Practice SQL JOIN Methods

This page provides exercises and solutions to help you practice SQL JOIN methods. These exercises are based on the Oracle HR schema, and may be performed online or by running the sample schema scripts on your local database server. For additional exercises in other subjects, use this link.

Inner JOIN Practice

1. Employees and departments (*Employees* & *Departments* tables)
    1. For each employee, display the first name, last name, department number and department name.
    2. Display the first name, last name, department number and department name, for all employees in departments 50 or 90.

2. Departments and locations (*Departments*, Employees & *Locations* tables)
    1. For each department, display the department name, city, and state province.
    2. For each employee, display the full name, department name, city, and state province.
    3. Display the full name, department name, city, and state province, for all employees whose last name contains the letter *a*.

None Equi JOIN Practice

1. For each employee, display the first name, salary, and job grade (*Employees* & *Job_Grades* tables)

Outer JOIN Practice

1. Employees & departments

1. Display the first name, last name, department number and department name, for all employees including those without any department.
2. Modify your query to display all departments including departments without any employees.

Self JOIN Practice

1. Employees and managers (*Employees* table)
    1. For each employee, display the last name, and the manager's last name.
    2. Modify your query to display all employees including those without any manager.

2. Display the first name, last name, and department number for all employees who work in the same department as employee whose last name is "King".
3. Display the last name and salary for all employees who earn less than employee number 103.

Solutions – Oracle

These solutions apply to Oracle, for solutions that apply to SQL Server click here.

```
01 -- 1.
02 -- a
03 SELECT emp.first_name , emp.last_name ,
04        emp.department_id ,    dep.department_name
05 FROM employees emp , departments dep
06 WHERE emp.department_id = dep.department_id
07 -- b
08 SELECT emp.first_name , emp.last_name ,
09        emp.department_id ,  dep.department_name
10 FROM employees emp , departments dep
11 WHERE emp.department_id = dep.department_id
12 AND
13       emp.department_id IN (50 , 90)
```

```
ORDER BY emp.last_name
-- 2.
-- a
SELECT dep.department_name , loc.city , loc.state_province
FROM   departments dep , locations loc
WHERE  dep.location_id = loc.location_id
 -- b
SELECT emp.last_name || ' '|| emp.first_name AS "FULL_NAME",
       dep.department_name , loc.city , loc.state_province
FROM   employees emp , departments dep , locations loc
WHERE         emp.department_id = dep.department_id
AND
              dep.location_id = loc.location_id
-- c
SELECT emp.last_name || ' '|| emp.first_name AS "FULL_NAME",
       dep.department_name , loc.city , loc.state_province
FROM   employees emp , departments dep , locations loc
WHERE         emp.department_id = dep.department_id
AND
             dep.location_id = loc.location_id
AND          emp.last_name LIKE  '%a%'
-- 3.
SELECT emp.last_name , emp.salary , job_g.grade_level
FROM   employees emp , job_grades job_g
WHERE  emp.salary BETWEEN job_g.lowest_sal AND job_g.highest_
-- 4.
-- a
SELECT emp.first_name , emp.last_name , emp.department_id ,
FROM employees emp , departments dep
WHERE emp.department_id = dep.department_id (+)
-- b
SELECT emp.first_name , emp.last_name , emp.department_id ,
FROM employees emp , departments dep
WHERE emp.department_id (+) = dep.department_id
-- 5.
-- a
SELECT emp.last_name AS "EMPLOYEE_NAME",
       mng.last_name AS "MANAGER_NAME"
FROM   employees emp , employees mng
```

```
WHERE  emp.manager_id = mng.employee_id
-- b
SELECT emp.last_name AS "EMPLOYEE_NAME", mng.last_name AS "M
FROM   employees emp , employees mng
WHERE  emp.manager_id = mng.employee_id (+)
-- 6.
SELECT emp.last_name , emp.first_name , emp.department_id
FROM   employees emp , employees specific_employee
WHERE  emp.department_id = specific_employee.department_id
AND    specific_employee.last_name = 'King'
-- AND emp.last_name <> 'King'
-- 7.
SELECT emp.last_name , emp.salary
FROM   employees emp , employees specific_emp
WHERE  emp.salary < specific_emp.salary
AND    specific_emp.employee_id = 103
```

Solutions – SQL Server

```
-- 1.
-- a
SELECT emp.first_name , emp.last_name ,
       emp.department_id ,    dep.department_name
FROM employees emp JOIN departments dep
ON emp.department_id = dep.department_id
-- b
SELECT emp.first_name , emp.last_name ,
       emp.department_id ,  dep.department_name
FROM employees emp JOIN departments dep
ON emp.department_id = dep.department_id
AND
      emp.department_id IN (50 , 90)
ORDER BY emp.last_name
-- 2.
-- a
SELECT dep.department_name , loc.city , loc.state_province
FROM   departments dep JOIN locations loc
ON  dep.location_id = loc.location_id
 -- b
```

```
SELECT emp.last_name + ' '+ emp.first_name AS 'FULL_NAME',
       dep.department_name , loc.city , loc.state_province
FROM   employees emp JOIN departments dep
ON         emp.department_id = dep.department_id
       JOIN locations loc
ON     dep.location_id = loc.location_id
-- c
SELECT emp.last_name + ' '+ emp.first_name AS 'FULL_NAME',
       dep.department_name , loc.city , loc.state_province
FROM   employees emp JOIN departments dep
ON         emp.department_id = dep.department_id
        JOIN locations loc
ON      dep.location_id = loc.location_id
WHERE   emp.last_name LIKE  '%a%'
-- 3.
SELECT emp.last_name , emp.salary , job_g.grade_level
FROM   employees emp JOIN job_grades job_g
ON  emp.salary BETWEEN job_g.lowest_sal AND job_g.highest_sa
-- 4.
-- a
SELECT emp.first_name , emp.last_name , emp.department_id ,
FROM employees emp LEFT OUTER JOIN departments dep
ON emp.department_id = dep.department_id
-- b
SELECT emp.first_name , emp.last_name , emp.department_id ,
FROM employees emp RIGHT OUTER JOIN departments dep
ON emp.department_id = dep.department_id
-- 5.
-- a
SELECT emp.last_name AS 'EMPLOYEE_NAME',
       mng.last_name AS 'MANAGER_NAME'
FROM   employees emp JOIN employees mng
ON  emp.manager_id = mng.employee_id
-- b
SELECT emp.last_name AS 'EMPLOYEE_NAME', mng.last_name AS 'M
FROM   employees emp LEFT OUTER JOIN employees mng
ON  emp.manager_id = mng.employee_id
-- 6.
SELECT emp.last_name , emp.first_name , emp.department_id
```

```
60  FROM   employees emp JOIN employees specific_employee
61  ON  emp.department_id = specific_employee.department_id
62  AND    specific_employee.last_name = 'King'
63  -- AND emp.last_name <> ‘King’
64  -- 7.
65  SELECT emp.last_name , emp.salary
66  FROM   employees emp JOIN employees specific_emp
67  ON  emp.salary < specific_emp.salary
68  AND  specific_emp.employee_id = 103
```