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Assignment: SQL Database Programming Section 4, 5: Single Row Functions Part I and II
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4.1
Vocab

Word	Definition
DUAL TABLE	Dummy table used to view results from functions and calculations
Format	The arrangement of data for storage or display.
INITCAP	Converts alpha character values to uppercase for the first letter of each word, all other letters in lowercase.
Character Functions	Functions that accept character data as input and can return both character and numeric values.
TRIM	Removes all specified characters from either the beginning or the ending of a string.
Expression	A symbol that represents a quantity or a relationship between quantities
Single-Row Functions	Functions that operate on single rows only and return one result per row
UPPER	Converts alpha characters to uppercase
Input	Raw data entered into the computer
CONCAT	Concatenates the first character value to the second character value; equivalent to concatenation operator (||).
Output	Data that is processed into information
LOWER	Converts alpha character values to lowercase.
LPAD	Pads the left side of a character, resulting in a right-justified value
SUBSTR	Returns specific characters from character value starting at a specific character position and going specified character positions long
REPLACE	Replaces a sequence of characters in a string with another set of characters.

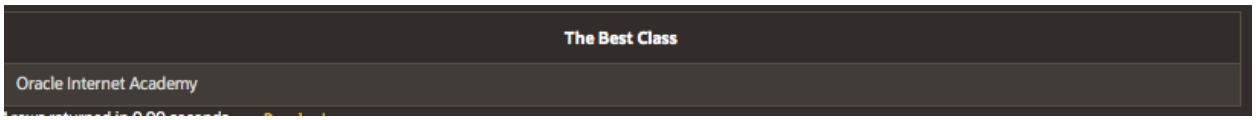
INSTR	Returns the numeric position of a named string.
LENGTH	Returns the number of characters in the expression
RPAD	Pads the right-hand side of a character, resulting in a left-justified value.

1. Using the three separate words “Oracle,” “Internet,” and “Academy,” use one command to produce the following output:

The Best Class
Oracle Internet Academy

ANS:

```
SELECT CONCAT(CONCAT('Oracle', ' Internet'), ' Academy') "The Best Class"
FROM DUAL;
```



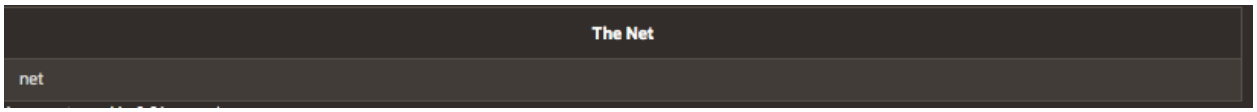
The Best Class
Oracle Internet Academy

2. Use the string “Oracle Internet Academy” to produce the following output:

The Net
net

ANS:

```
SELECT SUBSTR('Oracle Internet Academy', 13, 3) "The Net"
FROM DUAL;
```



The Net
net

3. What is the length of the string “Oracle Internet Academy”?
    a. **ANS:** 23

Query Used

```
SELECT LENGTH('Oracle Internet Academy')
FROM DUAL;
```

LENGTH('ORACLEINTERNETACADEMY')
23

4. What's the position of "I" in "Oracle Internet Academy"?
    a. **ANS:** 8

Query Used

```
SELECT INSTR('Oracle Internet Academy', 'I')
FROM DUAL;
```

INSTR('ORACLEINTERNETACADEMY','I')
8

5. Starting with the string "Oracle Internet Academy", pad the string to create ****Oracle****Internet****Academy****

ANS:

```
SELECT LPAD('Oracle', 10, '*') || LPAD('Internet', 12, '*') || RPAD(LPAD('Academy', 11, '*'),
15, '*') padded_string
FROM DUAL;
```

PADDED_STRING
****Oracle****Internet****Academy****

6. Starting with the string "Oracle Internet Academy", pad the string to produce: Oracle$$$Internet$$$Academy

ANS:

```
SELECT CONCAT('Oracle', LPAD('Internet', 11, '$')) || LPAD('Academy', 10, '$') padded_string
FROM DUAL;
```

PADDED_STRING
Oracle$$$Internet$$$Academy

7. Using the string 'Oracle Internet Academy', produce the output shown using the REPLACE function.

The Best Class
Oracle 2013-2014 Academy

ANS:

```
SELECT REPLACE('Oracle Internet Academy', 'Internet', '2013-2014') "The Best Class"
FROM DUAL;
```

The Best Class
Oracle 2013-2014 Academy

8. List the order date and the order total from the Global Fast Foods F_ORDERS table. Name the order total as TOTAL, and fill in the empty spaces to the left of the order total with $.

ANS:

```
SELECT order_date, LPAD(order_total, LENGTH(order_total) + 1, '$') AS total
FROM f_orders;
```

ORDER_DATE	TOTAL
10-Dec-2002	$103.02

9. Write a query that will output a column called “ADDRESS” which has the following information: ZOE TWEE 1009 OLIVER AVENUE BOSTON, MA 12889. Use the Global Fast Foods F_CUSTOMERS table.

ANS:

```
SELECT UPPER(CONCAT(first_name || ' ', last_name) || ' ' || CONCAT(' ', address) || ' ' ||
CONCAT(state || ' ', zip)) AS address
FROM f_customers
WHERE id = 456;
```

ADDRESS
ZOE TWEE 1009 OLIVER AVENUE MA 12889

10. Write a query to return the first character of the first name concatenated to the last_name, the salary, and the department id for employees working in department 20. Give the first expression an alias of Name. Use the EMPLOYEES table. Change the query to use a substitution variable instead of the hard coded value 20 for department id. Run the query for department 30 and 50 without changing the original where-clause in your statement.

ANSWER (NOTE: no data found for department_id = 30)

```
SELECT CONCAT(SUBSTR(first_name, 1, 1) || ' ', last_name) "Name", salary, department_id
FROM employees
WHERE department_id = :department_id;
```

Name	SALARY	DEPARTMENT_ID
M Hartstein	13000	20
P Fay	3900	20
D Steiner	8600	20
L TAYLOR	4000	20
M Stocks	3700	20
N Safwah	5000	20
A Newton	4900	20

Name	SALARY	DEPARTMENT_ID
K Mourgos	5800	50
T Rajs	3500	50
C Davies	3100	50
R Matos	2600	50
P Vargas	2500	50
G Bell	3500	50
T Heiden	2600	50

11. Using a substitution variable for the department name, write a query listing department id, department name, and location id for departments located in the_department_of_your_choice. Use the DEPARTMENTS table. Note: All substitution variables in OAE are treated as character strings, so no quotes (‘ ‘) are needed.

ANS:

```
SELECT department_id, department_name, location_id
FROM departments
WHERE department_name = :department_name
```

DEPARTMENT_ID	DEPARTMENT_NAME	LOCATION_ID
60	IT	1400

12. Write a query that returns all the employee data depending on the month of their hire date. Use the EMPLOYEES table. The statement should return the month part of the hiredate which is then compared to an abbreviated month (JAN, FEB, MAR) passed into the query via a substitution variable.

ANS:

```
SELECT *
```

```
FROM employees
WHERE UPPER(SUBSTR(hire_date, 4, 3)) = :month;
```

4.2
Vocab

Words	Definitions
TRUNC	Used to terminate the column, expression, or value to a specified number of decimal places
Number functions	These functions accept numeric input and return numeric values.
MOD	Returns the remainder of a division.
ROUND	Rounds the column, expression, or value to a set number of decimal places.

1. Display Oracle database employee last_name and salary for employee_ids between 100 and 102. Include a third column that divides each salary by 1.55 and rounds the result to two decimal places.

ANS:

```
SELECT last_name, salary, ROUND(salary / 1.55, 2)
FROM employees
WHERE employee_id BETWEEN 100 AND 102;
```

LAST_NAME	SALARY	ROUND(SALARY/1.55,2)
King	24000	15483.87
Kochhar	17000	10967.74
De Haan	17000	10967.74

2. Display employee last_name and salary for those employees who work in department 80. Give each of them a raise of 5.333% and truncate the result to two decimal places.

ANS:

```
SELECT last_name, salary, TRUNC(salary * (1 + (5.333 / 100)), 2) raise
FROM employees
WHERE department_id = 80;
```

LAST_NAME	SALARY	RAISE
Zlotkey	10500	11059.96
Abel	11000	11586.63
Taylor	8600	9058.63
Hooper	9600	10111.96

3. Use a MOD number function to determine whether 38873 is an even number or an odd number.
    a. **ANS:** odd

SELECT MOD(38873, 2)
FROM DUAL

MOD(38873,2)
1

4. Use the DUAL table to process the following numbers:
   845.553 - round to one decimal place
   30695.348 - round to two decimal places
   30695.348 - round to -2 decimal places
   2.3454 - truncate the 454 from the decimal place

ANS:
SELECT ROUND(845.553, 1), ROUND(30695.348, 2), ROUND(30695.348, -2),
TRUNC(2.3454, 1)
FROM DUAL;

ROUND(845.553,1)	ROUND(30695.348,2)	ROUND(30695.348,-2)	TRUNC(2.3454,1)
845.6	30695.35	30700	2.3

5. Divide each employee's salary by 3. Display only those employees' last names and salaries who earn a salary that is a multiple of 3.

ANS:
SELECT last_name, salary / 3, MOD(salary, 3) "salary_divided_by_3"

FROM employees
WHERE MOD(salary, 3) = 0

LAST_NAME	SALARY/3	salary_divided_by_3
King	8000	0
Higgins	4000	0
Zlotkey	3500	0
Hunold	3000	0
Ernst	2000	0
Lorentz	1400	0
Fay	1300	0
Silva Pinto	2500	0
Hooper	3200	0
Fontaine	2600	0
More than 10 rows available. Increase rows selector to view more rows.		

6. Divide 34 by 8. Show only the remainder of the division. Name the output as EXAMPLE.
    a. **ANS:** 2 is the remainder

SELECT MOD(34, 8) example
FROM DUAL;

EXAMPLE
2

7. How would you like your paycheck – rounded or truncated? What if your paycheck was calculated to be $565.784 for the week, but you noticed that it was issued for $565.78. The loss of .004 cent would probably make very little difference to you. However, what if this was done to one thousand people, one hundred thousand people, or one million people! Would it make a difference then? How much of a difference?

ANS:
I would like my paycheck rounded because at least there is a chance that my paycheck will be rounded up unlike truncation where values are just terminated. While the difference may be less than a cent, it can easily add up over time. Perhaps only five dollars was lost over five years from not rounding the paychecks, but that five dollars could have been used for a small meal or in an investment account where any money counts, especially since there is compound interest. Losing

0.004 cents is small to a single individual, but the amount of money lost is immense if we are talking about the combined total of millions of people.

4.3
Vocab

Words	Definitions
SYSDATE	A function that returns the current date and time of the database server
ADD_MONTHS	Add calendar months to date
LAST_DAY	Last day of the month
NEXT_DAY	Next day of the date specified
MONTHS_BETWEEN	Number of months between due dates

1. For DJs on Demand, display the number of months between the event_date of the Vigil wedding and today's date. Round to the nearest month.

ANS:

```
SELECT ROUND(MONTHS_BETWEEN(SYSDATE, event_date), 0)
FROM d_events;
```

ROUND(MONTHS_BETWEEN(SYSDATE,EVENT_DATE),0)
244
245

2. Display the days between the start of last summer's school vacation break and the day school started this year. Assume 30.5 days per month. Name the output "Days."

ANS:

```
SELECT ROUND(MONTHS_BETWEEN('26-Sep-2024', '22-May-2023') * 30.5) "Days"
FROM dual;
```

Days
492

3. Display the days between January 1 and December 31.

ANS:

```
SELECT TO_DATE('31-Dec-2024', 'DD-MM-YYYY') - TO_DATE('01-Jan-2024',
'DD-MM-YYYY')
FROM dual;
```

TO_DATE('31-DEC-2024','DD-MM-YYYY')-TO_DATE('01-JAN-2024','DD-MM-YYYY')
365

4. Using one statement, round today's date to the nearest month and nearest year, and truncate it to the nearest month and nearest year. Use an alias for each column.

