

These exercises can be used for extra practice after you have discussed the following topics: basic SQL SELECT statement, basic iSQL*Plus commands, and SQL functions.

1. Show all data of the clerks who have been hired after the year 1997.

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE
143	Randall	Matos	RMATOS	650.121.2874	15-MAR-96
144	Peter	Vargas	PVARGAS	650.121.2004	09-JUL-98

2. Show the last name, job, salary, and commission of those employees who earn commission. Sort the data by the salary in descending order.

LAST_NAME	JOB_ID	SALARY	COMMISSION_PCT
Abel	SA_REP	11000	.3
Zlotkey	SA_MAN	10500	.2
Taylor	SA_REP	8600	.2
Grant	SA_REP	7000	.15

3. Show the employees that have no commission with a 10% raise in their salary (round off the salaries).

New salary
The salary of King after a 10% raise is 26400
The salary of Kochhar after a 10% raise is 18700
The salary of De Haan after a 10% raise is 18700
The salary of Hunold after a 10% raise is 9900
The salary of Ernst after a 10% raise is 6600
The salary of Lorentz after a 10% raise is 4620
The salary of Mourgos after a 10% raise is 6380
The salary of Rajs after a 10% raise is 3850
The salary of Davies after a 10% raise is 3410
The salary of Matos after a 10% raise is 2860
The salary of Vargas after a 10% raise is 2750
The salary of Whalen after a 10% raise is 4840
The salary of Hartstein after a 10% raise is 14300
The salary of Fay after a 10% raise is 6600
New salary
The salary of Higgins after a 10% raise is 13200
The salary of Gietz after a 10% raise is 9130

16 rows selected.

4. Show the last names of all employees together with the number of years and the number of completed months that they have been employed.

LAST_NAME	YEARS	MONTHS
King	13	9
Kochhar	11	5
De Haan	8	2
Hunold	11	2
Ernst	9	9
Lorentz	2	1
Mourgos	1	4
Rajs	5	5
Davies	4	1
Matos	3	0
Gietz	6	9

20 rows selected.

5. Show those employees that have a name starting with *J*, *K*, *L*, or *M*.

LAST_NAME
King
Kochhar
Lorentz
Mourgos
Matos

6. Show all employees, and indicate with “Yes” or “No” whether they receive a commission.

LAST_NAME	SALARY	COM
King	24000	No
Kochhar	17000	No
De Haan	17000	No
Hunold	9000	No
Ernst	6000	No
Lorentz	4200	No
Mourgos	5800	No
Rajs	3500	No

(Note: results continued on next page)

Davies	3100	No
Matos	2600	No
Vargas	2500	No
Zlotkey	10500	Yes
Abel	11000	Yes
Taylor	8600	Yes
LAST_NAME	SALARY	COM
Grant	7000	Yes
Whalen	4400	No
Hartstein	13000	No
Fay	6000	No
Higgins	12000	No
Gietz	8300	No

20 rows selected.

These exercises can be used for extra practice after you have discussed the following topics: SQL basic SELECT statement, basic *iSQL*Plus* commands, SQL functions, joins, and group functions.

7. Show the department names, locations, names, job titles, and salaries of employees who work in location 1800.

DEPARTMENT_NAME	LOCATION_ID	LAST_NAME	JOB_ID	SALARY
Marketing	1800	Hartstein	MK_MAN	13000
Marketing	1800	Fay	MK_REP	6000

8. How many employees have a name that ends with an "n"? Create two possible solutions.

COUNT(*)
3

9. Show the names and locations for all departments, and the number of employees working in each department. Make sure that departments without employees are included as well.

DEPARTMENT_ID	DEPARTMENT_NAME	LOCATION_ID	COUNT(E.EMPLOYEE_ID)
10	Administration	1700	1
20	Marketing	1800	2
50	Shipping	1500	5
60	IT	1400	3
80	Sales	2500	3
90	Executive	1700	3
110	Accounting	1700	2
190	Contracting	1700	0

8 rows selected.

