



MONASH University

**FIT2010
Database**

Unit guide

Semester 1, 2009

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FIT2010 Database - Semester 1, 2009

Unit leader :

Lindsay Smith

Lecturer(s) :

Clayton

- David Green

Malaysia

- Elsa Phung

Introduction

Welcome to FIT2010 Database for Semester 1, 2009.

Databases are so widely used today that they can be found in organisations of all sizes ranging from large government agencies and business corporations to small businesses and even home use. Every day activities such as using a credit card, purchasing a product at a supermarket via a scanning checkout and internet purchases, involve application programs which consult a database to carry out tasks such as verifying a credit limit, identifying a Universal Product Code, listing the range of products available or recording an internet purchase.

FIT2010 will give you an understanding of the techniques which are used by IT professionals to design, implement and access data stored within a database.

This 6 point unit is a core unit within the Bachelor of Computer Science and the Bachelor of Software Engineering undergraduate degrees within the Faculty of IT.

Unit synopsis

This unit will provide an introduction to the concepts of database management. This will include planning, designing, using and implementing a data model using an enterprise-scale relational database system. Methods and techniques will also be presented to populate, retrieve, update and implement integrity features on data in the implemented database system.

Learning outcomes

At the completion of this unit you will have knowledge and understanding of:

- the major objectives of database technology;
- the relational model for databases and competing models;
- the phases of the database development life cycle and their correspondence to the phases of the system development lifecycle;
- the techniques and tools to design and implement a database suitable for an information system;
- a database retrieval and manipulation language (SQL);

- methods that can be put in place to permit efficient operation of a database;
- the role of a database administrator;

and you will have developed attitudes that enable you to:

- Appreciate the privacy issues relating to storage of data in a database.
- Practice ethical behaviour when developing, implementing and using a database.

Workload

For on campus students, the **weekly** workload commitments are:

- two hours of lectures,
- two hours of laboratory (requiring advance preparation), and
- eight hours of self directed study - this will include reading and computer based activities.

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

There are no prerequisites for this unit.

Relationships

FIT2010 is a core unit in the BCS and BSE degrees.

You may not study this unit and FIT1004, BUS3112, CPE2005, CSE2132, CSE2138, CSE2316, CSE3180, CSE3316, GCO2815, IMS1907, MMS2801 in your degree.

Continuous improvement

Monash is committed to 'Excellence in education' (Monash Directions 2025 - <http://www.monash.edu.au/about/monash-directions/directions.html>) 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. One of the key formal ways students have to provide feedback is through Unit Evaluation Surveys. The University's Unit Evaluation policy (<http://www.policy.monash.edu/policy-bank/academic/education/quality/unit-evaluation-policy.html>) requires that every unit offered is 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.

Faculties have the option of administering the Unit Evaluation survey online through the my.monash portal or in class. Lecturers will inform students of the method being used for this unit towards the end of the semester.

Student Evaluations

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

Improvements to this unit

During semester 2 2008 new assignment modes based on group work were refined and evaluated. These modes will be used for semester 1 2009.

Unit staff - contact details

Unit leader

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Deputy Head of School
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Lecturer(s) :

Professor David Green

Professor
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Ms Elsa Phung

Teaching and learning method

The unit will be delivered via lectures and laboratories.

Lecture: During the lecture, your lecturer will introduce key theoretical concepts and demonstrate various approaches to database tasks. The time in lectures is quite brief, please ensure you gain the best advantage from this time by:

- Prior to the lecture
 - ◆ reading the study guide for the appropriate week, and
 - ◆ downloading and reading the lecture notes,
- During the lecture
 - ◆ annotate a printed set of lecture notes as the lecture proceeds, and
 - ◆ **participate, question, seek clarification**
- After the lecture
 - ◆ read over you notes and make sure you understand the concepts
 - ◆ **seek help** if you are unsure

Laboratory: The labs consist of a set of graded exercises which allow you to put the theory presented in the lecture to work in creating, designing and using databases. The labs will also include issues that you will need to discuss with your fellow classmates and tutors. Before the lab you should carefully read through the lab activities. The teaching staff will presume that you have completed all the posted lab tasks each week and build subsequent activities on this assumption. For this reason it is very important that you complete all the posted tasks (**please note you will not be able to complete them in the allocated 2 hours, these will be completed in your self study 8 hours**). Given the cumulative nature of the learning, it is easy to fall behind if either you do not complete the

required work or fail to understand key tasks/concepts. If you are having problems with lab exercises, please ensure you **speak to your tutor** and gain some assistance.

