FIT4038
Database management and implementation

Unit Guide

Semester 1, 2013

Last updated: 04 Mar 2013

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FIT4038 Database management and implementation - Semester 1, 2013

This unit looks at the design and implementation issues of database management systems. Advanced database design using the object-relational approach and multi-dimensional database design are explored. Record, file and index structures are dealt with at the basic level. Higher level details of consistency, atomicity and durability are introduced along with modern trends in databases.

Mode of Delivery

Caulfield (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload requirements

Students will be expected to spend a total of 12 hours per week during semester on this unit as follows:

For on-campus students:
Lectures: 2 hours per week
Tutorials/Lab Sessions: 2 hours per week per tutorial
and up to an additional 8 hours in some weeks for completing lab and project work, private study and revision.

Unit Relationships

Prohibitions

FIT3118, CSE3000

Prerequisites

FIT9019 or FIT9003
Knowledge of relational database principles, including SQL

Chief Examiner

Associate Professor David Taniar

Campus Lecturer

Caulfield

Associate Professor David Taniar

Tutors

Caulfield

Jason (Kefeng Xuan)

Sultan Alamri

Academic Overview

Learning Outcomes

At the completion of this unit students will be able to:

- understand object-relational database design;
- understand multi-dimensional database design;
- understand query optimisation and its impact on programming;
- understand the database management systems recovery, concurrency, and transaction management mechanisms;
- understand database trends and current research directions in database management;
- use design a complex database system; and
- use a database programming language to access a relational database system.

Unit Schedule

Week	Activities	Assessment
0	Register for tutorials, download/install the necessary software	No formal assessment or activities are undertaken in week 0
1	Multidimensional Database Design: Introduction	
2	Multidimensional Database Design: Modelling	
3	Multidimensional Database Design: Modelling (Advanced)	
4	Multidimensional Database Design: Queries	
5	Multidimensional Database Design: Dimension Modelling	
6	Multidimensional Database Design: Bridges and Multivalued	
7	Multidimensional Database Design: Slowly Changing Dimensions	Class Test: Wednesday, 24 April 2013, 2-4pm
8	Multidimensional Database Design: Fact Modelling	
9	Physical Database Design	
10	Physical Database Design	
11	Semi-structured Database Design and Storage	Assignment due date: Friday, 24 May 2013, 6pm
12	Semi-structured Database Design and Storage	
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your learning system.

Assessment Summary

Examination (3 hours): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
Class Test	10%	Wednesday, 24 April 2013, 2-4pm
Assignment	30%	Friday, 24 May 2013, 6pm
Examination 1	60%	To be advised

Teaching Approach

Lecture and tutorials or problem classes

This teaching and learning approach provides facilitated learning, practical exploration and peer learning.

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles
(http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at
http://lib.monash.edu/tutorials/citing/

Assessment Tasks

Participation

- **Assessment task 1**

    Title:
    Class Test
    Description:
    Multidimensional database design test
    Weighting:
    10%
    Criteria for assessment:
    Students will be assessed on their understanding of multidimensional design,
    object-relational design, and physical database design.
    Due date:
    Wednesday, 24 April 2013, 2-4pm

- **Assessment task 2**

    Title:
    Assignment
    Description:
    Students will develop a database design incorporating multidimensional design, temporal
    design, and query optimization. A case study will be given as well.

    Weighting:
    30%
    Criteria for assessment:
    Students will be assessed on their understanding of multidimensional design, and physical
    database design.
    Due date:
    Friday, 24 May 2013, 6pm

Examinations

Assessment Requirements

- **Examination 1**

  Weighting:
  60%
  Length:
  3 hours
  Type (open/closed book):
  Closed book
  Electronic devices allowed in the exam:
  None

Learning resources

Reading list

Database Systems: Design, Implementation and Management, Rob, and Coronel, 8th Edition, Course Technology, 2007, **chapter on Data Warehousing**

Fundamentals of Database Systems, Elmasri, and Navathe, 5th Edition, Addison Wesley, 2007, **chapter on Indexing**

Object-Oriented Oracle, Rahayu, Taniar, and Pardede, CyberTech, 2006

Database System Concepts, Silberschatz, Korth, and Sudarshan, 5th Edition, McGraw Hill, 2006

Monash Library Unit Reading List
http://readinglists.lib.monash.edu/index.html

Feedback to you

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments
- Solutions to tutes, labs and assignments

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process:
http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html.

Returning assignments

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

Assignment submission

It is a University requirement (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html) for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at http://www.infotech.monash.edu.au/resources/student/forms/. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an online quiz).

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

Required Resources

Please check with your lecturer before purchasing any Required Resources. Limited copies of prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

You will need to access to Oracle DBMS.

On-campus students may use this software which is installed in the computing labs.

Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook.

Other Information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at:
www.policy.monash.edu.au/policy-bank/academic/education/index.html

Key educational policies include:

- Plagiarism;
  http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html
- Assessment in Coursework Programs;
  http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-po
- Special Consideration;
  http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.ht
- Grading Scale;
  http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html
- Discipline: Student Policy;
  http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html
- Academic Calendar and Semesters; http://www.monash.edu.au/students/dates/
- Orientation and Transition; http://intranet.monash.edu.au/infotech/resources/students/orientation/
- Academic and Administrative Complaints and Grievances Policy;
  http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.h
- Code of Practice for Teaching and Learning;
  http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tea

Graduate Attributes Policy

http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.h

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at http://www.monash.edu.au/students. For Sunway see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to www.lib.monash.edu.au or the library tab in my.monash portal for more information. At Sunway, visit the Library and Learning Commons at http://www.lib.monash.edu.my/. At South Africa visit http://www.lib.monash.ac.za/.

Disability Liaison Unit

Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis.

Website: http://www.monash.edu/equity-diversity/disability/index.htmlTelephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Commuity Services at 03 55146018 at SunwayEmail: dlu@monash.eduDrop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through the Student Evaluation of Teaching and Units (SETU) survey. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, see:

www.monash.edu.au/about/monash-directions and on student evaluations, see:
www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this Unit

Student feedback has shown this unit is well structured and no changes have been required for this semester.

If you wish to view how previous students rated this unit, please go to
https://emuapps.monash.edu.au/unitevaluations/index.jsp