10. Which jobs are found in departments 10 and 20?

JOB_ID
AD_ASST
MK_MAN
MK_REP

11. Which jobs are found in the Administration and Executive departments, and how many employees do these jobs? Show the job with the highest frequency first.

JOB_ID	FREQUENCY
AD_VP	2
AD_ASST	1
AD_PRES	1

These exercises can be used for extra practice after you have discussed the following topics: basic SQL `SELECT` statements, basic *iSQL*Plus* commands, SQL functions, joins, group functions, subqueries.

12. Show all employees who were hired in the first half of the month (before the 16th of the month).

LAST_NAME	HIRE_DATE
De Haan	13-JAN-93
Hunold	03-JAN-90
Lorentz	07-FEB-99
Matos	15-MAR-98
Vargas	09-JUL-98
Abel	11-MAY-96
Higgins	07-JUN-94
Gietz	07-JUN-94

8 rows selected.

13. Show the names, salaries, and the number of dollars (in thousands) that all employees earn.

LAST_NAME	SALARY	THOUSANDS
King	24000	24
Kochhar	17000	17
De Haan	17000	17
Hunold	9000	9
Ernst	6000	6
Lorentz	4200	4
Mourgos	5800	5

(Note: Results continue on the next page)

Rajs	3500	3
Davies	3100	3
Matos	2600	2
Vargas	2500	2
Zlotkey	10500	10
Abel	11000	11
Taylor	8600	8
LAST_NAME	SALARY	THOUSANDS
Grant	7000	7
Whalen	4400	4
Hartstein	13000	13
Fay	6000	6
Higgins	12000	12
Gietz	8300	8

20 rows selected.

13. Show all employees who have managers with a salary higher than \$ 15,000. Show the following data: employee name, manager name, manager salary, and salary grade of the manager.

LAST_NAME	MANAGER	SALARY	GRA
Kochhar	King	24000	E
De Haan	King	24000	E
Mourgos	King	24000	E
Zlotkey	King	24000	E
Hartstein	King	24000	E
Whalen	Kochhar	17000	E
Higgins	Kochhar	17000	E
Hunold	De Haan	17000	E

8 rows selected.

14. Show the department number, name, number of employees, and average salary of all departments, together with the names, salaries, and jobs of the employees working in each department.

DEPARTMENT_ID	DEPARTMENT_NAME	EMPLOYEES	AVG_SAL	LAST_NAME	SALARY
10	Administration	1	4400.00	Whalen	4400
20	Marketing	2	9500.00	Fay	6000
				Hartstein	13000
50	Shipping	5	3500.00	Davies	3100
				Matos	2600
				Mourgos	5800
				Rajs	3500
				Vargas	2500
60	IT	3	6400.00	Ernst	6000
				Hunold	9000
				Lorentz	4200
80	Sales	3	10033.33	Abel	11000
				Taylor	8600
				Zlotkey	10500
DEPARTMENT_ID	DEPARTMENT_NAME	EMPLOYEES	AVG_SAL	LAST_NAME	SALARY
90	Executive	3	19333.33	De Haan	17000
				King	24000
				Kochhar	17000
110	Accounting	2	10150.00	Gietz	8300
				Higgins	12000
190	Contracting	0	No average		

20 rows selected.
breaks cleared

15. Show the department number and the lowest salary of the department with the highest average salary.

DEPARTMENT_ID	MIN(SALARY)
90	17000

16. Show the department numbers, names, and locations of the departments where no sales representatives work.

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
10	Administration	200	1700
20	Marketing	201	1800
50	Shipping	124	1500
60	IT	103	1400
90	Executive	100	1700
110	Accounting	205	1700
190	Contracting		1700

7 rows selected.