Tutorial allocation

On-campus students should register for labs 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	Study guide	Key dates
1	Introduction to Database Systems	Study Guide 1	
2	The Relational Database Model	Study Guide 2	
3	The Database Design Lifecycle	Study Guide 3	Assignment 1A Due (Friday)
4	Conceptual Design	Study Guide 4	
5	Normalisation and Logical Design	Study Guide 5	
6	Database Design Case Study	Study Guide 6	
Mid semester break			
7	Structured Query Language (SQL): DML	Study Guide 7	Assignment 1B Due (Friday)
8	Structured Query Language (SQL): DML Continued	Study Guide 8	
9	Structured Query Language (SQL): DDL and DCL	Study Guide 9	
10	Transaction Management	Study Guide 10	
11	Physical Design	Study Guide 11	
12	Database Administration	Study Guide 12	Assignment 2 Due (Friday)
13	Revision		

Unit Resources

Prescribed text(s) and readings

Rob, P. and Coronel, C., *Database Systems* 8th Edn., Thomson Course Technology, 2007

Text books are available from the [Monash University Book Shops](#). Availability from other suppliers cannot be assured. The Bookshop orders texts in specifically for this unit. You are advised to purchase your text book early.

Recommended text(s) and readings

Hoffer, J.A., Prescott, M.B. and McFadden, F.R., *Modern Database Management* 8th Edn., Pearson Prentice Hall, 2006

Required software and/or hardware

This unit will make use of the Oracle 10G database running on the Monash ITS server llama.its.monash.edu.au. All students will have an account on this sever which will suffice for all database work this semester.

Although it is not required, if students wish to run a database server at home they can download Oracle XE from the technet site:

- <http://www.oracle.com/technology/software/products/database/xe/index.html>

Please note:

1. registration (free) is required, and
2. this is a large download (around 200Mb) and **should not be attempted** without first consulting your campus lecturer.

The client software for accessing Oracle (SQLDeveloper) will be available in the labs. It will also be available via a download from the Moodle site for installation at home. SQLDeveloper is also available, after registration (free), from the technet site:

- <http://www.oracle.com/technology/software/products/sql/index.html>

Equipment and consumables required or provided

On-campus students, and those studying at supported study locations 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:

- Weekly detailed lecture notes outlining the learning objectives, discussion of the content, required readings and exercises;
- Weekly laboratory tasks and exercises with sample solutions provided two weeks later;
- Assignment specifications and sample solutions;
- A sample examination and suggested solution
- Access to past examination papers;
- Discussion groups;
- This Unit Guide outlining the administrative information for the unit;
- The unit web site on Moodle, where resources outlined above will be made available.

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>.

The Educational Library and Media Resources (LMR) is also a very resourceful place to visit at <http://www.education.monash.edu.au/library/>

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

The unit is assessed with two assignments and a three hour closed book examination. To pass the unit you must:

- achieve no less than 40% of the marks available for unit's total non-examination assessment,
- achieve no less than 40% of the marks available in the unit's examination, and
- obtain an overall unit result of at least 50%

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 44% then a mark of 44-N will be recorded for the unit.

Assignment tasks

- **Assignment Task**

Title : Database Design

Description :

Students will be supplied with a case study and asked to model this using Entity Relationship modelling. You will test your design by implementing your final logical ERD in Oracle via a set of 'create table' statements.

Weighting : 15%

Criteria for assessment :

These will be supplied as part of the assignment task.

Due date : Friday 24th April 2009

- **Assignment Task**

Title : Database Implementation

Description :

Students will be supplied with a database design via a schema file and asked to create the database under Oracle. The created database will be populated with appropriate student generated data and then used to develop a set of SQL queries and triggers.

Weighting : 20%

Criteria for assessment :

These will be supplied as part of the assignment task.

Due date : Friday 29th May 2009

- **Assignment Task**

Title : Relational Algebra

Description :

Students will use Relational Algebra commands to manipulate database data.

Weighting : 5%

Criteria for assessment :

These will be supplied as part of the assignment task

Due date : Friday 20th March 2009

Examinations

• **Examination 1**

Weighting : 60%

Length : 3 hours

Type (open/closed book) : closed book

Assignment submission

Refer to your campus web site under the unit MUSO site for details

Assignment coversheets

Assignment coversheets are available as follows:

- for hard copy submissions - via the "Student assignment coversheets" (<http://infotech.monash.edu.au/resources/student/assignments/>) page on the faculty website
- for Moodle online based submissions - coversheets will be provided electronically on the Moodle/blackboard system

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.

Requests for extensions must be made to the unit lecturer at your campus at least two days before the due date. You will be asked to forward original medical certificates in cases of illness, and may be asked to provide other forms of documentation where necessary. A copy of the email or other written communication of an extension must be attached to the assignment submission.

Late assignment

Assignments received after the due date will be subject to a penalty of 5% per day, including weekends. Assignments received later than one week (seven days) after the due date will not normally be accepted. In some cases, this period may be shorter if there is a need to release sample solutions.

The only exception to this is in the case of illness or other serious cause. In any such cases, proper third party documentation (e.g. a doctor's certificate) will have to be supplied.

This policy is strict because comments or guidance will be given on assignments as they are returned, and sample solutions may also be published and distributed, after assignment marking or with the returned 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/>

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 the University Plagiarism policy and procedure (<http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html>) which applies to students detected plagiarising.

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.