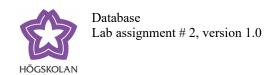
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# Lab assignment # 2- Data Retrieval Language, SELECT from a single table

In this lab you will work with SELECT statements against a single table. Start by creating the table customer and fill it with data, by copy the following SQL statements and paste them into your SQL client software, and hit "Run".

```
-----COPY and PASTE START-------
CREATE TABLE customer (
username VARCHAR2(8) PRIMARY KEY,
passwd VARCHAR2(8) NOT NULL,
first_name VARCHAR2(20) NOT NULL,
last name VARCHAR2(20) NOT NULL,
profession VARCHAR2(20),
reg date DATE NOT NULL,
salary NUMBER(7));
INSERT INTO customer(username,passwd,first name,last name,profession,reg date,salary)
VALUES('MrBig','MBisKING','Roger','nyberg','Officer',TO DATE('1998-NOV-29','YYYY-MON-
DD'),317000);
INSERT INTO customer(username, passwd, first name, last name, profession, reg date, salary)
VALUES('MEZcal','P33kssa','maria','Nyberg','psychologist',TO DATE('1999-08-29','YYYY-MM-
DD'),435000);
INSERT INTO customer(username,passwd,first_name,last_name,profession,reg_date,salary)
VALUES('FISSIped','bintje','Tomas','kvist','Potatoe farmer',TO_DATE('2000-02-28','YYYY-MM-
DD'),198000);
INSERT INTO customer (username, passwd, first name, last name, profession, reg date, salary)
VALUES('OlleBull', 'Bullas', 'hans', 'Lindqvist', NULL, TO DATE('2002-05-05', YYYYY-MM-
DD'),116000);
INSERT INTO customer(username,passwd,first_name,last_name,profession,reg_date,salary)
VALUES('MrMDI','MDIisit','Hans','Rosenboll<sup>"</sup>,'assistant professor',TO DATE('1997-01
15','YYYY-MM-DD'),307000);
INSERT INTO customer(username,passwd,first_name,last_name,profession,reg_date,salary)
VALUES('King25', 'asdf1234', 'charlotte', 'Ortiz', 'dentist', TO_DATE('2003-12-10', 'YYYY-MM-
DD'),586000);
INSERT INTO customer(username, passwd, first name, last name, profession, reg date, salary)
VALUES('h01hanro','T56xxL','Sven','Larsson',NULL,TO DATE('2003-08-09','YYYY-MM-DD'),NULL);
INSERT INTO customer(username,passwd,first_name,last_name,profession,reg_date,salary)
VALUES('XXXL','IRule','Margareta','ek','MD',To_DATE('2001-06-29','YYYY-MM-DD'),942000);
INSERT INTO customer(username, passwd, first name, last name, profession, reg date, salary)
VALUES('Rolven', 'revolver', 'roger', 'nyberg, NULL, TO DATE('1998-10-29', 'YYYY-MM-
DD'),240000);
INSERT INTO customer(username,passwd,first_name,last_name,profession,reg_date,salary)
VALUES('IceMan','Quantos','Maria','Nyberg','Engineer',TO DATE('1998-02-14','YYYY-MM-
DD'),412000);
COMMIT;
-----FND COPY and PASTE-------
```



Your task in the lab is to write SQL statements that retrieve information, from the database, asked for in the tasks. Write your SQL-statements well structured, like:

```
SELECT col, col, group functions(),..
FROM table..
WHERE..
AND..
HAVING..
GROUP BY..
ORDER BY col.. ASC.. DESC..
```

In order for you to succeed with the lab, you have to use the built in function NVL() to handle NULL-values. The functions TO\_DATE() or TO\_CHAR() to handle date conversions, and finally the functions UPPER() or LOWER() to handle, case sensitive storage of string values (andersson, Andersson, ANDERSSON). We assume that NULL = 0 (zero) in columns of numeric data type.

