FIT5137
Database analysis and processing

Unit Guide

Summer semester, 2014

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FIT5137 Database analysis and processing - Summer semester, 2014

This unit looks at the design and implementation issues of database management systems. Advanced database design using multi-dimensional database design and semi-structured database design are explored. Online analytical query language will be explored in the context of multi-dimensional database design. Query optimisation and tuning will be explored, as well as semi-structure database design and query processing.

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

• 2 hours of lectures
• One 2-hour laboratory

(b.) Study schedule for off-campus students:

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

(c.) Additional requirements (all students):

• A minimum of 8 hours independent study per week for completing lab and project work, private study and revision.

Unit Relationships

Prohibitions

FIT4038

Prerequisites

(FIT5132 or FIT9003 or FIT9019) or equivalent
Knowledge of relational database principles, including SQL.

Chief Examiner

Associate Professor David Taniar

Campus Lecturer
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

In response to the students' comments last semester, particularly the misalignment of the last topic on XML to data warehousing, the sub-topic of XML has now been replaced by advanced topics of data warehousing.

If you wish to view how previous students rated this unit, please go to
Academic Overview

Learning Outcomes

On successful completion of this unit students should be able to:

- design multi-dimensional databases;
- use fact and dimensional modelling;
- implement online analytical query language;
- explain query optimisation and its impact on multi-dimensional design.
## Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No formal assessment or activities are undertaken in week 0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Multidimensional Database Design: An Overview</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Multidimensional Database Design: Modelling</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Multidimensional Database Design: Modelling (Advanced)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Multidimensional Database Design: Bridge Tables</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Multidimensional Database Design: Bridge Tables and Temporal</td>
<td>Class Test: Monday 1-Dec-2014</td>
</tr>
<tr>
<td>6</td>
<td>Multidimensional Database Design: Temporal</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Physical Database Design: Queries</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Physical Database Design: Query Processing</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Physical Database Design: Query Tuning</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Physical Database Design: Query Tuning</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Multidimensional Database Design: Advanced Topics</td>
<td>Assignment due date: Friday 12-Dec-2014, 3pm</td>
</tr>
<tr>
<td>12</td>
<td>Multidimensional Database Design: Advanced Topics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SWOT VAC</td>
<td>No formal assessment is undertaken in SWOT VAC</td>
</tr>
</tbody>
</table>

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

## Teaching Approach

**Lecture and tutorials or problem classes**

This teaching and learning approach helps students to initially encounter information at lectures, discuss and explore the information during tutorials, and practice in a hands-on lab environment.

## Assessment Summary

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

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Test</td>
<td>10%</td>
<td>Monday, 1-Dec-2014</td>
</tr>
<tr>
<td>Assignment</td>
<td>30%</td>
<td>Friday, 12-Dec-2014, 3pm</td>
</tr>
<tr>
<td>Examination 1</td>
<td>60%</td>
<td>To be advised</td>
</tr>
</tbody>
</table>
Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

Academic Integrity - Please see resources and tutorials at
http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/

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: Monday, 1-Dec-2014

• 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, 12-Dec-2014, 3pm

Examinations

• Examination 1
  
  Weighting: 60%
  
  Length: 3 hours
Assessment Requirements

**Type (open/closed book):**
Closed book

**Electronic devices allowed in the exam:**
None

### Learning resources

#### Reading list


Monash Library Unit Reading List (if applicable to the unit)
http://readinglists.lib.monash.edu/index.html

Faculty of Information Technology **Style Guide**

### Feedback to you

Examination/other end-of-semester assessment feedback may take the form of feedback classes, provision of sample answers or other group feedback after official results have been published. Please check with your lecturer on the feedback provided and take advantage of this prior to requesting individual consultations with staff. If your unit has an examination, you may request to view your examination script booklet, see
http://intranet.monash.edu.au/infotech/resources/students/procedures/request-to-view-exam-scripts.html

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.monash.edu.au/exams/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/student-academic-integrity-managing-plagiarism-collusion-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). Please note that it is your responsibility to retain copies of your assessments.

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.
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:

- Student Academic Integrity Policy and Student Academic Integrity: Managing Plagiarism and Collusion Procedures; http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-policy.html
- Special Consideration; http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.html
- 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/

Faculty resources and policies

Important student resources including Faculty policies are located at http://intranet.monash.edu.au/infotech/resources/students/

Graduate Attributes Policy

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

Student Charter


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 Malaysia 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 Malaysia, 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.html
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at Malaysia
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus