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5-1: Conversion Functions

Vocabulary
Identify the vocabulary word for each definition below.

CHAR	Used for text and character data of fixed length, including, numbers, dashes, and special characters
TRIM	Used to remove padded blanks or to suppress leading zeros
TO_NUMBER	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
SYSDATE	Used for date and time values
CHAR	Converts dates or numbers to character strings with optional formatting
'RR'	Century value depends on the specified year and the last 2 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.

```
SELECT last_name,
TRIM(TO_CHAR(birth_date, 'Month DD, YYYY')) AS formatted_birth_date
```

FROM global_fast_food_employees;

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

SELECT TO_CHAR(TO_DATE('January 3, 04', 'Month DD, YY'), 'DD-Mon-YYYY') AS formatted_date
FROM dual;

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.

SELECT 'The promotion began on the ' ||
    TO_CHAR(start_date, 'FMDDth') ||
    ' of ' ||
    TO_CHAR(start_date, 'Month YYYY') AS promotion_message
FROM f_promotional_menus
WHERE promo_code = 110;

4. Convert today's date to a format such as: "Today is the Twentieth of March, Two Thousand Four"
SELECT 'Today is the ' ||
    TO_CHAR(SYSDATE, 'FMDDth') ||
    ' of ' ||
    TO_CHAR(SYSDATE, 'Month') ||
    ', Two Thousand ' ||
    TO_CHAR(SYSDATE, 'YYYY') AS formatted_today
FROM dual;

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

SELECT employee_id,
    first_name || ' ' || last_name AS employee_name,
    TO_CHAR(salary, '$999,999.99') AS formatted_salary
FROM global_fast_food_employees;

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.

SELECT first_name,
    last_name,
    TO_CHAR(salary, '$999,999.99') AS current_salary,
    TO_CHAR(salary + 2000, '$999,999.99') AS new_salary
FROM global_fast_food_employees
WHERE first_name = 'Ellen' AND last_name = 'Abel';

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

SELECT TO_CHAR(start_date, 'Day, DD-Mon-YYYY') AS promo_start_date
FROM f_promotional_menus
WHERE promo_code = 110;

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):

December 25th, 2004
DECEMBER 25TH, 2004
25th december, 2004

SELECT TO_CHAR(TO_DATE('25-Dec-2004', 'DD-Mon-YYYY'), 'Month DDth, YYYY') AS "December 25th, 2004",
    TO_CHAR(TO_DATE('25-Dec-2004', 'DD-Mon-YYYY'), 'FMMONTH DDth, YYYY') AS "DECEMBER 25TH, 2004",
    TO_CHAR(TO_DATE('25-Dec-2004', 'DD-Mon-YYYY'), 'DDth fmmonth, YYYY') AS "25th december, 2004"
FROM dual;

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.

SELECT package_name,
    TO_CHAR(low_range, '$9999.99') AS formatted_low_range,
    TO_CHAR(high_range, '$9999.99') AS formatted_high_range
FROM d_packages;

10. Convert JUNE192004 to a date using the fx format model.
SELECT TO_DATE('JUNE192004', 'FXMONTHDDYYYY') AS formatted_date
FROM dual;

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

SELECT '100' + 50 FROM dual;

12. Why is it important from a business perspective to have data type conversions?

It's important to have data type conversions in order to keep data accurate and consistent within a business system. It allows the business system the ability to query more effectively, aggregation , and analysis of data.

5-2: NULL Functions

Vocabulary
Identify the vocabulary word for each definition below.

COALESCE	Converts nulls to an actual value
COALESCE	Returns the first non-null expression in the list
ISNULL	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.

SELECT
    promo_name AS "Promotional Name",
    start_date AS "Start Date",
    COALESCE(end_date, CURRENT_DATE) AS "End Date"

```
FROM
    f_promotional_menus
WHERE
    end_date IS NOT NULL
    OR CURRENT_DATE + INTERVAL '14' DAY = CURRENT_DATE;
```

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".

```
SELECT
    last_name AS "Last Name",
    NVL(overtime_rate, 0) AS "Overtime Status"
FROM
    employees;
```

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.

```
SELECT
    last_name AS "Last Name",
    NVL(overtime_rate, 5.00) AS "Overtime Rate"
FROM
    Employees;
```

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.

```
SELECT
    last_name AS "Last Name",
    NVL(manager_id, 9999) AS "Manager ID"
FROM
    employees;
```

5. Which statement(s) below will return null if the value of v_sal is 50?

c. SELECT NULLIF(v_sal, 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;

This query checks if the last_name column is NULL. If last_name is not NULL, it returns the last_name. If last_name is NULL, it converts manager_id to a string using TO_CHAR() and returns the manager_id instead.

7.
      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).

```
SELECT
   first_name AS "First Name",
   last_name AS "Last Name",
   TO_CHAR(hire_date, 'Month') AS "Month of Hire"
FROM
   employees;
```

      b. Modify the report to display null if the month of hire is September. Use the NULLIF function.

```
SELECT
   first_name AS "First Name",
   last_name AS "Last Name",
   NULLIF(TO_CHAR(hire_date, 'Month'), 'September') AS "Month of Hire"
FROM
   employees;
```

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 s

```
SELECT
   first_name AS "First Name",
   NVL(specialty, 'No Specialty') AS "Specialty"
FROM
   d_partners;
```

<u>**5-3: Conditional Expressions**</u>

Vocabulary
Identify the vocabulary word for each definition below.

DECODE	Compares an expression to each of the search values
CASE	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".

```
SELECT
   CASE
      WHEN duration = 2 THEN 'shortest'
      WHEN duration = 10 THEN 'longest'
      ELSE TO_CHAR(duration)
   END AS "Play Times"
FROM
   d_songs;
```

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.

```
SELECT
        department_id,
        last_name,
        salary,
        CASE
           WHEN department_id = 10 THEN salary * 1.25
           WHEN department_id = 90 THEN salary * 1.5
           WHEN department_id = 130 THEN salary * 1.75
```