

IBM Information Management software

UNION

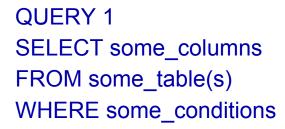
Unit Objectives



After completing this unit, you should be able to:

- Produce a single result table containing data from more than one query
- State the UNION rules
- State the difference between UNION and UNION ALL

Multiple Queries - Multiple Reports



DATA FROM QUERY 1

QUERY 2
SELECT some_columns
FROM some_table(s)
WHERE some_conditions

DATA FROM QUERY 2

UNIONing Queries Together - Single Report

-- QUERY 1

SELECT some_columns FROM some_table(s) WHERE some_conditions

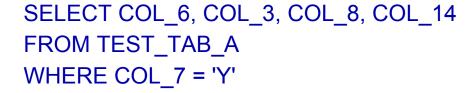
UNION ALL

-- QUERY 2SELECT some_columnsFROM some_table(s)WHERE some_conditions

DATA FROM QUERY 1

DATA FROM QUERY 2

Union Rule Number 1

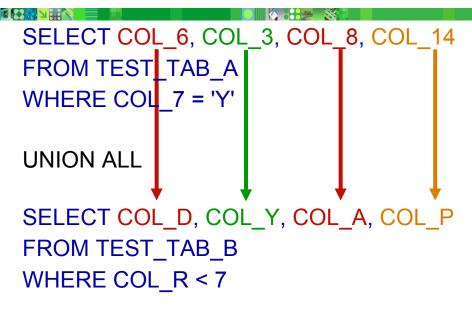


UNION ALL

SELECT COL_D, COL_Y, COL_A, COL_P FROM TEST_TAB_B WHERE COL_R < 7

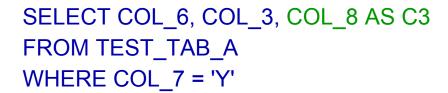
Every query in the stack must return the same number of columns

Union Rule Number 2



The data types of the nth column of each query in the stack must be compatible

Union Rule Number 3



UNION ALL

SELECT COL_D, COL_Y, COL_A AS C3 FROM TEST_TAB_B WHERE COL_R < 7 ORDER BY C3 DESC, 2

The ORDER BY clause must be the last clause on the last query in the stack

UNION ALL - Example 1

For workdepts CO1 and AOO display workdept, last name concatenated to first name and in a GENDER column print MALE or FEMALE where appropriate





SELECT WORKDEPT, LASTNAME || ', ' ||
FIRSTNME AS NAME,
'MALE' AS GENDER
FROM EMPLOYEE
WHERE SEX = 'M'
AND WORKDEPT IN ('A00', 'C01')

UNION ALL

SELECT WORKDEPT, LASTNAME || ', ' ||
FIRSTNME AS NAME,
'FEMALE' AS GENDER
FROM EMPLOYEE
WHERE SEX = 'F'
AND WORKDEPT IN ('A00', 'C01')
ORDER BY WORKDEPT

WORKDEPT	NAME	GENDER
A00	HAAS, CHRISTINE	FEMALE
A00	LUCCHESSI, VINCENZO	MALE
A00	O'CONNELL, SEAN	MALE
C01	KWAN, SALLY	FEMALE
C01	QUINTANA, DOLORES	FEMALE
C01	NICHOLLS, HEATHER	FEMALE

UNION ALL - Example 2

As sketched out below, use two lines per department. On line one print manager's information, on line two print department information.



