

	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

,manage

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

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

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

Because of budget issues, the HR department needs a report that displays the last name and salary of employees who earn more than \$12,000. Save your SQL statement as a file named `lab_03_01.sql`. Run your query.

	LAST_NAME	SALARY
1	King	24000
2	Kochhar	17000
3	De Haan	17000
4	Hartstein	13000
5	Higgins	12008

Open a new SQL Worksheet. Create a report that displays the last name and department number for employee number 176.

	LAST_NAME	DEPARTMENT_ID
1	Taylor	80

The HR department needs to find high-salaried and low-salaried employees. Modify `lab_03_01.sql` to display the last name and salary for any employee whose salary is not in the range \$5,000 through \$12,000. Save your SQL statement as `lab_03_03.sql`.

	LAST_NAME	SALARY
1	King	24000
2	Kochhar	17000
3	De Haan	17000
4	Lorentz	4200
5	Rajs	3500
6	Davies	3100
7	Matos	2600
8	Vargas	2500
9	Whalen	4400
10	Hartstein	13000
11	Higgins	12008

Create a report to display the last name, job ID, and hire date for employees with the last names of Matos and Taylor. Order the query in ascending order by hire date.

	LAST_NAME	JOB_ID	HIRE_DATE
1	Matos	ST_CLERK	15-MAR-14
2	Taylor	SA_REP	24-MAR-14

Display the last name and department ID of all employees in department 20 or department 50 in ascending alphabetical order by last_name.

	LAST_NAME	DEPARTMENT_ID
1	Davies	50
2	Fay	20
3	Hartstein	20
4	Matos	50
5	Mourgos	50
6	Rajs	50
7	Vargas	50

Modify lab_03_03.sql to display the last name and salary of employees who earn between \$5,000 and \$12,000, and are in department 20 or department 50. Label the columns Employee and Monthly Salary, respectively. Save lab_03_03.sql as lab_03_06.sql. Run the statement in lab_03_06.sql.

	Employee	Monthly Salary
1	Fay	6000
2	Mourgos	5800

The HR department needs a report that displays the last name and hire date of all employees who were hired in 2010.

	LAST_NAME	HIRE_DATE
1	Higgins	07-JUN-10
2	Gietz	07-JUN-10

Create a report to display the last name and job title of all employees who do not have a manager.

	LAST_NAME	JOB_ID
1	King	AD_PRES

Create a report to display the last name, salary, and commission of all employees who earn commissions. Sort the data in descending order of salary and commissions. Use the column's numeric position in the ORDER BY clause.

	A Z	LAST_NAME	A Z	SALARY	A Z	COMMISSION_PCT
1		Abel		11000		0.3
2		Zlotkey		10500		0.2
3		Taylor		8600		0.2
4		Grant		7000		0.15

Display the last names of all employees where the third letter of the name is "a."

	A Z	LAST_NAME
1		Grant
2		Whalen

Display the last names of all employees who have both an "a" and an "e" in their last name.

	A Z	LAST_NAME
1		Davies
2		De Haan
3		Hartstein
4		Whalen

Display the last name, job, and salary for all employees whose jobs are either that of a sales representative or a stock clerk, and whose salaries are not equal to \$2,500, \$3,500, or \$7,000.

	A Z	LAST_NAME	A Z	JOB_ID	A Z	SALARY
1		Abel		SA_REP		11000
2		Taylor		SA_REP		8600
3		Davies		ST_CLERK		3100
4		Matos		ST_CLERK		2600

The HR department needs a report to display the employee number, last name, salary, and salary increased by 15.5% (expressed as a whole number) for each employee. Label the column *New Salary*. Save your SQL statement in a file named `lab_04_02.sql`.

Run your query in the `lab_04_02.sql` file.

	EMPLOYEE_ID	LAST_NAME	SALARY	New Salary
1	100	King	24000	27720
2	101	Kochhar	17000	19635
3	102	De Haan	17000	19635
4	103	Hunold	9000	10395
5	104	Ernst	6000	6930
6	107	Lorentz	4200	4851
7	124	Mourgos	5800	6699
8	141	Rajs	3500	4043
9	142	Davies	3100	3581
10	143	Matos	2600	3003
11	144	Vargas	2500	2888
12	149	Zlotkey	10500	12128
13	174	Abel	11000	12705
14	176	Taylor	8600	9933
15	178	Grant	7000	8085
16	200	Whalen	4400	5082
17	201	Hartstein	13000	15015
18	202	Fay	6000	6930
19	205	Higgins	12008	13869
20	206	Gietz	8300	9587

Modify your query in lab_04_02.sql to add a column that subtracts the old salary from the new salary. Label the column Increase. Save the contents of the file as lab_04_04.sql. Run the revised query.

