4-1: Case and Character Manipulation Practice Activities

VOCABULARY

A. DUAL
B. FORMAT
C. INITCAP
D. FUNCTIONS
E. TRIM
F. OPERATOR
G. SINGLE-ROW FUNCTIONS
H. UPPER
I. INPUT
J. CONCAT
K. OUTPUT
L. LOWER
M. LPAD
N. SUBSTR
O. REPLACE
P. INSTR
Q. LENGTH
R. RPAD

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

The Best Class
Oracle Internet Academy

- SELECT 'The Best Class' AS Title, 'Oracle ' || 'Internet ' || 'Academy' AS Class
  FROM dual;

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

The Net
net

- SELECT 'The Net' AS Title, LOWER(SUBSTR('Oracle Internet Academy', INSTR('Oracle Internet Academy', 'Internet'), 6)) AS Net
  FROM dual;

3. What is the length of the string “Oracle Internet Academy”?

- SELECT LENGTH('Oracle Internet Academy') AS Length
  FROM dual;

  -Result: 23

4. What's the position of "I" in "Oracle Internet Academy"?

- SELECT INSTR('Oracle Internet Academy', 'I') AS Position
  FROM dual;

  - Result: 8

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

- SELECT LPAD('Oracle', 10, '*') || '****' ||
      LPAD('Internet', 10, '*') || '****' ||
      LPAD('Academy', 10, '*') AS PaddedString
  FROM dual;

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

- SELECT RPAD('Oracle', 10, '$') || RPAD('Internet', 10, '$') || RPAD('Academy', 10, '$') AS PaddedString
  FROM dual;

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

The Best Class
Oracle 2013-2014 Academy

- SELECT 'The Best Class' AS Title,
  REPLACE('Oracle Internet Academy', 'Internet', '2013-2014') AS ModifiedString
  FROM dual;

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 $.

- SELECT order_date,
   '$' || TO_CHAR(order_total, 'FM9999999.00') AS TOTAL
  FROM F_ORDERS;

Result: 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.

- SELECT 'ZOE TWEE 1009 OLIVER AVENUE BOSTON, MA 12889' AS ADDRESS
  FROM F_CUSTOMERS
  WHERE id= 456;

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.

- SELECT SUBSTR(first_name, 1, 1) || last_name AS Name, salary, department_id
  FROM EMPLOYEES
  WHERE department_id = :dept_id;

  No results found when inputting 30.
  These results were found when inputting 50:

Results | Explain | Describe | Saved SQL | History

NAME	SALARY	DEPARTMENT_ID
KMourgos	5800	50
TRajs	3500	50
CDavies	3100	50
RMatos	2600	50
PVargas	2500	50
GBell	3500	50
THeiden	2600	50

7 rows returned in 0.01 seconds Download

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.

- SELECT department_id, department_name, location_id
  FROM DEPARTMENTS
  WHERE department_name = :dept_name;

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.

- SELECT *
  FROM EMPLOYEES
  WHERE TO_CHAR(hire_date, 'MON') = :month;

4-2: Number Functions Practice Activities

VOCABULARY

A. TRUNC
B. NUMERIC FUNCTIONS
C. MOD
D. ROUND

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.

- SELECT last_name,
      salary,
      ROUND(salary / 1.55, 2) AS Salary_Divided_By_1_55
  FROM employees
  WHERE employee_id BETWEEN 100 AND 102;

LAST_NAME	SALARY	SALARY_DIVIDED_BY_1_55
King	24000	15483.87
Kochhar	17000	10967.74
De Haan	17000	10967.74

3 rows returned in 0.01 seconds Download

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.

- SELECT last_name,
  TRUNC(salary * 1.05333, 2) AS New_Salary
  FROM employees
  WHERE department_id = 80;

LAST_NAME	NEW_SALARY
Zlotkey	11059.96
Abel	11586.63
Taylor	9058.63
Hooper	10111.96

4 rows returned in 0.01 seconds Download

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

- SELECT MOD(38873, 2) AS Even_Odd_Result
  FROM dual;

EVEN_ODD_RESULT
1

1 rows returned in 0.00 seconds Download

RESULT: ODD

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

- SELECT ROUND(845.553, 1) AS Rounded_One_Decimal,
  ROUND(30695.348, 2) AS Rounded_Two_Decimals,
  ROUND(30695.348, -2) AS Rounded_Negative_Two_Decimals,
  TRUNC(2.3454, 3) AS Truncated_Value
  FROM dual;

ROUNDED_ONE_DECIMAL	ROUNDED_TWO_DECIMALS	ROUNDED_NEGATIVE_TWO_DECIMALS	TRUNCATED_VALUE
845.6	30695.35	30700	2.345

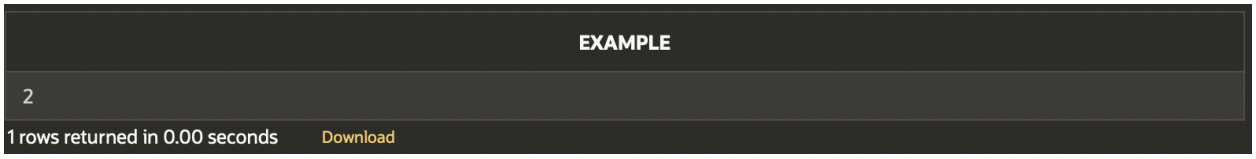
1 rows returned in 0.00 seconds Download

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.

