



MONASH University

CSE9002
Database technology

Unit guide

Semester 2, 2008

Last updated : 31 Jul 2008

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CSE9002 Database technology - Semester 2 , 2008

Unit leader :

Campbell Wilson

Lecturer(s) :

Caulfield

- Campbell Wilson

Introduction

This 6 point unit serves as an introduction to database concepts and models. There is an emphasis on relational database management systems in particular. The unit will give students an understanding of the process involved in designing and implementing a relational database system.

Unit synopsis

Importance of data management, definitions, relational data model: attributes, domains, keys, base tables, languages; Database design, ER modelling, Data normalisation, SQL, Physical database design, Oracle considerations, database administration: optimisation, concurrency; non-relational data models, future trends.

Learning outcomes

At the completion of CSE9002, a student should:

- understand the motivations behind the development of database management systems.
- appreciate the underlying theoretical basis of the relational database model and how this model may be implemented in practice.
- understand the differences between non-relational database models and the relational database model.
- be able to apply logical and physical database design principles to a database implementation.
- be conversant with Structured Query Language (SQL).
- understand the processes involved in database administration, transaction management, concurrency control, restart and recovery.

Workload

For on campus students, workload commitments are:

- two-hour lecture and
- two-hour tutorial
- a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations

You will need to allocate up to 5 hours per week in for use of a computer, including time for newsgroups/discussion groups.

Off-campus students generally do not attend lecture and tutorial sessions, however, you should plan to spend equivalent time working through the relevant resources and participating in discussion groups each week.

Unit relationships

Prerequisites

None. Please refer to the Monash University handbook for further information.

Relationships

Please refer to the Monash University handbook for your course requirements.

CSE9002 is a core unit in the MAIT, GradDipComp and GradCertComp. It may also be counted towards certain other postgraduate degrees with permission of the course director. The unit is available for single unit enrolment, subject to approval.

This unit is currently formally prohibited in combination with: BUS2112, CFR2132, CFR2201, COT2132, COT2138, COT2180, COT3180, CSE2132, CSE2138, CSE2180, CSE3180, CSC3161 and COT7710

Students should always seek advice from a course advisor if there is any doubt as to whether the unit they are enrolling into may be counted towards their course.

Continuous improvement

Monash is committed to 'Excellence in education' and strives for the highest possible quality in teaching and learning. To monitor how successful we are in providing quality teaching and learning Monash regularly seeks feedback from students, employers and staff. Two of the formal ways that you are invited to provide feedback are through Unit Evaluations and through Monquest Teaching Evaluations.

One of the key formal ways students have to provide feedback is through Unit Evaluation Surveys. It is Monash policy for every unit offered to be evaluated each year. Students are strongly encouraged to complete the surveys as they are an important avenue for students to "have their say". The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

Student Evaluations

The Faculty of IT administers the Unit Evaluation surveys online through the my.monash portal, although for some smaller classes there may be alternative evaluations conducted in class.

If you wish to view how previous students rated this unit, please go to <http://www.monash.edu.au/unit-evaluation-reports/>

Over the past few years the Faculty of Information Technology has made a number of improvements to its courses as a result of unit evaluation feedback. Some of these include systematic analysis and planning of unit improvements, and consistent assignment return guidelines.

Monquest Teaching Evaluation surveys may be used by some of your academic staff this semester. They are administered by the Centre for Higher Education Quality (CHEQ) and may be completed in class with a facilitator or on-line through the my.monash portal. The data provided to lecturers is completely anonymous. Monquest surveys provide academic staff with evidence of the effectiveness of their teaching and identify areas for improvement. Individual Monquest reports are confidential, however, you can see the summary results of Monquest evaluations for 2006 at <http://www.adm.monash.edu.au/cheq/evaluations/monquest/profiles/index.html>

Unit staff - contact details

Unit leader

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Lecturer(s) :

Dr Campbell Wilson

Lecturer

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Teaching and learning method

Teaching and learning approaches:

A two-hour lecture per week will introduce concepts and cover material

A two-hour tutorial per week will require students to attempt exercises to help them understand lecture materials

Students are assessed on problem solving and database system implementation exercises as part of the assignments

Tutorial allocation

On-campus students should register for tutorials/laboratories using Allocate+.

Communication, participation and feedback

Monash aims to provide a learning environment in which students receive a range of ongoing feedback throughout their studies. You will receive feedback on your work and progress in this unit. This may take the form of group feedback, individual feedback, peer feedback, self-comparison, verbal and written feedback, discussions (on line and in class) as well as more formal feedback related to assignment marks and grades. You are encouraged to draw on a variety of feedback to enhance your learning.

It is essential that you take action immediately if you realise that you have a problem that is affecting your study. Semesters are short, so we can help you best if you let us know as soon as problems arise. Regardless of whether the problem is related directly to your progress in the unit, if it is likely to interfere with your progress you should discuss it with your lecturer or a Community Service counsellor as soon as possible.

