East West University
Department of Computer Science and Engineering

CSE 302: LAB 04
Course Instructor: Dr. Mohammad Rezwanul Huq

Introducing SQLDeveloper Tool and Important Oracle Functions

Lab Objective

Familiarize students with SQL Developer tool to interact with the database and several important Oracle built-in functions.

Lab Outcome

After completing this lab successfully, students will be able to:

1. **Use** *SQL Developer* tool to interact with the database.
2. **Understand** the use of Oracle Built-in functions.
3. **Construct** SQL statements to perform queries involving nested subqueries.

Psychomotor Learning Levels

This lab involves activities that encompass the following learning levels in psychomotor domain.

Level	Category	Meaning	Keywords
P1	Imitation	Copy action of another; observe and replicate.	Relate, Repeat, Choose, Copy, Follow, Show, Identify, Isolate.
P2	Manipulation	Reproduce activity from instruction or memory	Copy, response, trace, Show, Start, Perform, Execute, Recreate.

Instructions

- Execute SQLDeveloper tool and follow the instructor during the class.
- You may download the latest version from here: https://www.oracle.com/technetwork/developer-tools/sql-developer/downloads/index.html
- A more formal tutorial about SQLDeveloper can be found here: http://www.oracle.com/webfolder/technetwork/tutorials/obe/db/sqldev/r40/sqldev4.0_GS/sqldev4.0_GS.html

Lab Activities (Introducing built-in functions in Oracle)

String Functions

`ASCII( single_character )`	`ASCII('t')` *Result:* `116`
`CHR( number_code )`	`CHR(116)` *Result:* `'t'`
`CONCAT( string1, string2 )`	**`CONCAT('Tech on', ' the Net')`** ***Result:*** **`'Tech on the Net'`**
`string1 || string2 … || string_n`	**`'a' || 'b' || 'c' || 'd'`** ***Result:*** **`'abcd'`**
`INITCAP( string1 )`	`INITCAP('tech on the net');` *Result:* `'Tech On The Net'`

INSTR(string, substring [, start_position [, th_appearance]])	INSTR('Tech on the net', 'e') *Result:* 2 *(the first occurrence of 'e')*
LENGTH(string1)	**LENGTH('Tech on the Net')** ***Result:*** **15**
LOWER(string1)	**LOWER('Tech on the Net');** ***Result:*** **'tech on the net'**
UPPER(string1)	**UPPER('Tech on the Net')** ***Result:*** **'TECH ON THE NET'**
LPAD(string1, padded_length [, pad_string])	LPAD('tech', 8, '0'); *Result:* '0000tech'
RPAD(string1, padded_length [, pad_string])	RPAD('tech', 8, '0') *Result:* 'tech0000'
LTRIM(string1 [, trim_string])	LTRIM('xyxzyyyTech', 'xyz') *Result:* 'Tech'
RTRIM(string1 [, trim_string])	RTRIM('Techxyxzyyy', 'xyz') *Result:* 'Tech'
REPLACE(string1, string_to_replace [, replacement_string])	REPLACE('222tech', '2', '3'); *Result:* '333tech'
SUBSTR(string, start_position [, length])	SUBSTR('TechOnTheNet', 1, 4) *Result:* 'Tech'

Number Functions

ABS(number)	ABS(-23) *Result:* 23
bitand(expr1, expr2)	BITAND(5,3) *Result:* 1
CEIL(number)	**CEIL(32.65)** ***Result:*** **33**
FLOOR(number)	**FLOOR(5.9)** ***Result:*** **5**
GREATEST(expr1[,expr2, ... expr_n])	GREATEST(2, 5, 12, 3) *Result:* 12
LEAST(expr1[,expr2, ... expr_n])	LEAST(2, 5, 12, 3) *Result:* 2
LOG(m, n)	LOG(2, 15) *Result:* 3.90689059560852
MEDIAN(expression)	**select MEDIAN(salary)** **from employees** **where department='Marketing';**
MOD(m, n)	MOD(11.6, 2) *Result:* 1.6
POWER(m, n)	POWER(3, 2) *Result:* 9
SQRT(n)	SQRT(5.617) *Result:* 2.37002109695251
ROUND(number [, decimal_places])	ROUND(125.315, 2) *Result:* 125.32
TRUNC(number [, decimal_places])	TRUNC(125.815, 2) *Result:* 125.81

	SELECT ROWNUM, customers.* FROM customers WHERE customer_id > 4500;

Date Functions

ADD_MONTHS(date1, number_months)	ADD_MONTHS('21-Aug-03', -3) *Result:* '21-May-03'
EXTRACT ({ YEAR | MONTH | DAY | HOUR | MINUTE | SECOND } | { TIMEZONE_HOUR | TIMEZONE_MINUTE } | { TIMEZONE_REGION | TIMEZONE_ABBR } FROM { date_value | interval_value })	**SELECT EXTRACT(YEAR FROM DATE '2003-08-22') from dual *Result:* 2003**
TO_CHAR(value [, format_mask] [, nls_language])	SELECT TO_CHAR(sysdate, 'yyyy/mm/dd')from dual *Result:* '2003/07/09'
TO_DATE(string1 [, format_mask] [, nls_language])	SELECT TO_DATE('2015/05/15 8:30:25', 'YYYY/MM/DD HH:MI:SS') FROM dual;

Example:

```
Select ASCII('t') from dual;
Select ROUND (125.315, 2) from dual;
Select id, name, ROUND (salary, 2) as salary from instructor;
```

Lab Tasks:

1. Open an account in hackerrank.com
2. Start solving SQL problems
3. Instructor will check your progress time to time.