ANS:

```
SELECT ROUND(SYSDATE, 'Month') rounded_month, ROUND(SYSDATE, 'Year')
rounded_yr, TRUNC(SYSDATE, 'Month') trunc_month, TRUNC(SYSDATE, 'Year') trunc_year
FROM dual;
```

ROUNDED_MONTH	ROUNDED_YR	TRUNC_MONTH	TRUNC_YEAR
01-Oct-2024	01-Jan-2025	01-Sep-2024	01-Jan-2024

5. What is the last day of the month for June 2005? Use an alias for the output.

ANS:

```
SELECT LAST_DAY('01-Jun-2005') AS "June Last Day"
FROM dual;
```

June Last Day
30-Jun-2005

6. Display the number of years between the Global Fast Foods employee Bob Miller's birthday and today. Round to the nearest year.

ANS:

```
SELECT ROUND((SYSDATE - birthdate) / 365, 0)
FROM f_staffs
WHERE first_name = 'Bob' AND last_name = 'Miller';
```

ROUND((SYSDATE-BIRTHDATE)/365,0)
46

7. Your next appointment with the dentist is six months from today. On what day will you go to the dentist? Name the output, “Appointment.”

ANS:
SELECT ADD_MONTHS(SYSDATE, 6)
FROM dual;

ADD_MONTHS(SYSDATE,6)
24-Mar-2025

8. The teacher said you have until the last day of this month to turn in your research paper. What day will this be? Name the output, “Deadline.”

ANS:
SELECT LAST_DAY(SYSDATE) "Deadline"
FROM dual;

Deadline
30-Sep-2024

9. How many months between your birthday this year and January 1 next year?

ANS:
SELECT ROUND(MONTHS_BETWEEN('01-Jan-2025', '20-Jun-2024'), 1)
FROM dual;

ROUND(MONTHS_BETWEEN('01-JAN-2025','20-JUN-2024'),1)
6.4

10. What’s the date of the next Friday after your birthday this year? Name the output, “First Friday.”

ANS:
SELECT NEXT_DAY('20-Jun-2024', 'Friday') "First Friday"

FROM dual;

First Friday
21-Jun-2024

11. Name a date function that will return a number.
    a. **ANS:** MONTHS_BETWEEN
12. Name a date function that will return a date.
    a. **ANS:** NEXT_DAY
13. Give one example of why it is important for businesses to be able to manipulate date data?
    a. **ANS:** A business may be waiting for goods to arrive. They might know the arrival date and want to know how many days left to wait from the current day.

Extension Exercises

1. Using DUAL, write a statement that will convert 86.678 to 86.68.

ANS:
SELECT ROUND(86.678, 2)
FROM dual;

ROUND(86.678,2)
86.68

2. Write a statement that will display the DJs on Demand CD titles for cd_numbers 90 and 91 in uppercase in a column headed “DJs on Demand Collections.”

ANS:
SELECT cd_number, UPPER(title) "DJs on Demand Collections"
FROM d_cds
WHERE cd_number in (90, 91)

CD_NUMBER	DJs on Demand Collections
91	PARTY MUSIC FOR ALL OCCASIONS
90	THE CELEBRANTS LIVE IN CONCERT

3. Write a statement that will create computer usernames for the DJs on Demand partners. The usernames will be the lowercase letters of the last name + the uppercase first letter in the first name. Title the column “User Passwords.” For example, Mary Smythers would be smythersM.

ANS:

```
SELECT CONCAT(LOWER(last_name), UPPER(SUBSTR(first_name, 1, 1))) "User
Passwords"
FROM d_partners;
```

User Passwords
choJ
tsangJ
plumbA

4. Write a statement that will convert “It’s a small world” to “HELLO WORLD.”

ANS:

```
SELECT 'HELLO' || UPPER(SUBSTR('It’s a small world', -6))
FROM dual;
```

'HELLO'||UPPER(SUBSTR('IT'SASMALLWORLD',-6))
HELLO WORLD

5. Write a statement that will remove the “fiddle” from “fiddledeedee” and the “dum” from “fiddledeedum.” Display the result “fiddledeedeedee” in a column with the heading “Nonsense.”

