Bno	MGR_Sno
	SA12	Eric	Heng	Manager	B7	
	SA9	Mary	Howe	Assistant	B7	SA12
	SG14	David	Ford	Deputy	B3	SG5
	SG23	Alex	Lim	Assistant	B3	SG5
	SG37	Ann	Beech	Snr Asst	B3	SG5
	SG5	Susan	Brand	Manager	B3	
	SL18	Esther	Goh	Snr Asst	B5	SL21
	SL21	John	White	Manager	B5	
	SL41	Julie	Lee	Assistant	B5	SL21

Q62. Generate a list of all staff together with their managers' names.

SELECT S.Sno, S.FName, S.LName, S.MGR_Sno, M.FName, M.LName
FROM Staff1 S, Staff1 M
WHERE S.MGR_Sno = M.Sno
ORDER BY S.MGR_Sno;

Run SQL Command Line

```
SNO  FNAME       LNAME           MGR_SNO     FNAME           LNAME
---- ----------  --------------  ----------  --------------  ----------------
SA9  Mary        Howe            SA12        Eric            Heng
SG37 Ann         Beech           SG5         Susan           Brand
SG23 Alex        Lim             SG5         Susan           Brand
SG14 David       Ford            SG5         Susan           Brand
SL41 Julie       Lee             SL21        John            Write
SL18 Esther      Goh             SL21        John            Write

6 rows selected.
```

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)
Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)
Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)
Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)
Owner (**Ono**, FName, LName, Address, Tel_No)
Viewing (**Rno**, **Pno**, VDate, VComment)

Outer JOIN (include the unmatched data)

LEFT   **RIGHT**

Branch1 : Table

Bno	City
B2	London
B3	Glasgow
B4	Bristol
B5	London
B7	Aberdeen

Property_For_Rent1 : Table

Pno	City	Bno
PA10	Aberdeen	B1
PA14	Aberdeen	B7
PA9	Aberdeen	B6
PG16	Glasgow	B3
PG21	Glasgow	B3
PG36	Glasgow	B3
PG4	Glasgow	B3
PL94	London	B5

RIGHT Outer Join

Q63. List the branch offices and properties that are in the same branch number along with any unmatched properties.

```
SELECT      B.*, P.*
FROM        Branch1 B RIGHT OUTER JOIN Property_For_Rent1 P
            ON B.Bno = P.Bno;
```

Run SQL Command Line

```
BNO   CITY        PNO   CITY        BNO
----  ----------  ----  ----------  ----
B3    Glasgow     PG4   Glasgow     B3
B3    Glasgow     PG36  Glasgow     B3
B3    Glasgow     PG21  Glasgow     B3
B3    Glasgow     PG16  Glasgow     B3
B5    London      PL94  London      B5
B7    Aberdeen    PA14  Aberdeen    B7
                  PA9   Aberdeen    B6
                  PA10  Aberdeen    B1

8 rows selected.
```

Right

LEFT Outer Join

Q64. List the branch offices and properties that are in the same branch number along with any unmatched branches.

```
SELECT      B.*, P.*
FROM        Branch1 B LEFT OUTER JOIN Property_For_Rent1 P
            ON B.Bno = P.Bno;
```

Left

Run SQL Command Line

```
BNO   CITY        PNO   CITY        BNO
----  ----------  ----  ----------  ----
B7    Aberdeen    PA14  Aberdeen    B7
B3    Glasgow     PG16  Glasgow     B3
B3    Glasgow     PG21  Glasgow     B3
B3    Glasgow     PG36  Glasgow     B3
B3    Glasgow     PG4   Glasgow     B3
B5    London      PL94  London      B5
B4    Bristol
B2    London

8 rows selected.
```

4

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)

Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)

Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)

Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)

Owner (**Ono**, FName, LName, Address, Tel_No)

Viewing (**Rno**, **Pno**, VDate, VComment)

FULL Outer Join

Q65. List the branch offices and properties that are in the same branch number <mark>along with any unmatched branches and unmatched properties</mark>.
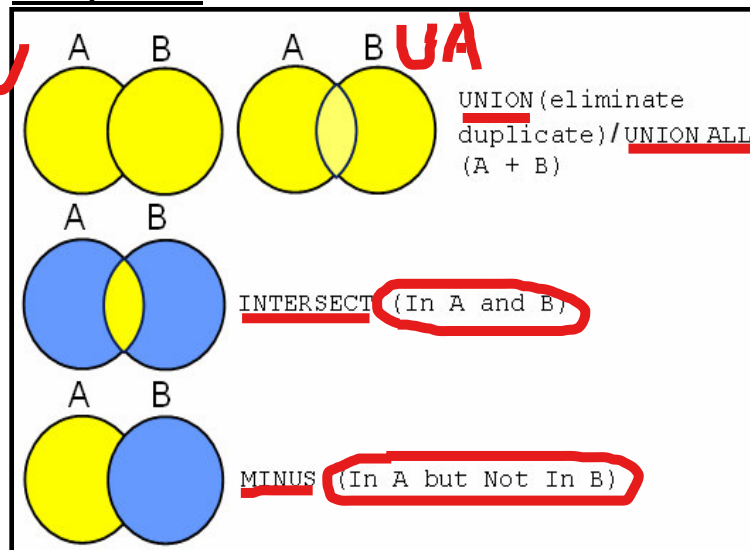
SELECT	**B.*, P.***
FROM	**Branch1 B FULL OUTER JOIN Property_For_Rent1 P**
	ON B.Bno = P.Bno;

```
Run SQL Command Line                    - □ ×

BNO    CITY         PNO   CITY       BNO

       PA10 Aberdeen      B1
B7     Aberdeen     PA14 Aberdeen    B7
                    PA9  Aberdeen    B6
B3     Glasgow      PG16 Glasgow     B3
B3     Glasgow      PG21 Glasgow     B3
B3     Glasgow      PG36 Glasgow     B3
B3     Glasgow      PG4  Glasgow     B3
B5     London       PL94 London      B5
B4     Bristol
B2     London

10 rows selected.
```

