

## CENG316 – Database Systems

### Assignment 3 (Due: Thursday, May 25 at 23:59:59, SUBMIT TO LMS)

#### Notes:

- You must complete all assignments **on your own**.
- Plagiarism will not be tolerated. If detected, you may get a zero for the assignment.
- You can use either Oracle SQL Developer or **Oracle Live SQL** which is the platform that I recommend you to test your queries.
- As in Assignment 2, you will use the **HR schema**. Make sure you use the correct column names.
- **You are required to show your answers by putting the SCREENSHOTS OF THE WRITTEN QUERIES AND THEIR RESULTS IN THE DEVELOPMENT ENVIRONMENT. Writing queries in a plaintext file is not accepted.**
- ***Warning: Always read the entire question. You will lose points if you miss something.***

#### IMPORTANT!

- You should use the following script for working on the JOB\_GRADES table, if you have trouble accessing it.

```
CREATE TABLE JOB_GRADES
(
  GRADE_LEVEL VARCHAR2(3),
  LOWEST_SAL NUMBER,
  HIGHEST_SAL NUMBER,
  PRIMARY KEY (GRADE_LEVEL)
);

INSERT INTO JOB_GRADES VALUES('A', 1000, 2999) ;
INSERT INTO JOB_GRADES VALUES('B', 3000, 5999) ;
INSERT INTO JOB_GRADES VALUES('C', 6000, 9999) ;
INSERT INTO JOB_GRADES VALUES('D', 10000, 14999) ;
INSERT INTO JOB_GRADES VALUES('E', 15000, 24999) ;
INSERT INTO JOB_GRADES VALUES('F', 25000, 40000) ;
```

## Part 1 – Conditional Expressions and Group Functions (45 points)

1. Using the `DECODE` function, write a query that displays the grade of all employees based on the value of the `JOB_ID` column, using the following data: (10 points)

Job	Grade
AD_PRES	A
ST_MAN	B
IT_PROG	C
SA_REP	D
ST_CLERK	E
None of the above	0

2. Write a statement to determine the number of managers without listing them. Label the column Number of Managers. (10 points)

*Hint: Use the `MANAGER_ID` column to determine the number of managers.*

3. Write a statement to display the manager number and the salary of the highest-paid employee for that manager. Exclude anyone whose manager is not known. Exclude any groups where the maximum salary is \$7,000 or less. Sort the output in descending order of salary. (15 points)

4. Write a query to display the names and hire dates of all the employees who were hired after their managers along with their managers' names and hire dates. (10 points)

## **Part 2 – Joins (55 points)**

5. Write a statement to display the last name, job, department number, and the department name for all employees who work in Toronto. (15 points)

6. Write a statement to display employees' last name and employee number along with their manager's last name and manager number. Label the columns `Employee`, `Emp ID`, `Manager`, and `Mgr ID`, respectively. (15 points)

7. The HR department needs a report on job grades and salaries. To familiarize yourself with the `JOB_GRADES` table, first write a query to show the structure of the `JOB_GRADES` table. Then create a query that displays the last name, job, department name, salary, and grade for all employees. (15 points)

8. Write a query to display the names and hire dates of all the employees who were hired after their managers, along with their managers' names and hire dates **BY USING SUBQUERY**. (10 points)