ANS:

```
SELECT REPLACE('fiddledeedee', 'fiddle'), REPLACE('fiddledeedum', 'dum', 'deedee')
"Nonsense"
FROM dual;
```

REPLACE('FIDDLEDEEDEE','FIDDLE')	Nonsense
deedee	fiddledeedeedee

6. Replace every “i” in Mississippi with “$.”

ANS:

```
SELECT REPLACE('Mississippi', 'i', '$')
FROM dual;
```

REPLACE('MISSISSIPPI','I','$')
Msssspp

7. Using DUAL, convert 5332.342 to 5300.

ANS:

```
SELECT ROUND(5332.342, -2)
FROM dual;
```

ROUND(5332.342,-2)
5300

8. Using DUAL, convert 3.14159 to 3.14.

ANS:

```
SELECT ROUND(3.14159, 2)
FROM dual;
```

ROUND(3.14159,2)
3.14

9. Using DUAL, convert 73.892 to 73.8.

ANS:

```
SELECT TRUNC(73.892, 1)
FROM dual;
```

TRUNC(73.892,1)
73.8

10. What is the next Friday six months from now? Label the column “Future.”

ANS:

SELECT NEXT_DAY(ADD_MONTHS(SYSDATE, 6), 'Friday') "Future"
FROM dual;

Future
28-Mar-2025

11. What is the date 10 years from now? Label the column “Future.”

ANS:
SELECT ADD_MONTHS(SYSDATE, 12 * 10) "Future"
FROM dual;

Future
24-Sep-2034

12. Leap years occur every four years. Remember, 2004 was a leap year. Now create a function that will show the date of the next leap year as 29-Feb-2008. Label the column “Future.”

ANS:
SELECT ADD_MONTHS('29-Feb-2004', 12 * 4) "Future"
FROM dual;

Future
29-Feb-2008

13. Write a statement that will find any of the DJs on Demand CD themes that have an “ie” in their names.

ANS:
SELECT description
FROM d_themes
WHERE description LIKE '%ie%';

DESCRIPTION
Sixties
Eighties

14. Write a statement that will return only the DJs on Demand CDs with years greater than 2000 but less than 2003. Display both the title and year.

ANS:

```
SELECT title, year
FROM d_cds
WHERE year > 2000 AND year < 2003
```

TITLE	YEAR
Back to the Shire	2002
Here Comes the Bride	2001

15. Write a statement that will return the Oracle database employee's employee ID and his starting hire dates between January 1, 1997 and today. Display the result ordered from most recently hired to the oldest.

ANS:

```
SELECT employee_id, hire_date
FROM employees
WHERE hire_date BETWEEN '01-Jan-1997' AND SYSDATE
ORDER BY hire_date DESC;
```

EMPLOYEE_ID	HIRE_DATE
235	16-Dec-2015
219	16-Dec-2015
220	06-Jul-2015
226	17-May-2015
149	29-Jan-2015
124	16-Nov-2014
178	24-May-2014
216	01-Apr-2014
107	07-Feb-2014
223	18-Nov-2013
More than 10 rows available. Increase rows selector to view more rows.	

5.1
Vocab

Words	Definitions
CHAR	Used for text and character data of fixed length, including numbers, dashes, and special characters.
fm	Used to remove padded blanks or to suppress leading zeros
Conversion function	Functions that convert a value from one datatype to another.
NUMBER	Used to store variable-length numeric data.
VARCHAR2	Used for character data of variable length, including numbers, special characters, and dashes.
DATE	Used for date and time values.
TO_CHAR	Converts dates or numbers to character strings with optional formatting
RR date format	Century value depends on the specified year and the last two digits of the current year
TO_NUMBER	Converts a character string containing digits to a number with optional formatting
DD	Numeric day of the month
TO_DATE	Converts a character string representing a date to a date value with optional formatting

1. List the last names and birthdays of Global Fast Food Employees. Convert the birth dates to character data in the Month DD, YYYY format. Suppress any leading zeros.