17. Show the department number, department name, and the number of employees working in each department that:

- a. Includes fewer than 3 employees:

DEPARTMENT_ID	DEPARTMENT_NAME	COUNT(*)
10	Administration	1
20	Marketing	2
110	Accounting	2

- b. Has the highest number of employees:

DEPARTMENT_ID	DEPARTMENT_NAME	COUNT(*)
50	Shipping	5

- c. Has the lowest number of employees:

DEPARTMENT_ID	DEPARTMENT_NAME	COUNT(*)
10	Administration	1

18. Show the employee number, last name, salary, department number, and the average salary in their department for all employees.

EMPLOYEE_ID	LAST_NAME	DEPARTMENT_ID	AVG(S.SALARY)
100	King	90	19333.3333
101	Kochhar	90	19333.3333
102	De Haan	90	19333.3333
103	Hunold	60	6400
104	Ernst	60	6400
107	Lorentz	60	6400
124	Mourgos	50	3500
141	Rajs	50	3500
142	Davies	50	3500
143	Matos	50	3500
144	Vargas	50	3500
149	Zlotkey	80	10033.3333
174	Abel	80	10033.3333
176	Taylor	80	10033.3333
EMPLOYEE_ID	LAST_NAME	DEPARTMENT_ID	AVG(S.SALARY)
200	Whalen	10	4400
201	Hartstein	20	9500
202	Fay	20	9500
205	Higgins	110	10150
206	Gietz	110	10150

19 rows selected.

19. Show all employees who were hired on the day of the week on which the highest number of employees has been hired.

LAST_NAME	DAY
Ernst	TUESDAY
Mourgos	TUESDAY
Rajs	TUESDAY
Taylor	TUESDAY
Higgins	TUESDAY
Gietz	TUESDAY

6 rows selected.

20. Create an anniversary overview based on the hire date of the employees. Sort the anniversaries in ascending order.

LAST_NAME	BIRTHDAY
Hunold	January 03
De Haan	January 13
Davies	January 29
Zlotkey	January 29
Lorentz	February 07
Hartstein	February 17
Matos	March 15
Taylor	March 24
Abel	May 11
Ernst	May 21
Grant	May 24
Higgins	June 07
Gietz	June 07
King	June 17
LAST_NAME	BIRTHDAY
Vargas	July 09
Fay	August 17
Whalen	September 17
Kochhar	September 21
Rajs	October 17
Mourgos	November 16

20 rows selected.

These exercises can be used for extra practice after you have discussed using SET operators in Lesson 15.

21. Find the job that was filled in the first half of 1990 and the same job that was filled during the same period in 1991.

JOB_ID
IT_PROG

22. Write a compound query to produce a list of employees showing raise percentages, employee IDs, and old and new salaries. Employees in departments 10, 50, and 110 are given a 5% raise, employees in department 60 are given a 10% raise, employees in departments 20 and 80 are given a 15% raise, and employees in department 90 are not given a raise.

RAISE	EMPLOYEE_ID	SALARY	NEW_SALARY
05% raise	124	5800	290
05% raise	141	3500	175
05% raise	142	3100	155
05% raise	143	2600	130
05% raise	144	2500	125
05% raise	200	4400	220
05% raise	205	12000	600
05% raise	206	8300	415
10% raise	103	9000	900
10% raise	104	6000	600
10% raise	107	4200	420
15% raise	149	10500	1575
15% raise	174	11000	1650
15% raise	176	8600	1290
15% raise	201	13000	1950
15% raise	202	6000	900
no raise	100	24000	24000
no raise	101	17000	17000
no raise	102	17000	17000

19 rows selected.

These exercises can be used for extra practice after you have discussed Oracle9i single row functions in Lesson 16.

23. Alter the session to set the `NLS_DATE_FORMAT` to `DD-MON-YYYY HH24:MI:SS`.

24. a. Write queries to display the time zone offsets (`TZ_OFFSET`) for the following time zones.

