CSC 355 Database Systems 501
Assignment 4 (1/29)

Due 11:59:00pm, Wednesday 2/5.

Reading: The posted Lecture 6, 7 and 8 Slides, and Sections 6.2-6.4 of Ullman/Widom. For next week: Sections 6.6 and 3.1-3.3 of Ullman/Widom.

Your task in this assignment is to write a set of SQL queries on a set of tables I supply.

1. First, download the script file Company2020.sql from the course web site and run it in SQLDeveloper to construct a database instance containing five tables: EMPLOYEE, DEPARTMENT, PROJECT, ASSIGNMENT, and DEPENDENT.

Inspect the tables and their schemas in SQLDeveloper so that you understand the structure of the database. I recommend that you sketch the schema of the database, including all primary keys and foreign keys, before you write any queries.

2. In a separate .sql file (do not modify Company2020.sql), write a script that contains the following eight SQL queries (in this order):

1. Display the number of employees who make at least $90,000, and the average salary among those employees.

2. For each department, give the department number and name and the largest salary of an employee in that department. Order the rows by the department number.

3. List the last names and salaries of all male employees in the Development department, ordered from the employee with the lowest salary to the employee with the highest salary.

4. Display the smallest salary paid to an employee working on the Automation project.

5. List, in alphabetical order, the names of all projects that Ahmed Salman works on, and the number of hours he works on each project.

6. List the IDs of all employees who are assigned to three or more projects, along with the number of projects each of them is assigned to.

7. Give the ID and full name of every employee who has a son, along with the employee's son's first name and age. Order the output by the son's age, from youngest to oldest.

8. For each project located in Pittsburgh, display the project number, project name, and the total number of hours that employees have been assigned to that project. List the projects from the one with the most total hours assigned to it to the one with the fewest.

(Any projects located in Pittsburgh with no employees working on them should be included in the output with a total of zero – if you get a NULL total instead, use the NVL function to replace it with a 0.)

Add a comment before each query in your script file to label the queries 1 through 8 (e.g., the comment -- 1 on a line before the first query, the comment -- 2 on a line before the second query, et cetera).

Run the script file containing your queries to verify that your results are correct.

3. Include a comment at the top of your script file giving your name, the course number and section, the assignment number, and the date of submission, e.g.:

/*
YourName
CSC 355 Section 501
Assignment 4
SubmissionDate, 2020
*/

4. Submit the .sql file containing your queries to the Assignment 4 submissions dropbox. You do not have to submit the output generated by the script. Do not submit Company2020.sql or include code from it in your submission -- your submitted file should contain only your queries and the requested comments.

Remarks:

1. For all assignments, it is your responsibility to make sure that the files you have uploaded are readable and in the correct locations. You should always check that you can successfully download your submitted files back from the course web site to be sure that they have been uploaded correctly.

2. As is the case for every assignment, all work must be completed individually – no collaboration between students or sharing of answers between students is permitted. Do not post this assignment to any website in search of answers, and do not consult posted answers on any website while completing the assignment. Your assignment must be your own individual work.

Eric J. Schwabe – 01/29/20