## Lab Assignment # 2

## Data Retrieval Language, SELECT from a Single Table

***-*CharuBisht**

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','YYYY-MM-DD'),116000);

INSERT INTO customer(username,passwd,first\_name,last\_name,profession,reg\_date,salary)

VALUES('MrMDI','MDIisit','Hans','Rosenboll','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;

----------------------------------END 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-ö).

**Solution 1:**

Select \* from customer order by lower(lastname);

**Task 2:**

Show **all data** about all customers, sort by last\_name (ö-a).

**Solution 2:**

Select \* from customer order by lower(lastname) desc;

**Task 3:**

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

*Correct answer = 10*

**Solution 3:**

Select count(USERNAME) from customer;

**Task 4:**

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

***Correct answer = 6***

**Solution 4:**

Select count(USERNAME) from customer where nvl(salary,0) > 300000;

**Task 5:**

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

***Correct answer = 4***

**Solution 5:**

Select count(USERNAME) from customer where nvl(salary,0) < 300000;

**Task 6:**

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

***Correct answer:***

average\_salary

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355300

**Solution 6:**

select avg(nvl(salary,0)) as average\_salary from customer;

**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.

***Correct answer:***

USERNAME FIRST\_NAME LAST\_NAME SALARY

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MrBig Roger nyberg 317000

FISSIped Tomas kvist 198000

OlleBull hans Lindqvist 116000

MrMDI Hans Rosenboll 307000

h01hanro Sven Larsson 0

Rolven roger nyberg 240000

**Solution 7:**

select username, first\_name, last\_name, nvl(salary,0) as SALARY

from customer where nvl(salary,0) < (select avg(nvl(salary,0))from customer);

**Task 8:**

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

***Correct answer:***

FIRST\_NAME LAST\_NAME

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TOMAS KVIST

HANS LINDQVIST

HANS ROSENBOLL

SVEN LARSSON

**Solution 8:**

Select upper(first\_name) as FIRST\_NAME,upper(last\_name) as LAST\_NAME from customer where last\_name like '%s%';

**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'. ***Correct answer:***

FIRST\_NAME LAST\_NAME PROFESSION

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tomas kvist potatoe farmer

hans lindqvist jobless

hans rosenboll assistant professor

**Solution 9:**

Select lower(first\_name) as FIRST\_NAME, lower(last\_name) as LAST\_NAME, lower(nvl(profession, ‘jobless’)) as PROFESSION from customer where first\_name like ‘%s’;

**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().

***Correct answer:***

PROFESSION QUANTITY

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Psychologist 1

Potatoe Farmer 1

Officer 1

Md 1

Jobless 3

Engineer 1

Dentist 1

Assistant Professor 1

**Solution 10**

Select initcap(nvl(profession, ‘jobless’)) as PROFESSION, count(username) as QUANTITY from customer group by profession order by profession desc;

**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'..

***Correct answer:***

CUSTOMER\_NAME

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Roger Nyberg

Maria Nyberg

Tomas Kvist

Hans Lindqvist

Hans Rosenboll

Charlotte Ortiz

Sven Larsson

Margareta Ek

Roger Nyberg

Maria Nyberg

**Solution 11:**

select (initcap(first\_name)||' '||initcap(last\_name)) as CUSTOMER\_NAME

from customer;

**Task 12:**

Show **the number of customers** who has the username = 'King25' and

passwd = 'asdf1234' with the heading logged\_in**.**

***Correct answer:***

logged\_in

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1

**Solution 12:**

select count(\*) as logged\_in from customer where username = 'King25' and passwd = 'asdf1234';

**Task 13:**

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

passwd = 'ASDF1234' with the heading logged\_in**.**

***Correct answer:***

logged\_in

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0

**Solution 13:**

select count(\*) as logged\_in from customer where username = 'KING25' and passwd = 'ASDF1234';

**Task 14:**

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

***Correct answer:***

USERNAME PASSWD REG\_DATE

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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

**Solution 14:**

select username,passwd,to\_char(reg\_date,'YYYY-MM-DD') as reg\_date from customer where reg\_date < to\_date('2000-01-01','YYYY-MM-DD');

**Task 15:**

Show **username**, **passwd** and **reg\_date** for those customers who registered between

01 january 2001 and 01 october 2003.

***Correct answer:***

USERNAME PASSWD REG\_DATE

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OlleBull Bullas 2002-05-05

h01hanro T56xxL 2003-08-09

XXXL IRule 2001-06-29

**Solution 15:**

select username,passwd,to\_char(reg\_date,'YYYY-MM-DD') as reg\_date

from customer

where reg\_date between to\_date('2001-01-01','YYYY-MM-DD') and to\_date('2003-10-01','YYYY-MM-DD');

**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' .

***Correct answer:***

USERNAME PASSWD FIRST\_NAME LAST\_NAME

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MEZcal P33kssa maria Nyberg

FISSIped bintje Tomas kvist

IceMan Quantos Maria Nyberg

**Solution 16:**

select username, passwd, first\_name, last\_name from customer where lower(last\_name) in ('nyberg', 'kvist') and lower(first\_name) not in('roger');

**Task 17:**

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

***Correct answer:***

FIRST\_NAME LAST\_NAME SALARY

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Margareta ek 942000

**Solution 17:**

select first\_name, last\_name, salary from customer where salary = (select max(salary) from customer);

**Task 18:**

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

***Correct answer:***

FIRST\_NAME LAST\_NAME SALARY

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hans Lindqvist 116000

**Solution 18:**

select first\_name, last\_name, salary from customer where salary = (select min(salary) from customer);

**Task 19:**

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

***Correct answer:***

FIRST\_NAME LAST\_NAME

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hans Lindqvist

Sven Larsson

roger nyberg

**Solution 19:**

select first\_name, last\_name from customer where profession IS NULL;