–Australia/Sydney

TZ_OFFSET
+11:00

–Chile/EasterIsland

TZ_OFFSET
-05:00

- b. Alter the session to set the `TIME_ZONE` parameter value to the time zone offset of Australia/Sydney.
- c. Display the `SYSDATE`, `CURRENT_DATE`, `CURRENT_TIMESTAMP`, and `LOCALTIMESTAMP` for this session. **Note:** The output might be different based on the date when the command is executed.

SYSDATE	CURRENT_DATE	CURRENT_TIMESTAMP	LOCALTIMESTAMP
09-MAR-2001 11:18:46	09-MAR-2001 16:48:46	09-MAR-01 04.48.46.183047 PM +11:00	09-MAR-01 04.48.46.183047 PM

- d. Alter the session to set the `TIME_ZONE` parameter value to the time zone offset of Chile/EasterIsland.

Note: The results of the preceding question are based on a different date and in some cases they will not match the actual results that the students get. Also the time zone offset of the various countries might differ based on daylight savings time.

- e. Display the `SYSDATE`, `CURRENT_DATE`, `CURRENT_TIMESTAMP`, and `LOCALTIMESTAMP` for this session. **Note:** The output might be different based on the date when the command is executed.

<code>SYSDATE</code>	<code>CURRENT_DATE</code>	<code>CURRENT_TIMESTAMP</code>	<code>LOCALTIMESTAMP</code>
09-MAR-2001 11:20:26	09-MAR-2001 00:50:27	09-MAR-01 12.50.26.718257 AM -05:00	09-MAR-01 12.50.26.718257 AM

Note: Observe in the preceding question that `CURRENT_DATE`, `CURRENT_TIMESTAMP`, and `LOCALTIMESTAMP` are all sensitive to the session time zone. Observe that `SYSDATE` is not sensitive to the session time zone.

Note: The results of the preceding question are based on a different date, and in some cases they will not match the actual results that the students get. Also the time zone offset of the various countries might differ based on daylight savings time.

25. Write a query to display the last names, month of the date of join, and hire date of those employees who have joined in the month of January, irrespective of the year of join.

<code>LAST_NAME</code>	<code>EXTRACT(MONTHFROMHIRE_DATE)</code>	<code>HIRE_DATE</code>
De Haan	1	13-JAN-1993 00:00:00
Hunold	1	03-JAN-1990 00:00:00
Davies	1	29-JAN-1997 00:00:00
Zlotkey	1	29-JAN-2000 00:00:00

These exercises can be used for extra practice after you have discussed enhancements to the GROUP BY clause in Lesson 17.

26. Write a query to display the following for those departments whose department ID is greater than 80 :
- The total salary for every job within a department
 - The total salary
 - The total salary for those cities in which the departments are located
 - The total salary for every job, irrespective of the department
 - The total salary for every department irrespective of the city
 - The total salary of the cities in which the departments are located
 - Total salary for the departments, irrespective of job titles and cities

CITY	DNAME	JOB	SUM(SALARY)
Seattle	Accounting	AC_ACCOUNT	\$33,200.00
Seattle	Accounting	AC_MGR	\$48,000.00
Seattle	Accounting		\$81,200.00
Seattle	Executive	AD_PRES	\$96,000.00
Seattle	Executive	AD_VP	\$1,36,000.00
Seattle	Executive		\$2,32,000.00
Seattle		AC_ACCOUNT	\$33,200.00
Seattle		AC_MGR	\$48,000.00
Seattle		AD_PRES	\$96,000.00
Seattle		AD_VP	\$1,36,000.00
Seattle			\$3,13,200.00
	Accounting	AC_ACCOUNT	\$33,200.00
	Accounting	AC_MGR	\$48,000.00
	Accounting		\$81,200.00
	Executive	AD_PRES	\$96,000.00
	Executive	AD_VP	\$1,36,000.00
	Executive		\$2,32,000.00
		AC_ACCOUNT	\$33,200.00
		AC_MGR	\$48,000.00
		AD_PRES	\$96,000.00
		AD_VP	\$1,36,000.00
			\$3,13,200.00

22 rows selected.