	EMPLOYEE_ID	LAST_NAME	SALARY	New Salary	Increase
1	100	King	24000	27720	3720
2	101	Kochhar	17000	19635	2635
3	102	De Haan	17000	19635	2635
4	103	Hunold	9000	10395	1395
5	104	Ernst	6000	6930	930
6	107	Lorentz	4200	4851	651
7	124	Mourgos	5800	6699	899
8	141	Rajs	3500	4043	543
9	142	Davies	3100	3581	481
10	143	Matos	2600	3003	403
11	144	Vargas	2500	2888	388
12	149	Zlotkey	10500	12128	1628
13	174	Abel	11000	12705	1705
14	176	Taylor	8600	9933	1333
15	178	Grant	7000	8085	1085
16	200	Whalen	4400	5082	682
17	201	Hartstein	13000	15015	2015
18	202	Fay	6000	6930	930
19	205	Higgins	12008	13869	1861
20	206	Gietz	8300	9587	1287

The HR department wants to find the duration of employment for each employee. For each employee, display the last name and calculate the number of months between today and the date on which the employee was hired. Label the column as `MONTHS_WORKED`. Order your results by the number of months employed. The number of months must be rounded to the closest whole number.

Note: Because this query depends on the date when it was executed, the values in the `MONTHS_WORKED` column will differ for you.

	LAST_NAME	MONTHS_WORKED
1	Zlotkey	6
2	Mourgos	8
3	Grant	14
4	Ernst	14
5	Lorentz	17
6	Vargas	24
7	Matos	28
8	Taylor	28
9	Hunold	30
10	Fay	35
11	Davies	42
12	Abel	50
13	Hartstein	53
14	Rajs	57
15	Whalen	58
16	King	61
17	Higgins	73
18	Gietz	73
19	Kochhar	82
20	De Haan	90

Create a query to display the last name and salary for all employees. Format the salary to be 15 characters long, left-padded with the \$ symbol. Label the column `SALARY`.

	LAST_NAME	SALARY
1	King	\$\$\$\$\$\$\$\$\$24000
2	Kochhar	\$\$\$\$\$\$\$\$\$17000
3	De Haan	\$\$\$\$\$\$\$\$\$17000
4	Hunold	\$\$\$\$\$\$\$\$\$9000
5	Ernst	\$\$\$\$\$\$\$\$\$6000
6	Lorentz	\$\$\$\$\$\$\$\$\$4200
7	Mourgos	\$\$\$\$\$\$\$\$\$5800
8	Rajs	\$\$\$\$\$\$\$\$\$3500
9	Davies	\$\$\$\$\$\$\$\$\$3100
10	Matos	\$\$\$\$\$\$\$\$\$2600
11	Vargas	\$\$\$\$\$\$\$\$\$2500
12	Zlotkey	\$\$\$\$\$\$\$\$\$10500
13	Abel	\$\$\$\$\$\$\$\$\$11000
14	Taylor	\$\$\$\$\$\$\$\$\$8600
15	Grant	\$\$\$\$\$\$\$\$\$7000
16	Whalen	\$\$\$\$\$\$\$\$\$4400
17	Hartstein	\$\$\$\$\$\$\$\$\$13000
18	Fay	\$\$\$\$\$\$\$\$\$6000
19	Higgins	\$\$\$\$\$\$\$\$\$12008
20	Gietz	\$\$\$\$\$\$\$\$\$8300

Create a query that displays the employees' last names, and indicates the amounts of their salaries with asterisks. Each asterisk signifies a thousand dollars. Sort the data in descending order of salary. Label the column SALARIES_IN_ASTERISK.

LAST_NAME	SALARIES_IN_ASTERISK
1 King	*****
2 Kochhar	*****
3 De Haan	*****
4 Hartstein	*****
5 Higgins	*****
6 Abel	*****
7 Zlotkey	*****
8 Hunold	*****
9 Taylor	*****
10 Gietz	*****
11 Grant	*****
12 Ernst	*****
13 Fay	*****
14 Mourgös	*****
15 Whalen	****
16 Lorentz	****
17 Rajs	***
18 Davies	***
19 Matos	**
20 Vargas	**

Create a report that produces the following for each employee:

<employee last name> earns <salary> monthly but wants <3 times salary.>. Label the column Dream Salaries.