- SELECT last_name, salary
  FROM employees
  WHERE MOD(salary, 3) = 0;

LAST_NAME	SALARY
King	24000
Higgins	12000
Zlotkey	10500
Hunold	9000
Ernst	6000
Lorentz	4200
Fay	3900
Silva Pinto	7500
Hooper	9600
Fontaine	7800
Reinhard	8100
Duric	5400

6. Divide 34 by 8. Show only the remainder of the division. Name the output as EXAMPLE.
- SELECT MOD(34, 8) AS EXAMPLE
  FROM dual;



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?

- The difference is minimal for one person but if it's done to multiple people then there would be a huge discrepancy because if it was done to 1000 people it would be $4, if it was 100,000 it would be $400, and if it was done to 1,000,000 it would be a $4,000 difference.

4-3: Date Functions Practice Activities

VOCABULARY

A. SYSDATE
B. ADD_MONTHS
C. LAST_DAY
D. NEXT_DAY
E. MONTHS_BETWEEN

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.

```
SELECT ROUND(MONTHS_BETWEEN(SYSDATE, event_date), 0) AS Months_Between
FROM d_events
WHERE id= 105;
```

- Results: 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."

```
SELECT (TO_DATE('03-08-2024', 'DD-MM-YYYY') - TO_DATE('14-06-2023', 'DD-MM-YYYY'))
AS Days
FROM dual;
```

- Results: 416

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

```
SELECT (TO_DATE('31-12-2024', 'DD-MM-YYYY') - TO_DATE('01-01-2024', 'DD-MM-YYYY'))
AS Days

FROM dual;
```

- Results: 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.

```
SELECT ROUND(SYSDATE, 'MONTH') AS Rounded_Month,
    TRUNC(SYSDATE, 'MONTH') AS Truncated_Month,
    ROUND(SYSDATE, 'YEAR') AS Rounded_Year,
    TRUNC(SYSDATE, 'YEAR') AS Truncated_Year
FROM dual;
```

ROUNDED_MONTH	TRUNCATED_MONTH	ROUNDED_YEAR	TRUNCATED_YEAR
01-Oct-2024	01-Oct-2024	01-Jan-2025	01-Jan-2024

1 rows returned in 0.01 seconds Download

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

```
SELECT LAST_DAY(TO_DATE('01-06-2005', 'DD-MM-YYYY')) AS Last_Day
FROM dual;
```

- Result: 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.

```
SELECT ROUND(MONTHS_BETWEEN(SYSDATE, TO_DATE('19-03-1969', 'DD-MM-YYYY')) /
12) AS Years_Between
FROM dual;
```

- Results: 56

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."

```
SELECT ADD_MONTHS(SYSDATE, 6) AS Appointment
FROM dual;
```

- Results: 02-Apr-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."

SELECT LAST_DAY(SYSDATE) AS Deadline
FROM dual;

- Results: 31-Oct-2024

9. How many months between your birthday this year and January 1 next year?
   SELECT MONTHS_BETWEEN(TO_DATE('01-01-2025', 'DD-MM-YYYY'),
   TO_DATE('21-03-2024', 'DD-MM-YYYY')) AS Months_Between
   FROM dual;
- Results: 9.354838709677419354838709677419354838 71

10. What's the date of the next Friday after your birthday this year? Name the output, "First Friday."

    SELECT NEXT_DAY(TO_DATE('21-03-2024', 'DD-MM-YYYY'), 'FRIDAY') AS "First Friday"
    FROM dual;
- Results: 22-Mar-2024

11. Name a date function that will return a number.
    - MONTHS_BETWEEN

12. Name a date function that will return a date.
    - ADD_MONTH

13. Give one example of why it is important for businesses to be able to manipulate date data?
    - Managing project timelines

Extension Exercises

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

   SELECT ROUND(86.678, 2) AS Rounded_Value
   FROM dual;

   - 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."

- SELECT UPPER(title) AS "DJs on Demand Collections"
  FROM d_cds
  WHERE cd_number IN (90, 91);

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.

- SELECT LOWER(last_name) || UPPER(SUBSTR(first_name, 1, 1)) AS "User Passwords"
  FROM d_partners;

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

- SELECT UPPER(REPLACE('It"s a small world', 'small', '')) AS Converted_Text
  FROM dual;

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.”

- SELECT REPLACE(REPLACE('fiddledeedee', 'fiddle', ''), 'dum', '') AS "Nonsense"
  FROM dual;

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

- SELECT REPLACE('Mississippi', 'i', '$') AS Modified_String
  FROM dual;

7. Using DUAL, convert 5332.342 to 5300.

- SELECT ROUND(5332.342, -2) AS Rounded_Value
  FROM dual;

8. Using DUAL, convert 3.14159 to 3.14.

- SELECT ROUND(3.14159, 2) AS Rounded_Value
  FROM dual;

9. Using DUAL, convert 73.892 to 73.8.

- SELECT TRUNC(73.892, 1) AS Truncated_Value
  FROM dual;

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

- SELECT NEXT_DAY(ADD_MONTHS(SYSDATE, 6), 'FRIDAY') AS "Future"
  FROM dual;

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

- SELECT ADD_MONTHS(SYSDATE, 120) AS "Future"
  FROM dual;

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.”

- SELECT TO_DATE('29-02-2008', 'DD-MM-YYYY') AS "Future"
  FROM dual;

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

- SELECT description
  FROM d_themes
  WHERE description LIKE '%ie%';

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.

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

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.

- SELECT employee_id, hire_date
  FROM employees
  WHERE hire_date BETWEEN TO_DATE('01-01-1997', 'DD-MM-YYYY') AND SYSDATE
  ORDER BY hire_date DESC;