27. Write a query to display the following groupings :

- Department ID, Job ID
- Job ID, Manager ID

The query should calculate the maximum and minimum salaries for each of these groups.

DEPARTMENT_ID	JOB	MANAGER_ID	MAX(SALARY)	MIN(SALARY)
10	AD_ASST		4400	4400
20	MK_MAN		13000	13000
20	MK_REP		6000	6000
50	ST_CLERK		3500	2500
50	ST_MAN		5800	5800
60	IT_PROG		9000	4200
80	SA_MAN		10500	10500
80	SA_REP		11000	8600
90	AD_PRES		24000	24000
90	AD_VP		17000	17000
110	AC_ACCOUNT		8300	8300
110	AC_MGR		12000	12000
	SA_REP		7000	7000
	AC_ACCOUNT	205	8300	8300
	AC_MGR	101	12000	12000
	AD_ASST	101	4400	4400
	AD_PRES		24000	24000
	AD_VP	100	17000	17000
	IT_PROG	102	9000	9000
	IT_PROG	103	6000	4200
	MK_MAN	100	13000	13000
	MK_REP	201	6000	6000
	SA_MAN	100	10500	10500
	SA_REP	149	11000	7000
	ST_CLERK	124	3500	2500
	ST_MAN	100	5800	5800

26 rows selected.

These exercises can be used for extra practice after you have discussed advanced subqueries in Lesson 18.

28. Write a query to display the top three earners in the `EMPLOYEES` table. Display their last names and salaries.

LAST_NAME	SALARY
King	24000
Kochhar	17000
De Haan	17000

29. Write a query to display the employee ID and last names of the employees who work in the state of California.

Hint: Use scalar subqueries.

EMPLOYEE_ID	LAST_NAME
124	Mourgos
141	Rajs
142	Davies
143	Matos
144	Vargas

30. Write a query to delete the oldest `JOB_HISTORY` row of an employee by looking up the `JOB_HISTORY` table for the `MIN (START_DATE)` for the employee. Delete the records of **only** those employees who have changed at least 2 jobs. If your query has executed correctly, you will get the feedback:

3 rows deleted.

Hint: Use a correlated `DELETE`.

31. Rollback the transaction.

32. Write a query to display the job ids of those jobs whose maximum salary is above half the maximum salary in the whole company. Use the `WITH` clause to write this query. Name the query as `MAX_SAL_CALC`.

JOB_TITLE	JOB_TOTAL
-----	-----
President	24000
Administration Vice President	17000
Marketing Manager	13000

These exercises can be used for extra practice after you have discussed hierarchial retrieval in Lesson 19.

33. Write a SQL statement to display employee number, last name, start date, and salary, showing:

a. De Haan's direct reports

EMPLOYEE_ID	LAST_NAME	HIRE_DATE	SALARY
103	Hunold	03-JAN-1990 00:00:00	9000

b. The organization tree under De Haan's (employee number 102)

EMPLOYEE_ID	LAST_NAME	HIRE_DATE	SALARY
103	Hunold	03-JAN-1990 00:00:00	9000
104	Ernst	21-MAY-1991 00:00:00	6000
107	Lorentz	07-FEB-1999 00:00:00	4200

34. Write a hierarchical query to display the employee number, manager number, and employee last name for all employees who are two levels below employee De Haan (employee number 102). Also display the level of the employee.

EMPLOYEE_ID	MANAGER_ID	LEVEL	LAST_NAME
104	103	3	Ernst
107	103	3	Lorentz

35. Produce a hierarchical report to display the employee number, manager number, the LEVEL pseudocolumn, and employee last name. For every row in the EMPLOYEES table, you should print a tree structure showing the employee, the employee's manager, then the manager's manager, and so on. Use indentations for the NAME column.

