

**Australian National University
Department of Computer Science**

COMP2400/COMP6240

Tutorial/Laboratory Exercise - Week 4
More Oracle SQL, SQL*Plus and iSQL*Plus

Before Your Lab Session

Before coming to this lab session, you should work out on paper the answers to the database queries. If you do not yet have the complete example Student Enrolment database, use the instructions from the Lab Exercise for Week 2 to set it up.

You should bring with you the Student Course Enrolment example (COMP2400-2005-02) and the Simplified Syntax of SQL Commands (COMP2400-2005-03). The examples from the lectures will be helpful for this lab as will the examples in Ch 8 of the textbook.

Introduction

The previous lab exercise was designed primarily to make sure that everyone could access Oracle to carry out some simple queries. By this time, queries (a) through (f) from the first lab exercise should seem straightforward. (If not, NOW is the time to get some help; you can find Vicki's Office Hours via the COMP2400 Home Page.)

This week's exercise has more complex queries and invites you to discover some SQL*Plus features, and to try out a few of Oracle's many numerical and character functions.

Accessing Oracle's Online Documentation

Go to the COMP2400 Home Page and click on [Oracle Online Documentation](#). (The Oracle documentation in print form takes up a few metres of shelf space.) Have a quick look through the [list of books](#). The most relevant volumes have direct links from the COMP2400 Home Page. Select [Oracle9i SQL Reference](#). Scroll through the detailed Table of Contents. Take 5 minutes to have a quick look through the chapter on Functions..

Information about SQL*Plus commands can be found in the [SQL*Plus User's Guide and Reference](#) and the [SQL*Plus Quick Reference](#) volumes. In addition, SQL*Plus has a (limited amount of) on-line help in the form of the `help` command. Try `help help`, and `help index` for a list of topics.

After you have finished the rest of the lab, find the answers to the following questions.

1. How would you show the AVG mark rounded to the nearest whole number?
2. How would you display a result in the form Grade(Mark) e.g. CR(68)?
3. How can you ensure that Initials are printed as uppercase independently of how they were typed in?
4. How can you report a value of 'Unknown' for Grades which are NULL?
5. How can you display today's date?
6. How can you change the date format?
7. What is your Oracle username?

8. What time is recorded for a date value that was inserted with only day, month, year values given? Hint: Insert a row into your Paper table (for Assignment 1) with a SubDate and see what you get for the hours, minutes and seconds.

iSQL*Plus

Try out iSQL*Plus at <http://iwaki.anu.edu.au:7777/isqlplus>. You will need your Oracle Username and Password. You can discover what these are by connecting to Oracle with SQL*Plus and running the query

```
SELECT * FROM comp2400.MyOracleAccount
```

More SQL Exercises

You will need your own Student, Course and Enrolment tables (with data) for these exercises. Some of the queries were examples in the lectures. You can compare the answer you work out with the example in the notes - but work it out yourself first!

- List enrolments which have no Grade recorded.
- Report the number of courses offered by a particular Dept.
(One input parameter - department name - as given in the Course table)
- Report the total number of points offered by the COMM department.
- Report on the number of students enrolled in courses offered by each department. Give the count column a new name.
- Which department has the greatest number of students enrolled?
(Requires GROUP BY, HAVING and subquery.)
- Which students have NOT enrolled in COMP2400?
(Check that the result is actually correct. If it is not, make sure you understand why your query did not give the expected result and find out how to formulate the correct query.)
- List the names of COMP2400 students in alphabetical order.
Answer this query in two ways - first using a join, then using a subquery.
- How many points has each student accumulated? Points are counted only if a student has passed the course, *i.e.* received a Grade of HD, D, CR, P, or PS.

Submitting files

Use the **submit** command to submit the answers to (a), (d) and (g) in files **a.sql**, **d.sql**, **g.sql** .

The submit command is executed from the command line and has the form

```
submit <coursecode> <assignmentname> <filenames>
```

The assignment name for this lab is **labwk4**, so to submit (*e.g.*) **a.sql** and **g.sql**, type

```
submit comp2400 labwk4 a.sql g.sql
```

Check that the files you submitted have been recorded by typing

```
markshow comp2400 labwk4
```

Use `retrieve comp2400 labwk4 a.sql` to check that the version of **a.sql** that you submitted was the one you intended.

(COMP6240 students: Submit your files using the `comp6240` coursecode. Use `comp2400` for the `markshow` and `retrieve` commands – sorry about that.)

If you have difficulty submitting files, first check with your tutor that you are doing everything correctly, before seeing Vicki to check that there is no problem with your tutorial registration. **It will be your responsibility to submit assignment files correctly and on time.**

Extension Exercises

- (i) List the Course data so that a row fits on one line. (Use SQL*Plus **column** command. Try `help column`.)
- (j) List the names of students in the format Surname, FirstInitial.
- (k) Report the enrolment data with StudentId and Surname. Order the output by Surname. Skip a line between each student's enrolment data and suppress repeated printing of the StudentId and Surname. (Use SQL*Plus **break** command.)
- (l) How many years of enrolment data is stored in the Enrolment table?