SELECT MGRNO, 'Dept.:',

DEPTNAME AS NAME

FROM DEPARTMENT

WHERE MGRNO IS NOT NULL

UNION ALL

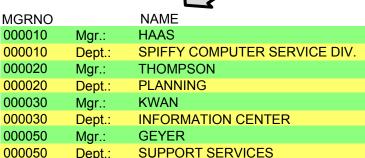
SELECT MGRNO, 'Mgr.:',

LASTNAME AS NAME

FROM DEPARTMENT D, EMPLOYEE E

WHERE D.MGRNO = E.EMPNO

ORDER BY 1,2 DESC



© Copyright IBM Corporation 2007

UNION ALL - Example 3

SELECT	LASTNAME, EDLEVEL	\Box	LASTNAME	EDLEVEL
FROM	EMPLOYEE		QUINTANA	16
WHERE	HERE JOB = 'ANALYST'		NICHOLLS	18

SELECT	LASTNAME, EDLEVEL	EE 🗘		EDLEVEL
FROM	EMPLOYEE			18
WHERE	EDLEVEL = 18			18
			NICHOLLS	18

SELECT	LASTNAME, EDLEVEL		LASTNAME	EDLEVEL
FROM	EMPLOYEE		QUINTANA	16
WHERE	JOB = 'ANALYST'	_	NICHOLLS	18
UNION ALL		L >	HAAS	18
SELECT	LASTNAME, EDLEVEL	·	THOMPSON	18
FROM	EMPLOYEE		NICHOLLS	18
WHERE	EDLEVEL = 18		LUTZ	18

UNION



SELECT FROM WHERE	ROM EMPLOYEE		LASTNAME HAAS LUTZ	EDLEVEL 18 18
		\Box >	NICHOLLS	18
			THOMPSON	18

SELECT	LASTNAME, EDLEVEL		LASTNAME	EDLEVEL
FROM	EMPLOYEE		HAAS	18
WHERE	JOB = 'ANALYST'	_	LUTZ	18
UNION		Ц >	NICHOLLS	18
SELECT	LASTNAME, EDLEVEL	•	QUINTANA	16
FROM	EMPLOYEE		THOMPSON	18
WHERE	EDLEVEL = 18			

UNION - Generation of Fitting Result Rows

SELECT	EMPNO, SUBSTR(FIRSTNME, 1, 1) '.' MIDINIT,
	LASTNAME, SALARY AS INCOME, 1 AS SORT
FROM	EMPLOYEE
UNION	ALL
SELECT	EMPNO, '',
	'', BONUS, 2 AS SORT
FROM	EMPLOYEE
UNION	ALL
SELECT	EMPNO, '',
	'', COMM, 3 AS SORT
FROM	EMPLOYEE
UNION	ALL
SELECT	EMPNO, '',
	'SUM: ', SALARY + BONUS + COMM,
	4 AS SORT
FROM	EMPLOYEE
ORDER BY	EMPNO, SORT

		4	\ >	
EMPNO		LASTNAME	INCOME	SORT
000010	C.I	HAAS	52750.00	1
000010			1000.00	2
000010			4220.00	3
000010		SUM:	57970.00	4
000020	M.L	THOMPSON	41250.00	1
000020			800.00	2
000020			3300.00	3
000020		SUM:	45350.00	4

© Copyright IBM Corporation 2007

EXCEPT and INTERSECT



SELECT	LASTNAME, EDLEVEL		LASTNAME	EDLEVEL
FROM	EMPLOYEE			
WHERE	JOB = 'ANALYST'			
INTERSEC	T	\Box >	NICHOLLS	18
SELECT	LASTNAME, EDLEVEL	•		
FROM	EMPLOYEE			
WHERE	EDLEVEL = 18			

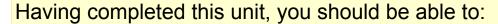
Checkpoint

- True or False? The results of arbitrary SELECTs can be combined by means of UNION and ordered to get a new result.
- 2. Why or when should you use UNION?
 - a. When all duplicate rows have to be eliminated.
 - b. When SELECTs with an arbitrary number of columns should be combined.
- 3. Which rules do you have to consider when using UNION?

Checkpoint Solutions

- 1. False. The SELECTs must follow very strict UNION rules.
- 2. a
- Equal number of columns.
 Compatible data types.
 ORDER BY must be the last clause.
 - In the ORDER BY clause, numbers must be used when the column being sorted does not have the same name in all SELECTs.

Unit Summary



- Produce a single result table containing data from more than one query
- State the UNION rules
- State the difference between UNION and UNION ALL