	Dream Salaries
1	King earns \$24,000.00 monthly but wants \$72,000.00.
2	Kochhar earns \$17,000.00 monthly but wants \$51,000.00.
3	De Haan earns \$17,000.00 monthly but wants \$51,000.00.
4	Hunold earns \$9,000.00 monthly but wants \$27,000.00.
5	Ernst earns \$6,000.00 monthly but wants \$18,000.00.
6	Lorentz earns \$4,200.00 monthly but wants \$12,600.00.
7	Mourgos earns \$5,800.00 monthly but wants \$17,400.00.
8	Rajs earns \$3,500.00 monthly but wants \$10,500.00.
9	Davies earns \$3,100.00 monthly but wants \$9,300.00.
10	Matos earns \$2,600.00 monthly but wants \$7,800.00.
11	Vargas earns \$2,500.00 monthly but wants \$7,500.00.
12	Zlotkey earns \$10,500.00 monthly but wants \$31,500.00.
13	Abel earns \$11,000.00 monthly but wants \$33,000.00.
14	Taylor earns \$8,600.00 monthly but wants \$25,800.00.
15	Grant earns \$7,000.00 monthly but wants \$21,000.00.
16	Whalen earns \$4,400.00 monthly but wants \$13,200.00.
17	Hartstein earns \$13,000.00 monthly but wants \$39,000.00.
18	Fay earns \$6,000.00 monthly but wants \$18,000.00.
19	Higgins earns \$12,008.00 monthly but wants \$36,024.00.
20	Gietz earns \$8,300.00 monthly but wants \$24,900.00.

Create a query that displays employees' last names and commission amounts. If an employee does not earn commission, show "No Commission." Label the column COMM.

	LAST_NAME	COMM
1	King	No Commission
2	Kochhar	No Commission
3	De Haan	No Commission
4	Hunold	No Commission
5	Ernst	No Commission
6	Lorentz	No Commission
7	Mourgos	No Commission
8	Rajs	No Commission
9	Davies	No Commission
10	Matos	No Commission
11	Vargas	No Commission
12	Zlotkey	.2
13	Abel	.3
14	Taylor	.2
15	Grant	.15
16	Whalen	No Commission
17	Hartstein	No Commission
18	Fay	No Commission
19	Higgins	No Commission
20	Gietz	No Commission

Using the CASE function, write a query that displays the grade of all employees based on the value of the JOB_ID column, using the following data:






Job	Grade
AD_PRES	A
ST_MAN	B
IT_PROG	C
SA_REP	D
ST_CLERK	E
None of the above	0

	JOB_ID	GRADE
1	AC_ACCOUNT	0
2	AC_MGR	0
3	AD_ASST	0
4	AD_PRES	A
5	AD_VP	0
6	AD_VP	0
7	IT_PROG	C
8	IT_PROG	C
9	IT_PROG	C
10	MK_MAN	0
11	MK_REP	0
12	SA_MAN	0
13	SA_REP	D
14	SA_REP	D
15	SA_REP	D
16	ST_CLERK	E
17	ST_CLERK	E
18	ST_CLERK	E
19	ST_CLERK	E
20	ST_MAN	B



Find the highest, lowest, sum, and average salary of all employees. Label the columns Maximum, Minimum, Sum, and Average, respectively. Round your results to the nearest whole number. Save your SQL statement as lab_06_04.sql. Run the query.

	Maximum	Minimum	Sum	Average
1	24000	2500	175508	8775

Modify the query in lab_06_04.sql to display the minimum, maximum, sum, and average salary for each job type. Save lab_06_04.sql as lab_06_05.sql. Run the statement in lab_06_05.sql.

	 JOB_ID	 Maximum	 Minimum	 Sum	 Average
1	IT_PROG	9000	4200	19200	6400
2	AC_MGR	12008	12008	12008	12008
3	AC_ACCOUNT	8300	8300	8300	8300
4	ST_MAN	5800	5800	5800	5800
5	AD_ASST	4400	4400	4400	4400
6	AD_VP	17000	17000	34000	17000
7	SA_MAN	10500	10500	10500	10500
8	MK_MAN	13000	13000	13000	13000
9	AD_PRES	24000	24000	24000	24000
10	SA_REP	11000	7000	26600	8867
11	MK_REP	6000	6000	6000	6000
12	ST_CLERK	3500	2500	11700	2925

Write a query to display the number of people with the same job.

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

Determine the number of managers without listing them. Label the column Number of Managers.

Hint: Use the MANAGER_ID column to determine the number of managers.

	Number of Managers
1	8

Find the difference between the highest and lowest salaries. Label the column DIFFERENCE.

	DIFFERENCE
1	21500

Create a report to display the manager number and the salary of the lowest-paid employee for that manager. Exclude anyone whose manager is not known. Exclude any groups where the minimum salary is \$6,000 or less. Sort the output in descending order of salary.

