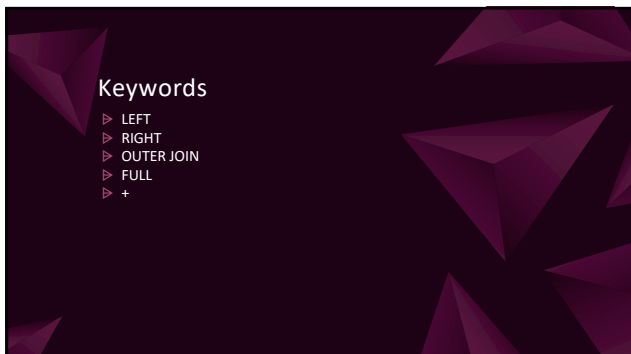




1



2



3

LOJ

- ▶ We generally do these as LEFT OUTER JOIN simply because the first table specified or derived resultset is the one that has ALL the matching conditions and you are performing the JOIN to get what matches in the next table as well as explicitly identify what is NOT included.

4

How

- ▶ Same basic JOIN structure just adding the directionality then the OUTER keyword to the JOIN clause
 - ▶ SELECT ... table_a LEFT OUTER JOIN table_b ...
 - ▶ SELECT ... table_a RIGHT OUTER JOIN table_b ...

5

Demo Query

```
*SELECT
  cou.course_no,
  cou.description,
  loj.course_no AS pre_req,
  loj.description AS pre_desc
FROM
  course cou
LEFT OUTER JOIN
  course loj
ON
  loj.course_no = cou.prerequisite
ORDER BY
  cou.course_no;
```

```
*SELECT
  stu.first_name,
  stu.last_name,
  zip.city
FROM
  student stu
RIGHT OUTER JOIN
  zipcode zip
ON
  stu.zip = zip.zip;
```

6

JOIN Results

```
SELECT
  emp.empno, emp.ename, emp.job, emp.sal, emp.hiredate, emp.deptno
FROM emp
LEFT JOIN emp_dept ON emp.deptno = emp_dept.deptno
ORDER BY emp.empno;
```