ANS:
SELECT last_name, TO_CHAR(birthdate, 'fmMonth DD, YYYY') birthday

FROM f_staffs;

LAST_NAME	BIRTHDAY
Doe	July 1, 1980
Miller	March 19, 1979
Tuttle	March 30, 1969

2. Convert January 3, 04, to the default date format 03-Jan-2004.

ANS:
SELECT TO_DATE('January 3, 04', 'Month DD, YY') date_to_default_format
FROM dual;

DATE_TO_DEFAULT_FORMAT
03-Jan-2004

3. Format a query from the Global Fast Foods f_promotional_menus table to print out the start_date of promotional code 110 as: The promotion began on the tenth of February 2004.

ANS:
SELECT 'The promotion began on the ' || TO_CHAR(start_date, 'fmddthsp "of" Month, YYYY')
AS start_of_promotion
FROM f_promotional_menus
WHERE code = 110;

START_OF_PROMOTION
The promotion began on the tenth of February, 2004

4. Convert today's date to a format such as: "Today is the Twentieth of March, Two Thousand Four."

ANS:
SELECT CONCAT('Today is the ', TO_CHAR(SYSDATE, 'fmDdspth "of" Month, Year'))
today_date_in_words
FROM dual;

TODAY_DATE_IN_WORDS
Today is the Twenty-Fifth of September, Twenty Twenty-Four

5. List the ID, name, and salary for all Global Fast Foods employees. Display salary with a $ sign and two decimal places.

ANS:

```
SELECT employee_id, CONCAT(first_name || ' ', last_name) name, TO_CHAR(salary,
'$999999999.99') salary
FROM employees;
```

EMPLOYEE_ID	NAME	SALARY
100	Steven King	$24000.00
101	Neena Kochhar	$17000.00
102	Lex De Haan	$17000.00
200	Jennifer Whalen	$4400.00
205	Shelley Higgins	$12000.00
206	William Gietz	$8300.00

6. Ellen Abel is an employee who has received a $2,000 raise. Display her first name and last name, her current salary, and her new salary. Display both salaries with a $ and two decimal places. Label her new salary column AS New Salary.

ANS:

```
SELECT CONCAT(first_name || ' ', last_name) name, TO_CHAR(salary, '$999999.99') "Old
Salary", TO_CHAR(salary + 2000, '$999999.99') "New Salary"
FROM employees
WHERE first_name = 'Ellen' AND last_name = 'Abel';
```

NAME	Old Salary	New Salary
Ellen Abel	$11000.00	$13000.00

7. On what day of the week and date did Global Fast Foods' promotional code 110 Valentine's Special begin?

ANS:

```
SELECT TO_CHAR(start_date, 'Mon DD, YYYY, Day') "Valentine's Day Special Date"
FROM f_promotional_menus
WHERE code = 110;
```

Valentine's Day Special Date
Feb 10, 2004, Tuesday

8. Create one query that will convert 25-Dec-2004 into each of the following (you will have to convert 25-Dec-2004 to a date and then to character data):
    a. December 25th, 2004
    b. DECEMBER 25TH, 2004
    c. 25th december, 2004

ANS:

a)
```
SELECT TO_CHAR(TO_DATE('25-Dec-2004', 'DD-Mon-YYYY'), 'Month ddth,
YYYY') converted_date
FROM dual
```

CONVERTED_DATE
December 25th, 2004

b)
```
SELECT TO_CHAR(TO_DATE('25-Dec-2004', 'DD-Mon-YYYY'), 'MONTH DDth,
YYYY') converted_date
FROM dual
```

CONVERTED_DATE
DECEMBER 25TH, 2004

c)
```
SELECT TO_CHAR(TO_DATE('25-Dec-2004', 'DD-Mon-YYYY'), 'fmddth month,
YYYY') converted_date
FROM dual
```

CONVERTED_DATE
25th december, 2004

1 rows returned in 0.00 seconds Download

9. Create a query that will format the DJs on Demand d_packages columns, low-range and high-range package costs, in the format $2500.00.

ANS:

```
SELECT TO_CHAR(low_range, '$999999.99') low_range, TO_CHAR(high_range,
'$999999.99') high_range
FROM d_packages;
```

LOW_RANGE	HIGH_RANGE
$500.00	$2500.00
$2501.00	$5000.00
$5001.00	$10000.00
$10001.00	$15000.00

10. Convert JUNE192004 to a date using the fx format model.

ANS:

```
SELECT TO_DATE('JUNE192004', 'fxMONTHDDYYYY') "Date"
FROM dual;
```

Date
19-Jun-2004

11. What is the distinction between implicit and explicit data type conversion? Give an example of each.

ANS:

Implicit data type conversion is when the system automatically converts a value from one type to another without the user explicitly requesting it. Explicit data type conversion is when users specifically request the conversion.