Set Operators

A B   A B UA
                    UNION (eliminate
                    duplicate)/UNION ALL
                    (A + B)

A B
                    INTERSECT (In A and B)

A B
                    MINUS (In A but Not In B)

StaffA : Table

Staff_Code	Staff_Name	Position
M01	John Tan	Manager
M02	Gopal	Supervisor
M03	Ahmad	Executive

StaffB : Table

Staff_Code	Staff_Name	Position
M03	Ahmad	Executive
M04	Stephen	Genaral Manager
M05	Julia	Clerk

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)
Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)
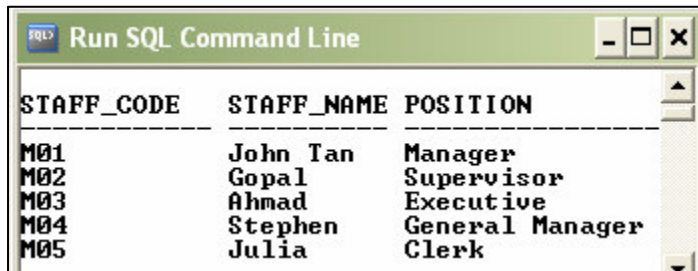Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)
Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)
Owner (**Ono**, FName, LName, Address, Tel_No)
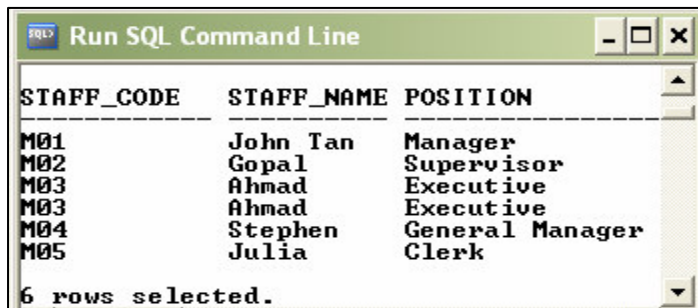Viewing (**Rno**, **Pno**, VDate, VComment)

Q66. SET OPERATOR: UNION
(SELECT * FROM StaffA)
UNION
(SELECT * FROM StaffB);

```
Run SQL Command Line                    _ □ ×

STAFF_CODE     STAFF_NAME  POSITION
-----------    ----------  -----------------
M01            John Tan    Manager
M02            Gopal       Supervisor
M03            Ahmad       Executive
M04            Stephen     General Manager
M05            Julia       Clerk
```

Q67. SET OPERATOR: UNION ALL
(SELECT * FROM StaffA)
UNION ALL
(SELECT * FROM StaffB);

```
Run SQL Command Line                    _ □ ×

STAFF_CODE     STAFF_NAME  POSITION
-----------    ----------  -----------------
M01            John Tan    Manager
M02            Gopal       Supervisor
M03            Ahmad       Executive
M03            Ahmad       Executive
M04            Stephen     General Manager
M05            Julia       Clerk

6 rows selected.
```
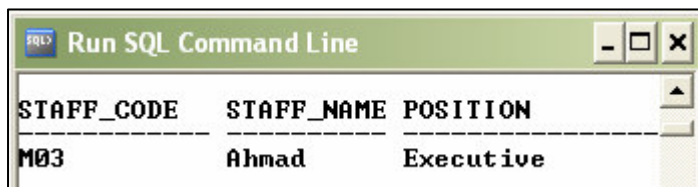
Q68. SET OPERATOR: INTERSECT
(SELECT * FROM StaffA)
INTERSECT
(SELECT * FROM StaffB);

```
Run SQL Command Line                    _ □ ×

STAFF_CODE     STAFF_NAME  POSITION
-----------    ----------  -----------------
M03            Ahmad       Executive
```

Q69. SET OPERATOR: MINUS
(SELECT * FROM StaffA)
MINUS
(SELECT * FROM StaffB);

```
Run SQL Command Line                    _ □ ×

STAFF_CODE     STAFF_NAME  POSITION
-----------    ----------  -----------------
M01            John Tan    Manager
M02            Gopal       Supervisor
```

Branch (**Bno**, Street, Area, City, Pcode, Tel_No, Fax_No)

Staff (**Sno**, FName, LName, Address, Tel_No, Position, Sex, DOB, Salary, NIN, Bno)

Property_For_Rent (**Pno**, Street, Area, City, Pcode, Type, Rooms, Rent, Ono, Sno, Bno)

Renter (**Rno**, FName, LName, Address, Tel_No, Pref_Type, Max_Rent, Bno)

Owner (**Ono**, FName, LName, Address, Tel_No)

Viewing (**Rno**, **Pno**, VDate, VComment)