Query completed in 0.04 seconds

empno	ename	job	sal	hiredate	deptno
7369	SMITH	CLERK	800	1980-12-17	20
7469	JONES	MANAGER	7500	1981-04-02	20
7569	SCOTT	ANALYST	9000	1982-07-09	20
7669	ADAMS	CLERK	7600	1983-01-09	20
7769	WATSON	CLERK	7300	1985-02-21	20
7869	MARTIN	SALESREP	1200	1984-02-11	30
7969	BLAKE	MANAGER	7800	1983-09-01	30
8069	CLARK	CLERK	7600	1986-06-09	30
8169	TURNER	SALESREP	1500	1986-03-15	30
8269	WARD	SALESREP	1200	1985-02-23	30
8369	MILLER	CLERK	7300	1982-01-23	30
8469	ALLEN	SALESREP	1600	1986-01-17	30
8569	WARD	SALESREP	1200	1985-02-23	30
8669	PROUD	SALESREP	1300	1986-01-09	30
8769	COOPER	CLERK	7500	1986-03-09	30
8869	JOHN	SALESREP	1400	1986-03-09	30
8969	SCOTT	ANALYST	9000	1987-06-19	30
9069	PEROTT	SALESREP	1300	1987-07-07	30
9169	COOPER	CLERK	7500	1987-09-08	30
9269	JOHN	SALESREP	1400	1987-12-07	30
9369	WATSON	CLERK	7300	1988-02-21	30
9469	BLAKE	MANAGER	7800	1988-04-01	30
9569	CLARK	CLERK	7600	1988-06-09	30
9669	TURNER	SALESREP	1500	1988-09-08	30
9769	WARD	SALESREP	1200	1988-12-07	30
9869	MILLER	CLERK	7300	1989-01-23	30
9969	ALLEN	SALESREP	1600	1989-02-17	30
10069	WARD	SALESREP	1200	1989-03-23	30
10169	PROUD	SALESREP	1300	1989-04-09	30
10269	COOPER	CLERK	7500	1989-05-09	30
10369	JOHN	SALESREP	1400	1989-06-09	30
10469	WATSON	CLERK	7300	1989-07-21	30
10569	BLAKE	MANAGER	7800	1989-08-01	30
10669	CLARK	CLERK	7600	1989-09-09	30
10769	TURNER	SALESREP	1500	1989-10-08	30
10869	WARD	SALESREP	1200	1989-11-07	30
10969	MILLER	CLERK	7300	1989-12-23	30
11069	ALLEN	SALESREP	1600	1990-01-17	30
11169	WARD	SALESREP	1200	1990-02-23	30
11269	PROUD	SALESREP	1300	1990-03-09	30
11369	COOPER	CLERK	7500	1990-04-09	30
11469	JOHN	SALESREP	1400	1990-05-09	30
11569	WATSON	CLERK	7300	1990-06-21	30
11669	BLAKE	MANAGER	7800	1990-07-01	30
11769	CLARK	CLERK	7600	1990-08-09	30
11869	TURNER	SALESREP	1500	1990-09-08	30
11969	WARD	SALESREP	1200	1990-10-07	30
12069	MILLER	CLERK	7300	1990-11-23	30
12169	ALLEN	SALESREP	1600	1990-12-17	30
12269	WARD	SALESREP	1200	1991-01-23	30
12369	PROUD	SALESREP	1300	1991-02-09	30
12469	COOPER	CLERK	7500	1991-03-09	30
12569	JOHN	SALESREP	1400	1991-04-09	30
12669	WATSON	CLERK	7300	1991-05-21	30
12769	BLAKE	MANAGER	7800	1991-06-01	30
12869	CLARK	CLERK	7600	1991-07-09	30
12969	TURNER	SALESREP	1500	1991-08-08	30
13069	WARD	SALESREP	1200	1991-09-07	30
13169	MILLER	CLERK	7300	1991-10-23	30
13269	ALLEN	SALESREP	1600	1991-11-17	30
13369	WARD	SALESREP	1200	1991-12-23	30
13469	PROUD	SALESREP	1300	1992-01-09	30
13569	COOPER	CLERK	7500	1992-02-09	30
13669	JOHN	SALESREP	1400	1992-03-09	30
13769	WATSON	CLERK	7300	1992-04-21	30
13869	BLAKE	MANAGER	7800	1992-05-01	30
13969	CLARK	CLERK	7600	1992-06-09	30
14069	TURNER	SALESREP	1500	1992-07-08	30
14169	WARD	SALESREP	1200	1992-08-07	30
14269	MILLER	CLERK	7300	1992-09-23	30
14369	ALLEN	SALESREP	1600	1992-10-17	30
