Practice 10

Practice name	Using Conversion Functions and Conditional Expressions
Academic Program	Software Engineering
Subject name	Laboratory of Database Systems II
Unit	I. SQL.
Professor	Aldonso Becerra Sánchez
Due date	**October 21, 2021**
Due date with penalty	**October 22, 2021**
Elaboration date	**October 19, 2021**

Practice objective	Use SQL SELECT statements for retrieving data from database by means of different contexts using different Oracle functions and conditional expressions.
Estimated time of completion	5 hours
Introduction	SQL language allows the realization of projection and selection of data to satisfy the needs of reports that may be required for a programmer, developer or end user.

Reference 1:

1. Oracle Database 11g: SQL Fundamentals.

Reference 2:

2. Oracle Database SQL Language Reference 11g.

Reference 3:

Initial Activity:

Read the whole practice before start it.

Write the corresponding report, starting with the **Introduction** section.

Activity 1:

Write the section that describes the **Work developed** in the following activities.

Read all the choices carefully because there might be more than one correct answer. Choose all the correct answers for each question.

Explain the reason for your answer.

DESCRIBE VARIOUS TYPES OF CONVERSION FUNCTIONS AVAILABLE IN SQL

1. What type of conversion is performed by the following statement?

SELECT LENGTH(3.14285) FROM DUAL; (Choose the best answer.)

A. Explicit conversion

B. Implicit conversion

C. TO_NUMBER function conversion

D. None of the above

2. Choose any incorrect statements regarding conversion functions. (Choose all that apply.)

A. TO_CHAR may convert date items to character items.

B. TO_DATE may convert character items to date items.

C. TO_CHAR may convert numbers to character items.

D. TO_DATE may convert date items to character items.

USE THE TO_CHAR,TO_NUMBER, AND TO_DATE CONVERSION FUNCTIONS

3. What value is returned after executing the following statement?

SELECT TO_NUMBER(1234.49, '999999.9') FROM DUAL; (Choose the best answer.)

A. 1234.49

B. 001234.5

C. 1234.5

D. None of the above

4. What value is returned after executing the following statement?

SELECT TO_CHAR(1234.49, '999999.9') FROM DUAL;

(Choose the best answer.)

A. 1234.49

B. 001234.5

C. 1234.5

D. None of the above

5. If SYSDATE returns 12-JUL-2009, what is returned by the following statement?

SELECT TO_CHAR(SYSDATE, 'fmMONTH, YEAR') FROM DUAL;

(Choose the best answer.)

A. JUL, 2009

B. JULY, TWO THOUSAND NINE

C. JUL-09

D. None of the above

6. If SYSDATE returns 12-JUL-2009, what is returned by the following statement?

SELECT TO_CHAR(SYSDATE, 'fmDDth MONTH') FROM DUAL;

(Choose the best answer.)

A. 12TH JULY

B. 12th July

C. TWELFTH JULY

D. None of the above

APPLY CONDITIONAL EXPRESSIONS IN A SELECT STATEMENT

7. If SYSDATE returns 12-JUL-2009, what is returned by the following statement?

SELECT TO_CHAR(TO_DATE(TO_CHAR(SYSDATE,'DD'),'DD'),'YEAR') FROM DUAL; (Choose the best answer.)

A. 2009

B. TWO THOUSAND NINE

C. 12-JUL-2009

D. None of the above

8. What value is returned after executing the following statement?

SELECT NVL2(NULLIF('CODA','SID'),'SPANIEL','TERRIER') FROM DUAL;

(Choose the best answer.)

A. SPANIEL

B. TERRIER

C. NULL

D. None of the above

9. What value is returned after executing the following statement?

SELECT NVL(SUBSTR('AM I NULL',10),'YES I AM') FROM DUAL;

(Choose the best answer.)

A. NO

B. NULL

C. YES I AM

D. None of the above

10. If SYSDATE returns 12-JUL-2009, what is returned by the following statement?

SELECT DECODE(TO_CHAR(SYSDATE,'MM'),'02','TAX DUE','PARTY') FROM DUAL; (Choose the best answer.)

A. TAX DUE

B. PARTY

C. 02

D. None of the above

Activity 2:

Propose an answer to the following issues:

- Your task is to extract the day and month portion of a date column and compare it with the corresponding components of the current system date. Can such a comparison be performed?

- A report of profit and loss is required with the results displayed as follows: if the amount is negative, it must be enclosed in angle brackets. The amount must be displayed with a leading dollar sign. Can results be retrieved in the specified format?

