Practices for Lesson 2: Retrieving Data Using the SQL SELECT Statement

Chapter 2

Practices for Lesson 2: Overview

Practice Overview

This practice covers the following topics:

- Selecting all data from different tables
- Describing the structure of tables
- Performing arithmetic calculations and specifying column names

Practice 2-1: Retrieving Data Using the SQL SELECT Statement

Overview

In this practice, you write simple SELECT queries. The queries cover most of the SELECT clauses and operations that you learned in this lesson.

Task 1

Test your knowledge:

1. The following SELECT statement executes successfully:

```
SELECT last_name, job_id, salary AS Sal
FROM   employees;
```

   True/False

2. The following SELECT statement executes successfully:

```
SELECT *
FROM   job_grades;
```

   True/False

3. There are four coding errors in the following statement. Can you identify them?

```
SELECT    employee_id, last_name
sal x 12  ANNUAL SALARY
FROM      employees;
```

Task 2

Note the following points before you begin with the practices:

- Save all your practice files at the following location:
  `/home/oracle/labs/sql1/labs`
- Enter your SQL statements in a SQL Worksheet. To open a new worksheet, click File menu, select New. A New Gallery dialog window appears. Click Database Files under Database Tier on the left pane. Select SQL File on the right pane and click OK.
- To save a script in SQL Developer, make sure that the required SQL Worksheet is active, and then from the File menu, select Save As to save your SQL statement as a `lab_<lessonno>_<stepno>.sql` script. When you modify an existing script, make sure that you use Save As to save it with a different file name.
- To run the query, click the Run Statement icon in the SQL Worksheet. Alternatively, you can press F9. For DML and DDL statements, use the Run Script icon or press F5.
- After you have executed the query, make sure that you do not enter your next query in the same worksheet. Open a new worksheet.

You have been hired as a SQL programmer for Acme Corporation. Your first task is to create some reports based on data from the Human Resources tables.

4. Your first task is to determine the structure of the `DEPARTMENTS` table and its contents.

```
DESCRIBE departments
Name            Null     Type
--------------- -------- ------------
DEPARTMENT_ID   NOT NULL NUMBER(4)
DEPARTMENT_NAME NOT NULL VARCHAR2(30)
MANAGER_ID               NUMBER(6)
LOCATION_ID              NUMBER(4)
```

	DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
1	10	Administration	200	1700
2	20	Marketing	201	1800
3	50	Shipping	124	1500
4	60	IT	103	1400
5	80	Sales	149	2500
6	90	Executive	100	1700
7	110	Accounting	205	1700
8	190	Contracting	(null)	1700

5. Your next task is to determine the structure of the `EMPLOYEES` table and its contents.
   a. Determine the structure of the `EMPLOYEES` table.

```
DESCRIBE employees
Name           Null     Type
-------------- -------- ------------
EMPLOYEE_ID    NOT NULL NUMBER(6)
FIRST_NAME              VARCHAR2(20)
LAST_NAME      NOT NULL VARCHAR2(25)
EMAIL          NOT NULL VARCHAR2(25)
PHONE_NUMBER            VARCHAR2(20)
HIRE_DATE      NOT NULL DATE
JOB_ID         NOT NULL VARCHAR2(10)
SALARY                  NUMBER(8,2)
COMMISSION_PCT          NUMBER(2,2)
MANAGER_ID              NUMBER(6)
DEPARTMENT_ID           NUMBER(4)
```

b. The HR department wants a query to display the last name, job ID, hire date, and employee ID for each employee, with the employee ID appearing first. Provide an alias `STARTDATE` for the `HIRE_DATE` column. Save your SQL statement to a file named `lab_02_5b.sql` so that you can dispatch this file to the HR department. Test your query in the `lab_02_5b.sql` file to ensure that it runs correctly.

Note: After you have executed the query, make sure that you do not enter your next query in the same worksheet. Open a new worksheet.

	EMPLOYEE_ID	LAST_NAME	JOB_ID	STARTDATE
1	100	King	AD_PRES	17-JUN-11
2	101	Kochhar	AD_VP	21-SEP-09
3	102	De Haan	AD_VP	13-JAN-09
4	103	Hunold	IT_PROG	03-JAN-14
5	104	Ernst	IT_PROG	21-MAY-15
6	107	Lorentz	IT_PROG	07-FEB-15
7	124	Mourgos	ST_MAN	16-NOV-15
8	141	Rajs	ST_CLERK	17-OCT-11
9	142	Davies	ST_CLERK	29-JAN-13
10	143	Matos	ST_CLERK	15-MAR-14
11	144	Vargas	ST_CLERK	09-JUL-14
12	149	Zlotkey	SA_MAN	29-JAN-16
13	174	Abel	SA_REP	11-MAY-12
14	176	Taylor	SA_REP	24-MAR-14
15	178	Grant	SA_REP	24-MAY-15
16	200	Whalen	AD_ASST	17-SEP-11
17	201	Hartstein	MK_MAN	17-FEB-12
18	202	Fay	MK_REP	17-AUG-13
19	205	Higgins	AC_MGR	07-JUN-10
20	206	Gietz	AC_ACCOUNT	07-JUN-10

6. The HR department wants a query to display all unique job IDs from the `EMPLOYEES` table.

	JOB_ID
1	AC_ACCOUNT
2	AC_MGR
3	AD_ASST
4	AD_PRES
5	AD_VP
6	IT_PROG
7	MK_MAN
8	MK_REP
9	SA_MAN
10	SA_REP
11	ST_CLERK
12	ST_MAN

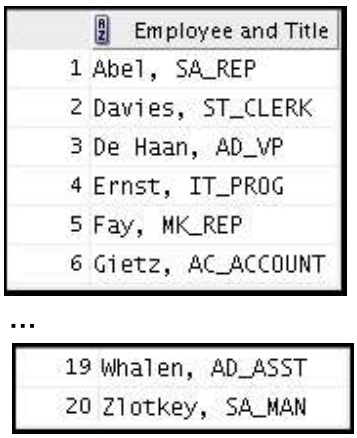
Task 3

If you have time, complete the following exercises:

7. The HR department wants more descriptive column headings for its report on employees. Copy the statement from `lab_02_5b.sql` to a new SQL Worksheet. Name the columns `Emp #`, `Employee`, `Job`, and `Hire Date`, respectively. Then run the query again.