14469	WARD	SALESREP	1200	1992-11-23	30
14569	PROUD	SALESREP	1300	1992-12-09	30
14669	COOPER	CLERK	7500	1993-01-09	30
14769	JOHN	SALESREP	1400	1993-02-09	30
14869	WATSON	CLERK	7300	1993-03-21	30
14969	BLAKE	MANAGER	7800	1993-04-01	30
15069	CLARK	CLERK	7600	1993-05-09	30
15169	TURNER	SALESREP	1500	1993-06-08	30
15269	WARD	SALESREP	1200	1993-07-07	30
15369	MILLER	CLERK	7300	1993-08-23	30
15469	ALLEN	SALESREP	1600	1993-09-17	30
15569	WARD	SALESREP	1200	1993-10-23	30
15669	PROUD	SALESREP	1300	1993-11-09	30
15769	COOPER	CLERK	7500	1993-12-09	30
15869	JOHN	SALESREP	1400	1994-01-09	30
15969	WATSON	CLERK	7300	1994-02-21	30
16069	BLAKE	MANAGER	7800	1994-03-01	30
16169	CLARK	CLERK	7600	1994-04-09	30
16269	TURNER	SALESREP	1500	1994-05-08	30
16369	WARD	SALESREP	1200	1994-06-07	30
16469	MILLER	CLERK	7300	1994-07-23	30
16569	ALLEN	SALESREP	1600	1994-08-17	30
16669	WARD	SALESREP	1200	1994-09-23	30
16769	PROUD	SALESREP	1300	1994-10-09	30
16869	COOPER	CLERK	7500	1994-11-09	30
16969	JOHN	SALESREP	1400	1994-12-09	30
17069	WATSON	CLERK	7300	1995-01-21	30
17169	BLAKE	MANAGER	7800	1995-02-01	30
17269	CLARK	CLERK	7600	1995-03-09	30
17369	TURNER	SALESREP	1500	1995-04-08	30
17469	WARD	SALESREP	1200	1995-05-07	30
17569	MILLER	CLERK	7300	1995-06-23	30
17669	ALLEN	SALESREP	1600	1995-07-17	30
17769	WARD	SALESREP	1200	1995-08-23	30
17869	PROUD	SALESREP	1300	1995-09-09	30
17969	COOPER	CLERK	7500	1995-10-09	30
18069	JOHN	SALESREP	1400	1995-11-09	30
18169	WATSON	CLERK	7300	1995-12-21	30
18269	BLAKE	MANAGER	7800	1996-01-01	30
18369	CLARK	CLERK	7600	1996-02-09	30
18469	TURNER	SALESREP	1500	1996-03-08	30
18569	WARD	SALESREP	1200	1996-04-07	30
18669	MILLER	CLERK	7300	1996-05-23	30
18769	ALLEN	SALESREP	1600	1996-06-17	30
18869	WARD	SALESREP	1200	1996-07-23	30
18969	PROUD	SALESREP	1300	1996-08-09	30
19069	COOPER	CLERK	7500	1996-09-09	30
19169	JOHN	SALESREP	1400	1996-10-09	30
19269	WATSON	CLERK	7300	1996-11-21	30
19369	BLAKE	MANAGER	7800	1996-12-01	30
19469	CLARK	CLERK	7600	1997-01-09	30
19569	TURNER	SALESREP	1500	1997-02-08	30
19669	WARD	SALESREP	1200	1997-03-07	30
19769	MILLER	CLERK	7300	1997-04-23	30
19869	ALLEN	SALESREP	1600	1997-05-17	30
19969	WARD	SALESREP	1200	1997-06-23	30
20069	PROUD	SALESREP	1300	1997-07-09	30
20169	COOPER	CLERK	7500	1997-08-09	30
20269	JOHN	SALESREP	1400	1997-09-09	30
20369	WATSON	CLERK	7300	1997-10-21	30
20469	BLAKE	MANAGER	7800	1997-11-01	30
20569	CLARK	CLERK	7600	1997-12-09	30
20669	TURNER	SALESREP	1500	1998-01-08	30
20769	WARD	SALESREP	1200	1998-02-07	30
20869	MILLER	CLERK	7300	1998-03-23	30
20969	ALLEN	SALESREP	1600	1998-04-17	30
21069	WARD	SALESREP	1200	1998-05-23	30
21169	PROUD	SALESREP	1300	1998-06-09	30
21269	COOPER	CLERK	7500	1998-07-09	30
21369	JOHN	SALESREP	1400	1998-08-09	30
21469	WATSON	CLERK	7300	1998-09-21	30
21569	BLAKE	MANAGER	7800	1998-10-01	30
21669	CLARK	CLERK	7600	1998-11-09	30