- You are asked to input past employee data into the JOB_HISTORY table from a paper-based source, but the start date information is only available as the year the employee started. Can this value be converted into the first of January of the year?

- Are nested functions evaluated from the outermost level to the innermost level?

- Must all functions in a nested expression return the same data type?

- Is there a simpler way to display the SALARY information from the EMPLOYEES table in the form $19,000 without using the following statement?

  SELECT '$'|| SUBSTR(SALARY,1, MOD(LENGTH(SALARY),3))||','||
  SUBSTR(SALARY, MOD (LENGTH(SALARY),3)+1)

Activity 3:

Connect to the OE schema and complete the following tasks.

As part of a new marketing initiative, you are asked to prepare a list of customer birthdays that occur between two days ago and seven days from now. The list should retrieve rows

from the CUSTOMERS table which include the CUST_FIRST_NAME, CUST_LAST_NAME, CUST_EMAIL, and DATE_OF_BIRTH columns in ascending order based on the day and month components of the DATE_OF_BIRTH value. An additional expression aliased as BIRTHDAY is required to return a descriptive message based on the following table.

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BIRTHDAY	CHARACTER STRING
Two days ago	Day before yesterday
One day ago	Yesterday
Today	Today
Tomorrow	Tomorrow
Two days in the future	Day after tomorrow
Within seven days from today	Later this week

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	CUST_FIRST_NAME	CUST_LAST_NAME	CUST_EMAIL	DATE_OF_BIRTH	BIRTHDAY
1	Hannah	Field	Hannah.Field@GALLINULE.COM	06-OCT-85	Day before yesterday
2	Daniel	Gueney	Daniel.Gueney@REDPOLL.COM	07-OCT-73	Yesterday
3	Eddie	Boyer	Eddie.Boyer@GALLINULE.COM	07-OCT-53	Yesterday
4	Meryl	Holden	Meryl.Holden@DIPPER.COM	10-OCT-61	Day after tomorrow
5	Kyle	Martin	Kyle.Martin@EIDER.COM	11-OCT-58	Later this week
6	Amrish	Palin	Amrish.Palin@EIDER.COM	12-OCT-77	Later this week
7	Lauren	Hershey	Lauren.Hershey@LIMPKIN.COM	12-OCT-65	Later this week
8	Sissy	Warden	Sissy.Warden@JACANA.COM	12-OCT-44	Later this week

NOTE: Capture an image for each statement output.

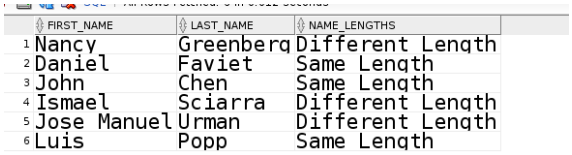
Activity 4:

This exercise must be performed using HR schema.

- You are required to retrieve a list of FIRST_NAME and LAST_NAME values and an expression based on the HIRE_DATE column for employees hired on a Saturday. The expression must be aliased as START_DATE and a HIRE_DATE value of 17-FEB-1996 must return the following string:
  Saturday, the 17th of February, One Thousand Nine Hundred Ninety-Six.

	FIRST_NAME	LAST_NAME	START_DATE
1	Lex	De Haan	Saturday,the 13th of January, Two Thousand One.
2	David	Austin	Saturday,the 25th of June, Two Thousand Five.
3	Nancy	Greenberg	Saturday,the 17th of August, Two Thousand Two.
4	Den	Raphaely	Saturday,the 7th of December, Two Thousand Two.
5	Shelli	Baida	Saturday,the 24th of December, Two Thousand Five.
6	Julia	Nayer	Saturday,the 16th of July, Two Thousand Five.
7	Steven	Markle	Saturday,the 8th of March, Two Thousand Eight.
8	Laura	Bissot	Saturday,the 20th of August, Two Thousand Five.
9	Michael	Rogers	Saturday,the 26th of August, Two Thousand Six.
10	Curtis	Davies	Saturday,the 29th of January, Two Thousand Five.
11	Peter	Hall	Saturday,the 20th of August, Two Thousand Five.
12	Nanette	Cambrault	Saturday,the 9th of December, Two Thousand Six.
13	David	Lee	Saturday,the 23rd of February, Two Thousand Eight.
14	Elizabeth	Bates	Saturday,the 24th of March, Two Thousand Seven.
15	Alyssa	Hutton	Saturday,the 19th of March, Two Thousand Five.
16	Julia	Dellinger	Saturday,the 24th of June, Two Thousand Six.
17	Jennifer	Dilly	Saturday,the 13th of August, Two Thousand Five.
18	Samuel	McCain	Saturday,the 1st of July, Two Thousand Six.
19	Vance	Jones	Saturday,the 17th of March, Two Thousand Seven.