An example of implicit conversion is shown below. Although the ‘100’ is a string and the employee_id column uses the NUMBER data type, the query will still work because the string ‘100’ will implicitly be converted to a number.

```
SELECT employee_id, first_name
FROM employees
WHERE employee_id = '100';
```

One example of explicit data type conversion is using functions to directly request conversion like TO_CHAR, TO_DATE, and TO_NUMBER.

12. Why is it important from a business perspective to have data type conversions?
    a. **ANS:** Some businesses may have stakeholders that want their reports formatted in a certain way, which may include how the date should be formatted.

5.2
Vocab

Words	Definitions
NVL	Converts nulls to an actual value
COALESCE	Returns the first non-null expression in the list
NVL2	Examines the first expression; if the first expression is not null, it returns the second expression; if the first expression is null, it returns the third expression
NULLIF	Compares two expressions; if they are equal, the function returns null; if they are not equal, the function returns the first expression

1. Create a report that shows the Global Fast Foods promotional name, start date, and end date from the f_promotional_menus table. If there is an end date, temporarily replace it with “end in two weeks.” If there is no end date, replace it with today’s date.

ANS:

```
SELECT name, start_date, NVL2(end_date, 'end in two weeks', SYSDATE) end_date
FROM f_promotional_menus;
```

NAME	START_DATE	END_DATE
Back to School	01-Sep-2004	end in two weeks
Valentines Special	10-Feb-2004	end in two weeks

2. Not all Global Fast Foods staff members receive overtime pay. Instead of displaying a null value for these employees, replace null with zero. Include the employee's last name and overtime rate in the output. Label the overtime rate as "Overtime Status".

ANS:

```
SELECT last_name, NVL(overtime_rate, 0) "Overtime Status"
FROM f_staffs;
```

LAST_NAME	Overtime Status
Doe	10.25
Miller	0
Tuttle	0

3. The manager of Global Fast Foods has decided to give all staff who currently do not earn overtime an overtime rate of $5.00. Construct a query that displays the last names and the overtime rate for each staff member, substituting $5.00 for each null overtime value.

ANS:

```
SELECT last_name, TO_CHAR(NVL(overtime_rate, 5), '$999999.99') "Overtime Status"
FROM f_staffs;
```

LAST_NAME	Overtime Status
Doe	$10.25
Miller	$5.00
Tuttle	$5.00

4. Not all Global Fast Foods staff members have a manager. Create a query that displays the employee last name and 9999 in the manager ID column for these employees.

ANS:
SELECT last_name, NVL(manager_id, 9999) "Subbed 9999 for no manager_id"
FROM f_staffs;

LAST_NAME	Subbed 9999 for no manager_id
Doe	19
Miller	19
Tuttle	9999

5. Which statement(s) below will return null if the value of v_sal is 50?
    a. SELECT nvl(v_sal, 50) FROM emp;
    b. SELECT nvl2(v_sal, 50) FROM emp;
    c. SELECT nullif(v_sal, 50) FROM emp;
    d. SELECT coalesce (v_sal, Null, 50) FROM emp;

6. What does this query on the Global Fast Foods table return?
   SELECT COALESCE(last_name, to_char(manager_id)) as NAME FROM f_staffs;

ANS:
The first non-null value that the query runs across in the last_name column will be returned for the row. If there is none, it will return the first non-null value of the manager_id column. If there is still none, then a blank cell (aka NULL) will be returned.

Output of the query above

NAME
Doe
Miller
Tuttle

7. Two questions below
    a. Create a report listing the first and last names and month of hire for all employees in the EMPLOYEES table (use TO_CHAR to convert hire_date to display the month).

