

CENG364 – Database Applications

Assignment 3 (Due: Mon. Nov. 30 at 23:59:59, submit to LMS)

Note: You must complete all assignments **on your own**.

(For the below questions, assume that we are using the HR schema. Make sure you use the correct column names.)

Warning: Always read the entire question. You will lose points if you miss something.

Part 1 – Group Functions (26 points)

1. Write a statement to determine the number of managers without listing them. Label the column `Number of Managers`. (13 points)

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

2. 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. (13 points)

Part 2 - Joins (40 points)

3. Write a statement to display the last name, job, department number, and the department name for all employees who work in Toronto. (10 points)

4. 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. (10 points)

5. 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. (10 points)

6. 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 3 – General Questions (34 points)

7. The following query produces an error:

```
SELECT last_name AS "NAME", salary+100 AS NewSal, NewSal*12 AS "New AnnSal"
FROM employees;
```

What is the reason for the error? Explain. (10 points)

8. Write a query to display "How many characters are there in each employee's last name before the first 'e' or 'E' appears?" (12 points)

9. Write a query to display the number of people with the same job, for each job. (12 points)