# **BTD310- Lab 8**

Please work in **groups** to complete this lab. This lab is worth 2.5% of the total course grade and will be evaluated through your written submission, as well as the lab demo. During the lab demo, group members are randomly selected to present the answers to each of the lab questions. Group members not present during the lab demo will lose the demo mark.

Please submit the following files through Blackboard. Only one person must submit for the team.

* Lab8.sql must include a script including all the SQL commands for the following. Please write them in the specified order.
* Lab8.txt must be the output of the above script. Use the save button on top of the script results.

1. Create a new SQL worksheet in SQL Developer, save as **Lab8.sql**. Use these two lines at the beginning of your script:

SET SERVEROUTPUT ON

SET VERIFY OFF

1- Create a PL/SQL block that asks the user to enter a department ID. Then find the maximum salary of employees in the specified department and stores it in v\_max\_sal variable. Compare this value with $5,000. Display a message as shown in the sample, specifying if it is ‘lower’ or ‘higher’ than the limit. Pay attention to declaring variables to match the table columns.

Run your code with inputs for department IDs 10 and 20.

PL/SQL procedure successfully completed.

The maximum salary in department 10 is 4400

which is lower than $5,000.

PL/SQL procedure successfully completed.

The maximum salary in department 20 is 13000

which is higher than $5,000.

--Question 1

DECLARE

v\_dept\_no employees.department\_id%TYPE := &dept\_id;

v\_max\_sal employees.salary%TYPE;

BEGIN

SELECT

MAX(salary)

INTO v\_max\_sal

FROM

employees

WHERE

department\_id = v\_dept\_no;

IF v\_max\_sal < 5000 THEN

dbms\_output.put\_line('The maximum salary in department '

|| v\_dept\_no

|| ' is '

|| v\_max\_sal

|| ' which is lower than $5,000.');

ELSE

dbms\_output.put\_line('The maximum salary in department '

|| v\_dept\_no

|| ' is '

|| v\_max\_sal

|| ' which is higher than $5,000.');

END IF;

END;

/

2- Use a FOR loop to find the number of employees in each department.

* First find the lowest and highest department ID in employees table.
* Then loop within the range given by the above values in a FOR loop.
* Use a SELECT statement to find the number of employees in each department.
* If the count is more than zero, find the department name from the departments table and show output, as shown:

The number of employees in department 10 (Administration) is 1

The number of employees in department 20 (Marketing) is 2

The number of employees in department 50 (Shipping) is 5

The number of employees in department 60 (IT) is 3

The number of employees in department 80 (Sales) is 3

The number of employees in department 90 (Executive) is 3

The number of employees in department 110 (Accounting) is 2

DECLARE

counter NUMBER := 0;

low\_ID employees.Department\_ID%TYPE;

high\_ID employees.Department\_ID%TYPE;

empcount NUMBER := 0;

v\_depname DEPARTMENTS.DEPARTMENT\_NAME%TYPE;

BEGIN

SELECT MAX(employees.Department\_ID)

INTO high\_ID

FROM employees;

SELECT MIN(employees.Department\_ID)

INTO low\_ID

FROM employees;

counter := low\_ID;

LOOP

SELECT COUNT(\*)

into counter

FROM employees

WHERE Department\_ID = counter;

IF counter > 0

THEN

SELECT department\_name

INTO v\_depname

FROM departments

WHERE department\_id = counter;

DBMS\_OUTPUT.PUT\_LINE('Then number of employees in department '

|| counter

|| ' ('

|| v\_depname

|| ') is '

|| empcount );

END IF;

counter := counter + 10;

EXIT WHEN counter >= high\_ID;

END LOOP;

END;

/

--Question 2, USING FOR LOOP

DECLARE

v\_highest\_dep employees.department\_id%TYPE;

v\_lowest\_dep employees.department\_id%TYPE;

v\_count NUMBER(4);

v\_depname departments.department\_name%TYPE;

BEGIN

SELECT

MAX(department\_id),

MIN(department\_id)

INTO

v\_highest\_dep,

v\_lowest\_dep

FROM

employees;

FOR i IN v\_lowest\_dep..v\_highest\_dep LOOP

IF ( i = 10 OR i = 20 OR i = 50 OR i = 60 OR i = 80 OR i = 90 OR i = 110 ) THEN

SELECT

COUNT(\*)

INTO v\_count

FROM

employees

WHERE

department\_id = i;

IF v\_count > 0 THEN

SELECT

department\_name

INTO v\_depname

FROM

departments d

WHERE

d.department\_id = i;

dbms\_output.put\_line('The number of employees in department '

|| i

|| ' ('

|| v\_depname

|| ') is '

|| v\_count);

END IF;

END IF;

END LOOP;

--

END;

/

3- Use the following command to create the STARS table.

CREATE TABLE regStars

(

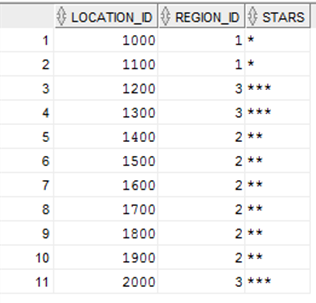
location\_id NUMBER(4,0),

region\_id NUMBER(4,0),

stars VARCHAR2(10)

);

Now use two *labelled* nested loops to insert the following 10 rows into this table. Use a join between LOCATIONS and COUNTRIES.



Run

SELECT \* FROM regStars;

to show the data.

CREATE TABLE regStars

(

location\_id NUMBER(4,0),

region\_id NUMBER(4,0),

stars VARCHAR2(10)

);

DECLARE   
v\_stars regStars.stars%TYPE := '';  
v\_loc\_id regStars.location\_id%TYPE;   
v\_reg\_id regStars.region\_id%TYPE;   
BEGIN   
<<outerLoop>>   
FOR i IN 10..20 LOOP   
SELECT location\_id, region\_id   
INTO v\_loc\_id, v\_reg\_id   
FROM locations   
NATURAL JOIN countries WHERE location\_id = i100;   
<<innerLoop>>   
FOR j IN 1..v\_reg\_id LOOP   
v\_stars := v\_stars || '';   
END LOOP innerLoop;   
  
INSERT INTO regStars VALUES (v\_loc\_id, v\_reg\_id, v\_stars);   
v\_stars := '';   
END LOOP outerLoop;   
END;   
  
select \* from regStars;

1. Add a comment before each answer to specify the question number. For example,

-- Question 3

1. Use SQL Developer to format your script.
2. Clear the script output. Then run your script (F5). Save the output as **Lab8.txt**.
3. Add this declaration on the top of your Lab8.txt file.

We, ------------(mention your names), declare that the attached assignment is our own work in accordance with the Seneca Academic Policy. No part of this assignment has been copied manually or electronically from any other source (including web sites) **or distributed to other students.**

1. Also, on top of Lab8.txt, specify what each member has done towards the completion of this work:

Name Task(s)

1-Muskan

2- Lukas

3-Priya