ANS:
SELECT first_name, last_name, TO_CHAR(hire_date, 'Month') hire_month
FROM employees;

FIRST_NAME	LAST_NAME	HIRE_MONTH
Steven	King	June
Neena	Kochhar	September
Lex	De Haan	January
Jennifer	Whalen	September
Shelley	Higgins	June
William	Gietz	June

b. Create a report listing the first and last names and month of hire for all employees in the EMPLOYEES table (use TO_CHAR to convert hire_date to display the month).

ANS:

```
SELECT first_name, last_name, NULLIF(TO_CHAR(hire_date, 'Month'), 'September')
hire_month
FROM employees;
```

FIRST_NAME	LAST_NAME	HIRE_MONTH
Steven	King	June
Neena	Kochhar	-
Lex	De Haan	January
Jennifer	Whalen	-
Shelley	Higgins	June
William	Gietz	June

8. For all null values in the specialty column in the DJs on Demand d_partners table, substitute “No Specialty.” Show the first name and specialty.

ANS:

```
SELECT first_name, NVL(specialty, 'No Specialty') specialty
FROM d_partners;
```

FIRST_NAME	SPECIALTY
Jennifer	All Types
Jason	Hip Hop
Allison	No Specialty

5.3
Vocab

Words	Definitions
DECODE	Compares an expression to each of the search values
Conditional expression	An if-then-else expression whose value depends on the truth value of a Boolean expression.
CASE	Implements conditional processing within a SQL statement; it meets the ANSI standard.

1. From the DJs on Demand d_songs table, create a query that replaces the 2-minute songs with “shortest” and the 10-minute songs with “longest”. Label the output column “Play Times”.

ANS:
With CASE

```
SELECT title,
CASE duration
   WHEN '2 min' THEN 'shortest'
   WHEN '10 min' THEN 'longest'
   ELSE duration
END AS "Duration"
FROM d_songs;
```

With DECODE

```
SELECT title,
   DECODE(duration,
      '2 min', 'shortest',
      '10 min', 'longest',
      duration
   ) AS "Duration"
FROM d_songs;
```

TITLE	Duration
Its Finally Over	5 min
Im Going to Miss My Teacher	shortest
Hurrah for Today	3 min
Meet Me At the Altar	6 min
Lets Celebrate	8 min
All These Years	longest

2. Use the Oracle database employees table and CASE expression to decode the department id. Display the department id, last name, salary, and a column called “New Salary” whose value is based on the following conditions:

   If the department id is 10 then 1.25 * salary
   If the department id is 90 then 1.5 * salary
   If the department id is 130 then 1.75 * salary
   Otherwise, display the old salary.

ANS:

```
SELECT department_id, last_name, salary,
CASE department_id
   WHEN 10 THEN 1.25 * salary
   WHEN 90 THEN 1.5 * salary
   WHEN 130 THEN 1.75 * salary
   ELSE salary
END "New Salary"
FROM employees
ORDER BY department_id;
```

DEPARTMENT_ID	LAST_NAME	SALARY	New Salary
10	Whalen	4400	5500
10	Hernandez	4300	5375
10	Ricci	4100	5125
10	Saikawa	4400	5500
20	Stocks	3700	3700
20	Safwah	5000	5000
20	Hartstein	13000	13000
90	King	24000	36000
90	Kochhar	17000	25500
110	Gietz	8300	8300
110	Higgins	12000	12000
110	Duric	5400	5400
110	Loermans	5200	5200
110	Reinhard	8100	8100
-	Grant	7000	7000

40 rows returned in 0.01 seconds Download

3. Display the first name, last name, manager ID, and commission percentage of all employees in departments 80 and 90. In a 5th column called “Review”, again display the manager ID. If they don’t have a manager, display the commission percentage. If they don’t have a commission, display 99999.

ANS:

```
SELECT first_name, last_name, manager_id, commission_pct, COALESCE(manager_id,
commission_pct, 99999) "Review"
FROM employees
WHERE department_id IN (80, 90);
```

FIRST_NAME	LAST_NAME	MANAGER_ID	COMMISSION_PCT	Review
Eleni	Zlotkey	100	.2	100
Ellen	Abel	149	.3	149
Jonathon	Taylor	149	.2	149
Nick	Hooper	149	.2	149
Steven	King	-	-	99999
Neena	Kochhar	100	-	100
Lex	De Haan	100	-	100