Practice SQL Single-Row Functions

This page provides exercises and solutions to help you practice SQL Single-Row functions. These exercises are based on the ACDB database, and may be performed online or by running the sample schema scripts on your local database server. For additional exercises in other subjects, use this link.

String Functions

1. Display the customer number, first name in lowercase and last name in uppercase for all customers whose customer number is in the range of 80 and 150.
2. Generating Email Addresses
   1. For all customers – display the last name, first name and email address. The email address will be composed from the first letter of first name concatenated with three first letters of last name concatenated with the string "@mymail.com" (For example : Ram Kedem → RKED@mymail.com).
   2. For all customers – display the last name, first name and email address. The email address will be composed from the first letter of first name concatenated with three last letters of last name concatenated with the string "@mymail.com" (For example : Ram Kedem → RDEM@mymail.com).

3. Display the last name and the length of the last name for all customers where last name's length is greater than 9 characters.
4. Phone Numbers :
   1. Display the first name, last name, main phone number and a new phone number using the REPLACE function. In the new phone number replace all occurrences of "515" with "$$$".
   2. Display the first name, last name, main phone number and new

phone number using the REPLACE function. In the new phone number replace <u>all prefixes</u> of "515" with "$$$" (only if the first 3 digits of the phone number contains the digits "515" replace those digits with "$$$").

Numeric Functions

1. From *customers* table, for all customers, display :
    1. first name.
    2. monthly discount.
    3. monthly discount after addition of 19.7%.
    4. monthly discount after addition of 19.7%, expressed as a whole number (ROUND).
    5. monthly discount after addition of 19.7%, round down to the nearest whole number (FLOOR).
    6. monthly discount after addition of 19.7%, round up to the nearest whole number (CEILING).

Date Functions

1. From *Customers* table, for all customers, display the first name, join date, join date minus 10 days, join date plus one month and the date difference between join date and current date.
2. Display the first name, birthdate and age for all customers whose older than 50.
3. Display all the data from *Customers* table, for all customers whose birthdate is today.
4. Display the first name, join date and the difference in years between join date and current date for all customers where today have passed exactly 5 years since they joined the company.

Conversion functions

1. Display the first name concatenated with the join date, and last name concatenated with the monthly discount, for all customers. Solve this exercise using CAST.
2. From *Customers* table, for all customers whose last name starts with

a *d* or *k,* display:

1. last name
2. state in uppercase concatenated with customer number
3. join date concatenated with birthdate
   Solve this exercise using CONVERT, and in the WHERE clause instead of using LIKE, try to define the filtering condition using SUBSTRING.

Null-Related Functions

1. Phone numbers report:
   1. Display the first name, last name, birth date, main phone number and secondary phone number for all customers whose package number equals 27. Replace every null value in main phone number or in secondary phone number with 'N/A'.
   2. Display the first name, last name, birth date, main phone number, secondary phone number for all customers who was born on 1972. Replace every null value in main phone number or in secondary phone number with 'N/A'.

CASE Function

1. From *Customers* table, for all customers, display the first name, last name, monthly discount and a discount grade based on these conditions :
   1. If the discount is between 0 and 10 – discount grade level is A.
   2. If the discount is between 11 and 20 – discount grade level is B.
   3. If the discount is between 21 and 30 – discount grade level is C.
   4. for any other value – discount grade level is D.