Unit Schedule

Week	Topic	Key dates
1	Introduction	
2	Relational Data Model	
3	Database Design I	
4	Database Design II	
5	SQL I	
6	SQL II	
7	SQL III	
8	Physical Database Design I	Assignment 1 Due
9	Physical Database Design II/Oracle Considerations	
10	Database Administration/Advanced Topics	
11	Non-relational Databases	
Mid semester break		
12	Future Trends	Assignment 2 Due
13	Revision	

Unit Resources

Prescribed text(s) and readings

Please note, the following textbook is very useful not only for this unit but also for more advanced database units that may follow it in your course. However, given the expense of textbooks, please also bear in mind that for CSE9002 alone, many of the recommended readings are also sufficient on their own, as would be most introductory relational database textbooks.

Recommended textbook:

Connolly, T. and Begg, C., *Database Systems – A Practical Approach to Design, Implementation and Management, Third Edition (2002)*

Textbooks are generally available in the University library and at the University bookshop.

Recommended text(s) and readings

Date, C.J., *An Introduction to Database Systems* (7th edition)

NB: 5th and 6th editions of Date are also acceptable.

Elmasri, R. & Navathe, S.B. *Fundamentals of Database Systems*

Koch, G. & Loney, K. *Oracle 8 – The Complete Reference (Note: We use Oracle 10g)*

Pratt, P.J. and Adamski, J. J., *Database Systems – Management and Design*

McFadden, F.R. and Hoffer, J.A., *Database Management*

Required software and/or hardware

Microsoft Access and Oracle 10g will be used in the laboratory classes during the semester. Students do not need to purchase software for this unit.

Equipment and consumables required or provided

Students may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook.

Study resources

Study resources we will provide for your study are:

The unit website is at:

<http://beast.infotech.monash.edu.au/cse9002>

The website will at a minimum provide:

- Copies of the slides used in lectures (which may be provided after the lecture)
- Tutorial questions.

- A discussion group.

Online quizzes may also be available through the unit website.

Library access

The Monash University Library site contains details about borrowing rights and catalogue searching. To learn more about the library and the various resources available, please go to <http://www.lib.monash.edu.au>. Be sure to obtain a copy of the Library Guide, and if necessary, the instructions for remote access from the library website.

Monash University Studies Online (MUSO)

All unit and lecture materials are available through MUSO (Monash University Studies Online). Blackboard is the primary application used to deliver your unit resources. Some units will be piloted in Moodle. If your unit is piloted in Moodle, you will see a link from your Blackboard unit to Moodle (<http://moodle.monash.edu.au>) and can bookmark this link to access directly. In Moodle, from the Faculty of Information Technology category, click on the link for your unit.

You can access MUSO and Blackboard via the portal: <http://my.monash.edu.au>

Click on the Study and enrolment tab, then Blackboard under the MUSO learning systems.

In order for your Blackboard unit(s) to function correctly, your computer needs to be correctly configured.

For example:

- Blackboard supported browser
- Supported Java runtime environment

For more information, please visit: <http://www.monash.edu.au/muso/support/students/downloadables-student.html>

You can contact the MUSO Support by: Phone: (+61 3) 9903 1268

For further contact information including operational hours, please visit:
<http://www.monash.edu.au/muso/support/students/contact.html>

Further information can be obtained from the MUSO support site:
<http://www.monash.edu.au/muso/support/index.html>

Assessment

Unit assessment policy

To pass the unit, you **must**:

- score an average of at least 40% across both assignments **and**
- score at least 40% on the final exam **and**
- score at least 50% overall

Not fulfilling any one of the conditions above will cause you to fail the unit. If a student does not achieve 40% or more in the unit examination or the unit non-examination assessment then a mark of no greater than 44-N will be recorded for the unit.

Assignment tasks

• Assignment Task

Title : Assignment 1: Database Design

Description :

You will be required to perform a conceptual and logical modelling exercise for a given scenario. The detailed specification will be made available during the semester.

Weighting : 20%

Criteria for assessment :

You will be assessed on the faithfulness of your model to the scenario as well as on your creativity and originality.

Detailed criteria for assessment will be made available along with the specification.

Due date : This assignment is due in Week 8. The exact date will be advised via the unit website along with the specification.

• Assignment Task

Title : Assignment 2: Database Implementation

Description :

The second assignment requires you to implement a schema in Oracle and populate it with test data. A further requirement is the use of SQL to query your sample data.

A detailed specification will be made available during the semester.

Weighting : 15%

Criteria for assessment :

You will be assessed on your understanding of the scenario as well as on your judgement in the use of various oracle features used as part of the implementation. SQL queries are assessed on logical correctness

rather than efficiency, although well-constructed queries that are easier for the examiner to read and interpret may earn higher marks than convoluted queries that may work. Detailed criteria will be made available along with the specification.

Due date : The assignment is due in week 12. The exact date will be advised via the unit website along with the specification.

