**COSC 344**
**Lab for Week 11**

## Overview

The purpose of this lab is to become familiar with the Oracle security, privileges and roles.

### Introduction

For this lab, an additional Oracle username has been set up. You access it with your normal Oracle username, but add a 1 (one) at the end. The password is initially set to cs followed by your student id. You can change it by typing at the SQL prompt:

ALTER USER *username* IDENTIFIED BY *password*;

For this lab to be successful, you must be careful to use the correct Oracle username when doing the exercises below.

### Set Up

Open two terminals windows. Place them side by side on the screen. If you want to work in a subdirectory, cd to it on both terminal windows.

In the left window, copy the file /coursework/344/pickup/oracle-sql/security.sql to your current directory. This file has code to create an *emp* and *dept* tables which are simpler versions of the *employee* and *department* tables which we have used during the semester. The relations are shown below.

```
EMP (fname, lname, ssn, salary, dno)

DEPT (dname, dnumber)
```

The data is the same except some salaries have been changed.

In the left window, type *sqlplus* and respond with your normal Oracle username. From now on, I will refer to this window as *you*.

In the right window, type *sqlplus* and respond with your Oracle username followed by a 1. From now on, I will refer to this window as *your friend*.

**Load New Tables**

In the left window, type *@security* to create the tables and load the data.

For each step below, work out the appropriate SQL statements on your own.

You will be alternating between doing work as *you* (left window) and as *your friend* (right window). Alternatively, you can pair up with a real friend and work together. Just decide which of you will be *you* and which will be *the friend*. ☺

| PART | YOU | YOUR FRIEND | COMMENTS |
|---|---|---|---|
| 1 | Grant your friend privilege to SELECT data from the *emp* table. | | |
| | | Test that you can SELECT data from *emp.* | NOTE-You must now preceed the table names with the username. For example, SELECT * FROM werstein.emp; |
| 2 | Let your friend update *dname* in *dept.* | | |
| | | Test that you can update the department name. Test to make sure you cannot update *dnumber* or anything in the *emp* table. | |
| 3 | Deny your friend access to the *emp* and *dept* tables. | | |
| | | Test that you can no longer access the tables. | |
| 4 | Create a role allowing anyone with the role to select data from the *emp* and *dept* tables. Then grant the role to your friend. | | |
| | | Test that you can SELECT from the *emp* and *dept* tables. | NOTE-Before you can do this, you must exit SQL and then type *sqlplus* and log into oracle as your friend again. Roles are assigned upon login and are not dynamic. |
| 5 | Figure out a way to let your friend easily see the names of employees and the name of their department. Implement it. | | HINT-Think about views. |
| | | Test that your solution works. | |
| 6 | Figure out a way to let your friend to see the names of the employees and their salaries, but only if the employee makes no more than 50,000. | | |
| | | Test that your solution works. | |

**Assessment: 12 marks**

Write down the SQL statement of each part for both you and your friend. These statements will be assessed in the labs in Week 12.