Solutions – SQL Server

These solutions apply to SQL Server, for solutions that apply to Oracle click here.

```
001    -- 1
```

```
002   SELECT customer_id, LOWER(first_name)  , UPPER(last_name)
003   FROM customers
004   WHERE customer_id BETWEEN 0 AND 150
005
006   -- 2
007   -- A
008   SELECT first_name , last_name ,
009               LEFT(first_name , 1) + LEFT(last_name , 3) +
010   FROM customers
011
012   -- B
013   SELECT first_name , last_name ,
014               LEFT(first_name , 1) + RIGHT(last_name , 3) +
015   FROM customers
016
017   -- 3
018   SELECT last_name , LEN(last_name)
019   FROM customers
020   WHERE LEN(last_name) > 9
021
022   -- 4
023   -- A
024   SELECT first_name , last_name , main_phone_num , REPLACE(ma
025   FROM customers
026   WHERE main_phone_num LIKE '%515%'
027
028   -- B
029    SELECT first_name , last_name , main_phone_num ,
030               REPLACE(LEFT(main_phone_num, 3) , '515' , ':
031   FROM customers
032   WHERE main_phone_num LIKE '%515%'
033
034   -- 5
035   SELECT  first_name ,
036               monthly_discount,
037               monthly_discount * 1.197 ,
038               ROUND(monthly_discount * 1.197 , 2),
039               FLOOR(monthly_discount * 1.197 ),
040               CEILING(monthly_discount * 1.197 )
```

```
041   FROM customers
042
043   -- 6
044   SELECT  first_name ,
045                    join_date,
046                    DATEADD(dd, -10 , join_date),
047                    DATEADD(mm , 1 , join_date),
048                    DATEDIFF(dd , join_date , getdate())
049   FROM customers
050
051
052   -- 7
053   SELECT first_name , birth_date , DATEDIFF(yy , birth_date ,
054   FROM customers
055   WHERE DATEDIFF(yy , birth_date , getdate()) > 50
056
057   -- 8
058   SELECT first_name , birth_date
059   FROM customers
060   WHERE MONTH(birth_date) = MONTH(getdate())
061              AND
062              DAY(birth_date) = DAY(getdate())
063
064   -- 9
065   SELECT first_name , join_date , DATEDIFF(yy , join_date , ge
066   FROM customers
067   WHERE DATEDIFF(yy , join_date , getdate()) = 5
068              AND
069              MONTH(join_date) = MONTH(getdate())
070              AND
071              DAY(join_date) = DAY(getdate())
072
073   -- 10
074   SELECT first_name +  ' / '  + CAST(DAY(join_date) AS VARCHAI
075              last_name +  ' / '   + CAST(monthly_discount /
076   FROM customers
077
078   -- 11
079   SELECT   last_name,
```

```
080                        UPPER(state) + ' / ' + CONVERT(varchar , cus
081                        CONVERT(varchar , birth_date , 103) + ' / '
082    FROM customers
083    WHERE SUBSTRING(last_name , 1 , 1) IN ('D' , 'K')
084
085    -- 12
086    -- A
087    SELECT  first_name ,
088                    last_name ,
089                    ISNULL(main_phone_num , 'N / A'),
090                    ISNULL(secondary_phone_num, 'N / A'),
091                    ISNULL(fax, 'N / A')
092    FROM customers
093    WHERE pack_id = 27
094
095    -- B
096    SELECT  first_name ,
097                    last_name ,
098                    birth_date ,
099                    ISNULL(main_phone_num , 'N / A'),
100                    ISNULL(secondary_phone_num, 'N / A'),
101                    ISNULL(fax, 'N / A')
102    FROM customers
103    WHERE pack_id = 27
104    AND
105              year(birth_date) = 1972
106
107    -- 13
108    SELECT first_name , last_name , monthly_discount ,
109                CASE WHEN monthly_discount BETWEEN 0 AND 10 TH
110                    WHEN monthly_discount BETWEEN 11 AND 20 THEI
111                    WHEN monthly_discount BETWEEN 21 AND 30 THEI
112                    ELSE 'D'
113                END AS 'Grades'
114    FROM customers
```

