7.4.1.Understanding Outer Joins

1. An outer join retrieves a row even when one of the columns in the join contains a null value.
2. You perform an outer join by supplying the outer join operator in the join condition.
3. The outer join operator is a plus character in parentheses (+).
4. The outer join operator (+) is on the column that contains the null value.

```
SQL> -- create demo table
SQL> create table Employee(
  2    EMPNO         NUMBER(3),
  3    ENAME         VARCHAR2(15 BYTE),
  4    HIREDATE      DATE,
  5    ORIG_SALARY   NUMBER(6),
  6    CURR_SALARY   NUMBER(6),
  7    REGION        VARCHAR2(1 BYTE)
  8  )
  9  /

Table created.

SQL>
SQL> create table job (
  2    EMPNO         NUMBER(3),
  3    jobtitle      VARCHAR2(20 BYTE)
  4  )
  5  /

Table created.

SQL>
SQL> insert into job (EMPNO, Jobtitle) values (1,'Tester');

1 row created.

SQL> insert into job (EMPNO, Jobtitle) values (2,'Accountant');

1 row created.

SQL> insert into job (EMPNO, Jobtitle) values (3,'Developer');

1 row created.

SQL> insert into job (EMPNO, Jobtitle) values (4,'COder');

1 row created.

SQL> insert into job (EMPNO, Jobtitle) values (5,'Director');

1 row created.

SQL>
SQL> insert into job (EMPNO, Jobtitle) values (9,'Developer');

1 row created.

SQL>
SQL>
SQL> -- prepare data
SQL> insert into Employee(EMPNO,  EName,   HIREDATE,                        ORIG_SALARY,       CURR_SALARY,  REGION)
  2               values (1,      'Jason', to_date('19960725','YYYYMMDD'), 1234,              8767,         'E')
  3  /

1 row created.

SQL> insert into Employee(EMPNO,  EName,   HIREDATE,                        ORIG_SALARY,       CURR_SALARY,  REGION)
  2               values (2,      'John',  to_date('19970715','YYYYMMDD'), 2341,              3456,         'W')
  3  /

1 row created.

SQL> insert into Employee(EMPNO,  EName,   HIREDATE,                        ORIG_SALARY,       CURR_SALARY,  REGION)
  2               values (3,      'Joe',   to_date('19860125','YYYYMMDD'), 4321,              5654,         'E')
  3  /

1 row created.

SQL> insert into Employee(EMPNO,  EName,   HIREDATE,                        ORIG_SALARY,       CURR_SALARY,  REGION)
  2               values (4,      'Tom',   to_date('20060913','YYYYMMDD'), 2413,              6787,         'W')
  3  /

1 row created.

SQL> insert into Employee(EMPNO,  EName,   HIREDATE,                        ORIG_SALARY,       CURR_SALARY,  REGION)
  2               values (5,      'Jane',  to_date('20050417','YYYYMMDD'), 7654,              4345,         'E')
  3  /

1 row created.

SQL> insert into Employee(EMPNO,  EName,   HIREDATE,                       ORIG_SALARY,      CURR_SALARY,  REGION)
  2               values (6,      'James', to_date('20040718','YYYYMMDD'), 5679,             6546,         'W')
  3  /

1 row created.

SQL> insert into Employee(EMPNO,  EName,   HIREDATE,                       ORIG_SALARY,      CURR_SALARY,  REGION)
  2               values (7,      'Jodd',  to_date('20030720','YYYYMMDD'), 5438,             7658,         'E')
  3  /

1 row created.

SQL> insert into Employee(EMPNO,  EName,   HIREDATE,                       ORIG_SALARY,      CURR_SALARY,  REGION)
  2               values (8,      'Joke',  to_date('20020101','YYYYMMDD'), 8765,             4543,         'W')
  3  /

1 row created.

SQL> insert into Employee(EMPNO,  EName,   HIREDATE,                       ORIG_SALARY,      CURR_SALARY,  REGION)
  2               values (9,      'Jack',  to_date('20010829','YYYYMMDD'), 7896,             1232,         'E')
  3  /

1 row created.

SQL>
SQL>
SQL>
SQL> -- display data in the table
SQL> select * from Employee
  2  /

     EMPNO ENAME           HIREDATE  ORIG_SALARY CURR_SALARY R
---------- --------------- --------- ----------- ----------- -
         1 Jason           25-JUL-96        1234        8767 E
         2 John            15-JUL-97        2341        3456 W
         3 Joe             25-JAN-86        4321        5654 E
         4 Tom             13-SEP-06        2413        6787 W
         5 Jane            17-APR-05        7654        4345 E
         6 James           18-JUL-04        5679        6546 W
         7 Jodd            20-JUL-03        5438        7658 E
         8 Joke            01-JAN-02        8765        4543 W
         9 Jack            29-AUG-01        7896        1232 E

9 rows selected.

SQL> select * from job
  2  /

     EMPNO JOBTITLE
---------- --------------------
         1 Tester
         2 Accountant
         3 Developer
         4 COder
         5 Director
         9 Developer

6 rows selected.

SQL>
SQL>
SQL> SELECT e.ename, j.jobtitle FROM employee e, job j WHERE e.empno = j.empno (+);

ENAME           JOBTITLE
--------------- --------------------
Jason           Tester
John            Accountant
Joe             Developer
Tom             COder
Jane            Director
Jack            Developer
Joke
James
Jodd

9 rows selected.

SQL>
SQL> SELECT e.ename, j.jobtitle FROM employee e, job j WHERE e.empno (+) = j.empno;

ENAME           JOBTITLE
--------------- --------------------
Jason           Tester
John            Accountant
Joe             Developer
Tom             COder
Jane            Director
Jack            Developer

6 rows selected.

SQL>
SQL> SELECT e.ename, j.jobtitle FROM employee e, job j WHERE j.empno (+) = e.empno;
```

```
ENAME           JOBTITLE
--------------- --------------------
Jason           Tester
John            Accountant
Joe             Developer
Tom             COder
Jane            Director
Jack            Developer
Joke
James
Jodd

9 rows selected.

SQL>
SQL> -- clean the table
SQL> drop table Employee
  2  /

Table dropped.

SQL> drop table job
  2  /

Table dropped.

SQL>
```

7.4.Outer Joins Left Right