Examinations

- **Examination**

Weighting :

Length :

Type (open/closed book) :

- **Examination**

Weighting : 65%

Length : 2 hours

Type (open/closed book) : Closed book

Assignment submission

Assignments submission details will be provided along with the assignment specification.

Assignment coversheets

All assignment submissions should have completed Faculty of Information Technology coversheets attached to them. Coversheets can be obtained from: <http://infotech.monash.edu.au/resources/student/assignments/>

University and Faculty policy on assessment

Due dates and extensions

The due dates for the submission of assignments are given in the previous section. Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are seldom regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Late assignments are generally not accepted. If you have been severely affected by a significant event beyond your control, you may apply for an extension, noting the following:

*Requests for an extension must be made 48 hours prior to an assignment submission deadline and be accompanied by supporting documentation. **Making an application for an extension does not mean you have been granted one.** Until you receive communication from the lecturer saying that an extension has been granted, you must assume that you are required to submit your work by the due date.*

Late assignment

Unless an extension is granted, assignments submitted after the nominated due date and time will not be accepted, and you will receive 0% for the relevant assignment.

Return dates

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Assessment for the unit as a whole is in accordance with the provisions of the Monash University Education Policy at <http://www.policy.monash.edu/policy-bank/academic/education/assessment/>

We will endeavour to have assignment results made available to you within two weeks after assignment receipt. The first assignment will be returned to you during your tutorial. The second assignment will be made available for collection since assessment may continue past week 13.

Plagiarism, cheating and collusion

Plagiarism and cheating are regarded as very serious offences. In cases where cheating has been confirmed, students have been severely penalised, from losing all marks for an assignment, to facing disciplinary action at the Faculty level. While we would wish that all our students adhere to sound ethical conduct and honesty, I will ask you to acquaint yourself with Student Rights and Responsibilities (<http://www.infotech.monash.edu.au/about/committees-groups/facboard/policies/studrights.html>) and the Faculty regulations that apply to students detected cheating as these will be applied in all detected cases.

In this University, cheating means seeking to obtain an unfair advantage in any examination or any other written or practical work to be submitted or completed by a student for assessment. It includes the use, or attempted use, of any means to gain an unfair advantage for any assessable work in the unit, where the means is contrary to the instructions for such work.

When you submit an individual assessment item, such as a program, a report, an essay, assignment or other piece of work, under your name you are understood to be stating that this is your own work. If a submission is identical with, or similar to, someone else's work, an assumption of cheating may arise. If you are planning on working with

another student, it is acceptable to undertake research together, and discuss problems, but it is not acceptable to jointly develop or share solutions unless this is specified by your lecturer.

Intentionally providing students with your solutions to assignments is classified as "assisting to cheat" and students who do this may be subject to disciplinary action. You should take reasonable care that your solution is not accidentally or deliberately obtained by other students. For example, do not leave copies of your work in progress on the hard drives of shared computers, and do not show your work to other students. If you believe this may have happened, please be sure to contact your lecturer as soon as possible.

Cheating also includes taking into an examination any material contrary to the regulations, including any bilingual dictionary, whether or not with the intention of using it to obtain an advantage.

Plagiarism involves the false representation of another person's ideas, or findings, as your own by either copying material or paraphrasing without citing sources. It is both professional and ethical to reference clearly the ideas and information that you have used from another writer. If the source is not identified, then you have plagiarised work of the other author. Plagiarism is a form of dishonesty that is insulting to the reader and grossly unfair to your student colleagues.

Register of counselling about plagiarism

The university requires faculties to keep a simple and confidential register to record counselling to students about plagiarism (e.g. warnings). The register is accessible to Associate Deans Teaching (or nominees) and, where requested, students concerned have access to their own details in the register. The register is to serve as a record of counselling about the nature of plagiarism, not as a record of allegations; and no provision of appeals in relation to the register is necessary or applicable.

Non-discriminatory language

The Faculty of Information Technology is committed to the use of non-discriminatory language in all forms of communication. Discriminatory language is that which refers in abusive terms to gender, race, age, sexual orientation, citizenship or nationality, ethnic or language background, physical or mental ability, or political or religious views, or which stereotypes groups in an adverse manner. This is not meant to preclude or inhibit legitimate academic debate on any issue; however, the language used in such debate should be non-discriminatory and sensitive to these matters. It is important to avoid the use of discriminatory language in your communications and written work. The most common form of discriminatory language in academic work tends to be in the area of gender inclusiveness. You are, therefore, requested to check for this and to ensure your work and communications are non-discriminatory in all respects.

Students with disabilities

Students with disabilities that may disadvantage them in assessment should seek advice from one of the following before completing assessment tasks and examinations:

- Faculty of Information Technology Student Service staff, and / or
- your Unit Coordinator, or
- Disabilities Liaison Unit

Deferred assessment and special consideration

Deferred assessment (not to be confused with an extension for submission of an assignment) may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Information and forms for Special Consideration and deferred assessment applications are available at

<http://www.monash.edu.au/exams/special-consideration.html>. Contact the Faculty's Student Services staff at your campus for further information and advice.