21769	TURNER	SALESREP	1500	1998-12-08	30
21869	WARD	SALESREP	1200	1999-01-07	30
21969	MILLER	CLERK	7300	1999-02-23	30
22069	ALLEN	SALESREP	1600	1999-03-17	30
22169	WARD	SALESREP	1200	1999-04-23	30
22269	PROUD	SALESREP	1300	1999-05-09	30
22369	COOPER	CLERK	7500	1999-06-09	30
22469	JOHN	SALESREP	1400	1999-07-09	30
22569	WATSON	CLERK	7300	1999-08-21	30
22669	BLAKE	MANAGER	7800	1999-09-01	30
22769	CLARK	CLERK	7600	1999-10-09	30
22869	TURNER	SALESREP	1500	1999-11-08	30
22969	WARD	SALESREP	1200	1999-12-07	30
23069	MILLER	CLERK	7300	2000-01-23	30
23169	ALLEN	SALESREP	1600	2000-02-17	30
23269	WARD	SALESREP	1200	2000-03-23	30
23369	PROUD	SALESREP	1300	2000-04-09	30
23469	COOPER	CLERK	7500	2000-05-09	30
23569	JOHN	SALESREP	1400	2000-06-09	30
23669	WATSON	CLERK	7300	2000-07-21	30
23769	BLAKE	MANAGER	7800	2000-08-01	30
23869	CLARK	CLERK	7600	2000-09-09	30
23969	TURNER	SALESREP	1500	2000-10-08	30
24069	WARD	SALESREP	1200	2000-11-07	30
24169	MILLER	CLERK	7300	2000-12-23	30
24269	ALLEN	SALESREP	1600	2001-01-17	30
24369	WARD	SALESREP	1200	2001-02-23	30
24469	PROUD	SALESREP	1300	2001-03-09	30
24569	COOPER	CLERK	7500	2001-04-09	30
24669	JOHN	SALESREP	1400	2001-05-09	30
24769	WATSON	CLERK	7300	2001-06-21	30
24869	BLAKE	MANAGER	7800	2001-07-01	30
24969	CLARK	CLERK	7600	2001-08-09	30
25069	TURNER	SALESREP	1500	2001-09-08	30
25169	WARD	SALESREP	1200	2001-10-07	30
25269	MILLER	CLERK	7300	2001-11-23	30
25369	ALLEN	SALESREP	1600	2001-12-17	30
25469	WARD	SALESREP	1200	2002-01-23	30
25569	PROUD	SALESREP	1300	2002-02-09	30
25669	COOPER	CLERK	7500	2002-03-09	30
25769	JOHN	SALESREP	1400	2002-04-09	30
25869	WATSON	CLERK	7300	2002-05-21	30
25969	BLAKE	MANAGER	7800	2002-06-01	30
26069	CLARK	CLERK	7600	2002-07-09	30
26169	TURNER	SALESREP	1500	2002-08-08	30
26269	WARD	SALESREP	1200	2002-09-07	30
26369	MILLER	CLERK	7300	2002-10-23	30
26469	ALLEN	SALESREP	1600	2002-11-17	30
26569	WARD	SALESREP	1200	2002-12-23	30
26669	PROUD	SALESREP	1300	2003-01-09	30
26769	COOPER	CLERK	7500	2003-02-09	30
26869	JOHN	SALESREP	1400	2003-03-09	30
26969	WATSON	CLERK	7300	2003-04-21	30
27069	BLAKE	MANAGER	7800	2003-05-01	30
27169	CLARK	CLERK	7600	2003-06-09	30
27269	TURNER	SALESREP	1500	2003-07-08	30
27369	WARD	SALESREP	1200	2003-08-07	30
27469	MILLER	CLERK	7300	2003-09-23	30
27569	ALLEN	SALESREP	1600	2003-10-17	30
27669	WARD	SALESREP	1200		

FULL OUTER

- ▶ Say you want to get all the matching rows AND all the incomplete matches from both the left and right tables
- ▶ This calls for the FULL OUTER JOIN

10

Oracle Special 🤖🤖

- ▶ Oracle has a special operator just for OUTER JOIN
- ▶ You use the + sign in the WHERE clause on the side that will have the non matching values
- ▶ This is instead of the LEFT or RIGHT keyword
- ▶ You also do not use the JOIN keyword 🤖
 - ▶ This means no ON clause either!!

11