#### Task 1

Show all data about all customers, sort by last\_name (a-\(\bar{o}\)).

```
-- TASK 1

SELECT * FROM customer

ORDER BY LOWER(last name) ASC;
```

#### Task 2

Show all data about all customers, sort by last name (ö-a).

```
-- TASK 2
SELECT * FROM customer
ORDER BY LOWER(last_name) DESC;
```

## Task 3

Show **the numbers of customers** that are stored in the customer table (i.e. the number of rows).

```
-- TASK 3
SELECT COUNT(username)
FROM customer;
```

Correct answer = 10

## Task 4

Show **how many** customers that have an annual (yearly) income that is greater than 300 000 SEK.

```
-- TASK 4

SELECT COUNT(username) AS ANNUAL_INCOME_GREATER_THAN_300000_SEK

FROM customer

WHERE salary > 300000;
```

Correct answer = 6

## Task 5

Show **how many** customers that have an annual (yearly) income that is less than 300 000 SEK.

```
-- TASK 5

SELECT COUNT (username) AS ANNUAL_INCOME_LESS_THAN_300000_SEK

FROM customer

WHERE NVL(salary,0) < 300000;

Correct answer = 4
```

## Task 6

Show average **annual income for all customers**. The column headline should be: **average salary** 

```
-- TASK 6
SELECT AVG (NVL(salary,0)) AS average_salary
FROM customer;
```

## Correct answer:

```
average_salary
-----
355300
```

## Task 7

Show **username**, **first\_name**, **last\_name** and **salary** for those customers that have a salary that is less than the average annual income for all customers.

```
-- TASK 7
SELECT username, first_name, last_name, NVL(salary,0) AS salary
FROM customer
WHERE NVL(salary,0) < (SELECT AVG (NVL(SALARY,0)) AS average_salary
FROM CUSTOMER);</pre>
```

## Correct answer:

USERNAME	FIRST_NAME	LAST_NAME	SALARY
MrBig	Roger	nyberg	317000
FISSIped	Tomas	kvist	198000
OlleBull	hans	Lindqvist	116000
MrMDI	Hans	Rosenboll	307000
h01hanro	Sven	Larsson	0
Rolven	roger	nyberg	240000

## Task 8

Show first\_name, last\_name with UPPER-CASE LETTERS for those customers who have the letter 's' in the last name.

Rätt svar:

```
-- TASK 8

SELECT UPPER (first_name) FIRST_NAME, UPPER(last_name) LAST_NAME

FROM customer

WHERE UPPER(last_name) LIKE '%S%';
```

FIRST_NAME	LAST_NAME
TOMAS	KVIST
HANS	LINDQVIST
HANS	ROSENBOLL
SVEN	LARSSON

## Task 9

Show first\_name, last\_name and profession with lower-case letters for those customers who have a first name which ends with the letter 's'. Replace null-values in the column profession with the string 'jobless'.

```
SELECT LOWER(first_name) FIRST_NAME, LOWER(last_name) LAST_NAME,
NVL(LOWER(profession), 'jobless') Profession
FROM customer
WHERE LOWER (first_name) LIKE '%s';
```

#### Correct answer:

FIRST_NAME	LAST_NAME	PROFESSION
tomas	kvist	potatoe farmer
hans	lindqvist	jobless
hans	rosenboll	assistant professor

## Task 10

Show **profession** and the **number of customers** in that **profession category**. Sort by profession (z-a).

The column headings should **profession** and **quantity**. Replace null-values in the column profession with the string 'jobless'. Show profession **capitalized**. Suggestion! Use the function initcap().

```
-- TASK 10

SELECT INITCAP(NVL(profession, 'jobless')) PROFESSION ,

COUNT(NVL(profession, 'jobless')) QUANTITY

FROM customer

GROUP BY profession

ORDER BY profession DESC;
```

## Correct answer:

PROFESSION	QUANTITY
Psychologist	1
Potatoe Farmer	1
Officer	1
Md	1
Jobless	3
Engineer	1
Dentist	1
Assistant Professor	1

## Task 11

```
Show first_name concatenated with a space and last_name under the heading customer_name. Show both names capitalized. Concatenate in Oracle: 'string1'||'string2'||'string3'...
```

```
-- TASK 11

SELECT INITCAP (first_name) || ' '|| INITCAP(last_name) AS CUSTOMER_NAME
FROM customer;
```