	Emp #	Employee	Job	Hire Date
1	100	King	AD_PRES	17-JUN-11
2	101	Kochhar	AD_VP	21-SEP-09
3	102	De Haan	AD_VP	13-JAN-09
4	103	Hunold	IT_PROG	03-JAN-14
5	104	Ernst	IT_PROG	21-MAY-15
6	107	Lorentz	IT_PROG	07-FEB-15
7	124	Mourgos	ST_MAN	16-NOV-15
8	141	Rajs	ST_CLERK	17-OCT-11
9	142	Davies	ST_CLERK	29-JAN-13
10	143	Matos	ST_CLERK	15-MAR-14
11	144	Vargas	ST_CLERK	09-JUL-14
12	149	Zlotkey	SA_MAN	29-JAN-16
13	174	Abel	SA_REP	11-MAY-12
14	176	Taylor	SA_REP	24-MAR-14
15	178	Grant	SA_REP	24-MAY-15
16	200	Whalen	AD_ASST	17-SEP-11
17	201	Hartstein	MK_MAN	17-FEB-12
18	202	Fay	MK_REP	17-AUG-13
19	205	Higgins	AC_MGR	07-JUN-10
20	206	Gietz	AC_ACCOUNT	07-JUN-10

8. The HR department has requested a report of all employees and their job IDs. Display the last name concatenated with the job ID (separated by a comma and space) and name the column `Employee and Title`.



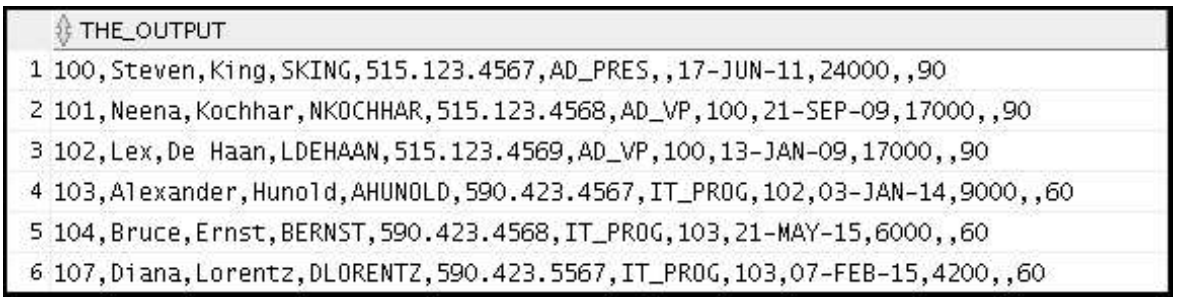
	Employee and Title
1	Abel, SA_REP
2	Davies, ST_CLERK
3	De Haan, AD_VP
4	Ernst, IT_PROG
5	Fay, MK_REP
6	Gietz, AC_ACCOUNT

...

19	Whalen, AD_ASST
20	Zlotkey, SA_MAN

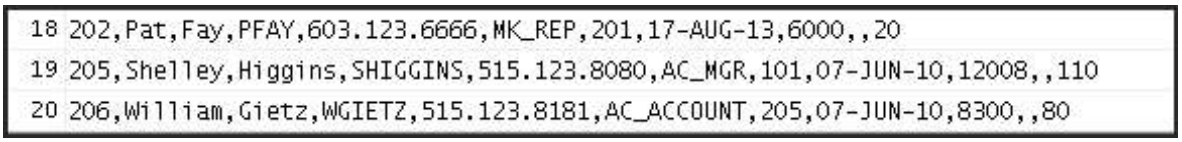
If you want an extra challenge, complete the following exercise:

9. To familiarize yourself with the data in the `EMPLOYEES` table, create a query to display all the data from that table. Separate each column output by a comma. Name the column `THE_OUTPUT`.



	THE_OUTPUT
1	100,Steven,King,SKING,515.123.4567,AD_PRES,,17-JUN-11,24000,,90
2	101,Neena,Kochhar,NKOCHHAR,515.123.4568,AD_VP,100,21-SEP-09,17000,,90
3	102,Lex,De Haan,LDEHAAN,515.123.4569,AD_VP,100,13-JAN-09,17000,,90
4	103,Alexander,Hunold,AHUNOLD,590.423.4567,IT_PROG,102,03-JAN-14,9000,,60
5	104,Bruce,Ernst,BERNST,590.423.4568,IT_PROG,103,21-MAY-15,6000,,60
6	107,Diana,Lorentz,DLORENTZ,590.423.5567,IT_PROG,103,07-FEB-15,4200,,60

...



18	202,Pat,Fay,PFAY,603.123.6666,MK_REP,201,17-AUG-13,6000,,20
19	205,Shelley,Higgins,SHIGGINS,515.123.8080,AC_MGR,101,07-JUN-10,12008,,110
20	206,William,Gietz,WGIETZ,515.123.8181,AC_ACCOUNT,205,07-JUN-10,8300,,80