	MANAGER_ID	MIN(SALARY)
1	102	9000
2	205	8300
3	149	7000

1997,1998,1999,2000

Create a query to display the total number of employees and, of that total, the number of employees hired in 2009, 2010, 2011, and 2012. Create appropriate column headings.

	TOTAL	2009	2010	2011	2012
1	20	2	2	3	2

Create a matrix query to display the job, the salary for that job based on the department numbers 20, 50, 80, and 90, and the total salary for that job. Ensure to give each column an appropriate heading.

Job	Dept 20	Dept 50	Dept 80	Dept 90	Total
1 IT_PROG	(null)	(null)	(null)	(null)	19200
2 AC_MGR	(null)	(null)	(null)	(null)	12008
3 AC_ACCOUNT	(null)	(null)	(null)	(null)	8300
4 ST_MAN	(null)	5800	(null)	(null)	5800
5 AD_ASST	(null)	(null)	(null)	(null)	4400
6 AD_VP	(null)	(null)	(null)	34000	34000
7 SA_MAN	(null)	(null)	10500	(null)	10500
8 MK_MAN	13000	(null)	(null)	(null)	13000
9 AD_PRES	(null)	(null)	(null)	24000	24000
10 SA_REP	(null)	(null)	19600	(null)	26600
11 MK_REP	6000	(null)	(null)	(null)	6000
12 ST_CLERK	(null)	11700	(null)	(null)	11700

Write a query for the HR department to produce the addresses of all the departments. Use the LOCATIONS and COUNTRIES tables. Show the location ID, street address, city, state or province, and country in the output. Use a NATURAL JOIN to produce the results.

LOCATION_ID	STREET_ADDRESS	CITY	STATE_PROVINCE	COUNTRY_NAME
1	1400 2014 Jabbawocky Rd	Southlake	Texas	United States of America
2	1500 2011 Interiors Blvd	South San Francisco	California	United States of America
3	1700 2012 Charade Rd	Seattle	Washington	United States of America
4	1800 460 Bloor St. W.	Toronto	Ontario	Canada
5	2500 Magdalen Centre, The Oxford Science Park	Oxford	Oxford	United Kingdom

The HR department needs a report of employees in Toronto. Display the last name, job, department number, and the department name for all employees who work in Toronto.

LAST_NAME	JOB_ID	DEPARTMENT_ID	DEPARTMENT_NAME
1 Hartstein	MK_MAN	20	Marketing
2 Fay	MK_REP	20	Marketing

Create a report to display employees' last names and employee numbers along with their managers' last names and manager numbers. Label the columns `Employee`, `Emp#`, `Manager`, and `Mgr#`, respectively. Save your SQL statement as `lab_07_04.sql`. Run the query.

	Employee	Emp#	Manager	Mgr#
1	Hunold	103	De Haan	102
2	Fay	202	Hartstein	201
3	Gietz	206	Higgins	205
4	Ernst	104	Hunold	103
5	Lorentz	107	Hunold	103
6	Kochhar	101	King	100
7	De Haan	102	King	100
8	Mourgos	124	King	100
9	Zlotkey	149	King	100
10	Hartstein	201	King	100
11	Whalen	200	Kochhar	101
12	Higgins	205	Kochhar	101
13	Rajs	141	Mourgos	124
14	Davies	142	Mourgos	124
15	Matos	143	Mourgos	124
16	Vargas	144	Mourgos	124
17	Abel	174	Zlotkey	149
18	Taylor	176	Zlotkey	149
19	Grant	178	Zlotkey	149


Create a report for the HR department that displays employee last names, department numbers, and all the employees who work in the same department as a given employee. Give each column an appropriate label. Save the script to a file named `lab_07_06.sql`.

	DEPARTMENT	EMPLOYEE	COLLEAGUE
1	20	Fay	Hartstein
2	20	Hartstein	Fay
3	50	Davies	Matos
4	50	Davies	Mourgos
5	50	Davies	Rajs



...

38	90	King	Kochhar
39	90	Kochhar	De Haan
40	90	Kochhar	King
41	110	Gietz	Higgins
42	110	Higgins	Gietz

The HR department needs a list of department IDs for departments that do not contain the job ID `ST_CLERK`. Use the set operators to create this report.

	 DEPARTMENT_ID
1	10
2	20
3	60
4	80
5	90
6	110
7	190

The HR department needs a list of countries that have no departments located in them. Display the country IDs and the names of the countries. Use the set operators to create this report.

 COUNTRY_ID	 COUNTRY_NAME
1 DE	Germany

Create a report that lists the details of all employees who are sales representatives and are currently working in the sales department.

 EMPLOYEE_ID
1
2