Solutions – Oracle

```
001    -- 1
```

```
002   SELECT customer_id, LOWER(first_name)  , UPPER(last_name)
003   FROM customers
004   WHERE customer_id BETWEEN 0 AND 150
005
006   -- 2
007   -- A
008   SELECT first_name , last_name ,
009               SUBSTR(first_name , 1,1) || SUBSTR(last_name
010   FROM customers
011
012   -- B
013   SELECT first_name , last_name ,
014               SUBSTR(first_name , 1,1) || SUBSTR(last_name
015   FROM customers
016
017   -- 3
018   SELECT last_name , LENGTH(last_name)
019   FROM customers
020   WHERE LENGTH(last_name) > 9
021
022   -- 4
023   -- A
024   SELECT first_name , last_name , main_phone_num , REPLACE(ma
025   FROM customers
026   WHERE main_phone_num LIKE '%515%'
027
028   -- B
029    SELECT first_name , last_name , main_phone_num ,
030               REPLACE(SUBSTR(main_phone_num, 1, 3) , '515
031               || SUBSTR(main_phone_num , 4 , 12) AS "New_I
032   FROM customers
033   WHERE main_phone_num LIKE '%515%'
034
035   -- 5
036   SELECT  first_name ,
037               monthly_discount,
038               monthly_discount * 1.197 ,
039               ROUND(monthly_discount * 1.197 , 2),
040               TRUNC(monthly_discount * 1.197 ),
```

```
041                         CEIL(monthly_discount * 1.197 )
042    FROM customers
043
044    -- 6
045    SELECT  first_name ,
046                 join_date,
047                 join_date - 10 ,
048                 ADD_MONTHS(1 , join_date),
049                 SYSDATE - join_date
050    FROM customers
051    -- 7
052    SELECT first_name , birth_date , EXTRACT(YEAR FROM SYSDATE)
053    FROM customers
054    WHERE EXTRACT(YEAR FROM SYSDATE) - EXTRACT(YEAR FROM birth_
055
056    -- 8
057    SELECT first_name , birth_date
058    FROM customers
059    WHERE EXTRACT(MONTH FROM birth_date) = EXTRACT(MONTH FROM SY
060              AND
061              EXTRACT(DAY FROM birth_date) = EXTRACT( DAY FI
062
063    -- 9
064    SELECT first_name , join_date , EXTRACT(YEAR FROM SYSDATE)
065    FROM customers
066    WHERE EXTRACT(YEAR FROM SYSDATE) - EXTRACT(YEAR FROM join_d
067              AND
068              EXTRACT(MONTH FROM SYSDATE) = EXTRACT(MONTH FRO
069              AND
070              EXTRACT( DAY FROM SYSDATE) = EXTRACT( DAY FROM
071
072    -- 10
073    SELECT first_name ||  ' / '  || join_date ,
074              last_name ||  ' / '   || monthly_discount
075    FROM customers
076
077    -- 11
078    SELECT  last_name,
079                 UPPER(state) || ' / ' || customer_id  ,
```

```
080                         birth_date || ' / ' || join_date
081    FROM customers
082    WHERE SUBSTR(last_name , 1 , 1) IN ('D' , 'K')
083
084    -- 12
085    -- A
086    SELECT   first_name ,
087                     last_name ,
088                     NVL(main_phone_num ,    'N / A'),
089                     NVL(secondary_phone_num,    'N / A'),
090                     NVL(fax,     'N / A')
091    FROM customers
092    WHERE pack_id = 27
093
094    -- B
095    SELECT   first_name ,
096                     last_name ,
097                     birth_date ,
098                     NVL(main_phone_num ,    'N / A'),
099                     NVL(secondary_phone_num,    'N / A'),
100                     NVL(fax,     'N / A')
101    FROM customers
102    WHERE pack_id = 27
103    AND
104                   year(birth_date) = 1972
105
106    -- 13
107    SELECT first_name , last_name , monthly_discount ,
108               CASE WHEN monthly_discount BETWEEN 0 AND 10 TI
109                    WHEN monthly_discount BETWEEN 11 AND 20 THEI
110                    WHEN monthly_discount BETWEEN 21 AND 30 THEI
111                    ELSE 'D'
112               END AS "Grades"
113    FROM customers
```

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