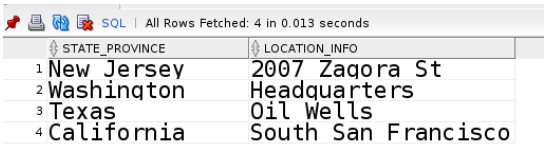
- You are required to return a set of rows from the EMPLOYEES table with DEPARTMENT_ID values of 100. The set must also contain FIRST_NAME and LAST_NAME values and an expression aliased as NAME_LENGTHS. This expression must return the string 'Different Length' if the length of the FIRST_NAME differs from that of the LAST_NAME, else the string 'Same Length' must be returned.



	FIRST_NAME	LAST_NAME	NAME_LENGTHS
1	Nancy	Greenberg	Different Length
2	Daniel	Faviet	Same Length
3	John	Chen	Same Length
4	Ismael	Sciarra	Different Length
5	Jose Manuel	Urman	Different Length
6	Luis	Popp	Same Length

- You are requested to query the LOCATIONS table for rows with the value US in the COUNTRY_ID column. An expression aliased as LOCATION_INFO is required to evaluate the STATE_PROVINCE column values and returns different information as per the following table. Sort the output based on the LOCATION_INFO expression. Use the decode function.

If STATE_PROVINCE is	The value returned is
Washington	The string 'Headquarters'
Texas	The string 'Oil Wells'
California	The CITY column value
New Jersey	The STREET_ADDRESS column value



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	STATE_PROVINCE	LOCATION_INFO
1	New Jersey	2007 Zagora St
2	Washington	Headquarters
3	Texas	Oil Wells
4	California	South San Francisco

NOTE: Capture an image for each statement output.

Activity 5:

This practice provides a variety of exercises using `TO_CHAR` and `TO_DATE` functions, and conditional expressions such as `DECODE` and `CASE`. Remember that for nested functions, the results are evaluated from the innermost function to the outermost function.

1. 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.

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19	Higgins earns $12,000.00 monthly but wants $36,000.00.
20	Gietz earns $8,300.00 monthly but wants $24,900.00.

2. Display each employee's last name, hire date, and salary review date, which is the first Monday after six months of service. Label the column `REVIEW`. Format the dates to appear in the format similar to "Monday, the Thirty-First of July, 2000."

	LAST_NAME	HIRE_DATE	REVIEW
1	King	17-JUN-87	Monday, the Twenty-First of December, 1987
2	Kochhar	21-SEP-89	Monday, the Twenty-Sixth of March, 1990
3	De Haan	13-JAN-93	Monday, the Nineteenth of July, 1993
4	Hunold	03-JAN-90	Monday, the Ninth of July, 1990
5	Ernst	21-MAY-91	Monday, the Twenty-Fifth of November, 1991

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19	Higgins	07-JUN-94	Monday, the Twelfth of December, 1994
20	Gietz	07-JUN-94	Monday, the Twelfth of December, 1994

3. Display the last name, hire date, and day of the week on which the employee started. Label the column `DAY`. Order the results by the day of the week, starting with Monday.

	LAST_NAME	HIRE_DATE	DAY
1	Grant	24-MAY-99	MONDAY
2	Gietz	07-JUN-94	TUESDAY
3	Taylor	24-MAR-98	TUESDAY
4	Higgins	07-JUN-94	TUESDAY
5	Rajs	17-OCT-95	TUESDAY

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19	Lorentz	07-FEB-99	SUNDAY
20	Fay	17-AUG-97	SUNDAY

4. Create a query that displays the 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

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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

5. Using the DECODE function, write a query that displays the grade of all employees based on the value of the column JOB_ID, 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

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18	ST_CLERK	E
19	ST_CLERK	E
20	ST_MAN	B

6. Rewrite the statement in the preceding exercise using the `CASE` syntax.

	JOB_ID	GRADE
1	AC_ACCOUNT	0
2	AC_MGR	0
3	AD_ASST	0
4	AD_PRES	A
5	AD_VP	0

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18	ST_CLERK	E
19	ST_CLERK	E
20	ST_MAN	B

Activity 6:

Write the **Pre-assessment** section.

Final activity:

Write the **Conclusion** section.

Attached file that is required for this task (optional):

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