EMPLOYEE_ID	MANAGER_ID	LEVEL	LPAD(LAST_NAME,LENGTH(LAST_NAME)+(LEVEL*2)-2,'_')
100		1	King
101	100	1	Kochhar
100		2	__King
102	100	1	De Haan
100		2	__King
103	102	1	Hunold
102	100	2	__De Haan
100		3	____King
104	103	1	Ernst

100		4	____King
107	103	1	Lorentz
103	102	2	__Hunold
201	100	2	__Hartstein
100		3	____King
205	101	1	Higgins
101	100	2	__Kochhar
100		3	____King
206	205	1	Gietz
205	101	2	__Higgins
101	100	3	____Kochhar
100		4	____King

56 rows selected.

Note: The output shown is only a sample. All the rows from the actual output are not included here.

These exercises can be used for extra practice after you have discussed Oracle 9i extensions to DML and DDL statements in Lesson 20.

36. Write a query to do the following:

- Retrieve the details of the employee ID, hire date, salary, and manager ID of those employees whose employee ID is more than or equal to 200 from the `EMPLOYEES` table.
- If the salary is less than \$5,000, insert the details of employee ID and salary into the `SPECIAL_SAL` table.
- Insert the details of employee ID, hire date, and salary into the `SAL_HISTORY` table.
- Insert the details of employee ID, manager ID, and salary into the `MGR_HISTORY` table.

37. Query the `SPECIAL_SAL`, `SAL_HISTORY` and the `MGR_HISTORY` tables to view the inserted records.

SPECIAL SAL Table

EMPLOYEE_ID	SALARY
200	4400

SAL_HISTORY Table

EMPLOYEE_ID	HIRE_DATE	SALARY
201	17-FEB-1996 00:00:00	13000
202	17-AUG-1997 00:00:00	6000
205	07-JUN-1994 00:00:00	12000
206	07-JUN-1994 00:00:00	8300

MGR_HISTORY Table

EMPLOYEE_ID	MANAGER_ID	SALARY
201	100	13000
202	201	6000
205	101	12000
206	205	8300

38. Create the `LOCATIONS_NAMED_INDEX` table based on the following table instance chart.
Name the index for the `PRIMARY KEY` column as `LOCATIONS_PK_IDX`.

COLUMN Name	Deptno	Dname
Primary Key	Yes	
Datatype	Number	VARCHAR2
Length	4	30

39. Query the `USER_INDEXES` table to display the `INDEX_NAME` for the `LOCATIONS_NAMED_INDEX` table.

INDEX_NAME	TABLE_NAME
LOCATIONS_PK_IDX	LOCATIONS_NAMED_INDEX

This exercise can be used for extra practice after you have discussed writing advanced scripts in Appendix D.

Appendix D Additional Practice

Write a SQL script file to drop all objects (tables, views, indexes, sequences, synonyms, and so on) that you own. The output shown is only a guideline.

```
DROP INDEX COUNTRY_C_ID_PK;  
DROP INDEX DEPT_ID_PK;  
DROP INDEX DEPT_LOCATION_IX;  
DROP INDEX EMP_EMAIL_UK;  
DROP INDEX EMP_MANAGER_IX;  
DROP INDEX EMP_JOB_IX;  
DROP INDEX EMP_EMP_ID_PK;  
DROP INDEX EMP_DEPARTMENT_IX;  
DROP INDEX EMP_NAME_IX;  
DROP INDEX REG_ID_PK;  
DROP INDEX LOC_STATE_PROVINCE_IX;
```

```
DROP TABLE HIREDATE_HISTORY_00;  
DROP TABLE HIREDATE_HISTORY_99;  
DROP TABLE HIREDATE_HISTORY;  
DROP TABLE EMPHISTORY;  
DROP TABLE EMPLOYEES;  
DROP VIEW EMP_DETAILS_VIEW;
```