## Correct answer:

Dalarna

```
CUSTOMER_NAME
-------
Roger Nyberg
Maria Nyberg
Tomas Kvist
Hans Lindqvist
Hans Rosenboll
Charlotte Ortiz
Sven Larsson
Margareta Ek
Roger Nyberg
Maria Nyberg
```

## Task 12

Show the number of customers who has the username = 'King25' and passwd = 'asdf1234' with the heading logged\_in.

```
-- TASK 12

SELECT COUNT (username) AS logged_in

FROM customer

WHERE username = 'King25' AND passwd = 'asdf1234';
```

#### Correct answer:

```
logged_in
```

#### Task 13

Show the number of customers who has the username = 'KING25' and

```
passwd = 'ASDF1234' with the heading logged in.
```

```
-- TASK 13

SELECT COUNT (username) AS logged_in

FROM customer

WHERE username = 'KING25' AND passwd = 'ASDF1234';
```

#### Correct answer:

Dalarna

```
logged_in
-----
```

## Task 14

Show username, passwd and reg\_date for those customers who registered before year 2000.

```
-- TASK 14

SELECT username, passwd, TO_CHAR(reg_date, 'YYYY-mm-DD') AS REG_DATE
FROM customer

WHERE TO_CHAR(reg_date, 'YYYY') < 2000;
```

## Correct answer:

```
      USERNAME
      PASSWD
      REG_DATE

      ------
      ------

      MrBig
      MBisKING
      1998-11-29

      MEZcal
      P33kssa
      1999-08-29

      MrMDI
      MDIisit
      1997-01-15

      Rolven
      revolver
      1998-10-29

      IceMan
      Quantos
      1998-02-14
```

## Task 15

Show username, passwd and reg\_date for those customers who registered between 01 january 2001 and 01 october 2003.

```
-- TASK 15

SELECT username, passwd, TO_CHAR(reg_date, 'YYYYY-MM-DD') AS REG_DATE
FROM customer

WHERE TO_DATE(reg_date) BETWEEN '01 January 2001' AND '01 October 2003';
```

## Correct answer:

USERNAME	PASSWD	REG_DATE
OlleBull hOlhanro XXXL		2002-05-05 2003-08-09 2001-06-29

## Task 16

Show username, passwd, first\_name, last\_name for those customers who has a last name equal to 'nyberg' or 'kvist' and a first name not equal to 'roger'.

```
-- TASK 16
SELECT username, passwd, first_name, last_name
FROM customer
where lower(last_name) in('nyberg' , 'kvist')
and lower(first name) != 'roger';
```

## Correct answer:

USERNAME	PASSWD	FIRST_NAME	LAST_NAME
MEZcal	P33kssa	maria	Nyberg
FISSIped	bintje	Tomas	kvist
IceMan	Quantos	Maria	Nyberg

## Task 17

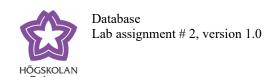
Show **first\_name**, **last\_name** and **salary** for the customer with the highest salary of all customers.

```
-- TASK 17
SELECT first_name, last_name, salary
from customer
where salary = (SELECT MAX(salary) FROM customer);
```

## Correct answer:

FIRST_NAME	LAST_NAME	SALARY
Margareta	ek	942000

## Task18



Show first\_name, last\_name and salary for the customer with the lowest salary of all customers. Do not include customers with NULL salary.

```
-- TASK 18
SELECT first_name, last_name, salary
FROM customer
WHERE salary = (SELECT MIN (salary) FROM customer);
```

#### Correct answer:

FIRST_NAME	LAST_NAME	SALARY
hans	Lindqvist	116000

## Task 19

Show first\_name and last\_name for those customers who has a NULL value in the profession column.

```
-- TASK 19
select first_name, last_name
FROM customer
WHERE Profession IS NULL;
```

## Correct anawer:

FIRST_NAME	LAST_NAME
hans	Lindqvist
Sven	Larsson
roger	nyberg

Put the lab report in Learn (Blackboard). Click on the link Assignments.