FIT9132 Introduction to databases - Semester 2, 2015

This unit will introduce the concept of data management in an organisation through relational database technology. Theoretical foundation of relational model, analysis and design, implementation of relational database using SQL will be covered.

Mode of Delivery

- Caulfield (Day)
- Caulfield (Online)
- Malaysia (Evening)

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 lab 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.

See also Unit timetable information

Unit Relationships

Prohibitions

FIT9003, FIT9019, FIT5132

Chief Examiner

Dr Maria Indrawan-Santiago

Campus Lecturer
Caulfield

Maria Indrawan-Santiago
Consultation hours: Will be announced in Moodle.

Lindsay Smith
Consultation hours: Will be announced in Moodle.

Malaysia

Mohammad Reza Zare
Consultation hours: Will be announced in Moodle.

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

Based on previous student feedback this unit is well structured and no changes have been made 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
Academic Overview

Learning Outcomes

At the completion of this unit, students should be able to:

• explain the motivations behind the development of database management systems;
• describe the underlying theoretical basis of the relational database model and apply the theories into practice;
• evaluate several design options and construct a database design;
• develop a database based on a sound database design;
• construct queries that meet user requirements;
• contrast the differences between non-relational database models and the relational database model.
Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Introduction to database</td>
<td>No formal assessment or activities are undertaken in week 0</td>
</tr>
<tr>
<td>1</td>
<td>Relational Model</td>
<td>Pre-lecture Quiz Questions due weekly prior to the lecture (Weeks 2 to 11), Peer Instruction Participation due weekly (Weeks 2 to 11)</td>
</tr>
<tr>
<td>2</td>
<td>SQL Data Definition</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>SQL Query 1 - single and multiple tables retrieval</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>SQL Query 2 - aggregate function and group by clause</td>
<td>Assignment 1 due, Friday, the 28th August, 10 PM AEST</td>
</tr>
<tr>
<td>5</td>
<td>SQL Query 3 - subquery and Oracle function</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Database Design 1 - Design Process and Conceptual Modeling</td>
<td>Assignment 2 due, Friday, the 18th September, 10 PM AEST</td>
</tr>
<tr>
<td>7</td>
<td>Database Design 2 - Logical Modelling</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Database Design 3 - Normalisation</td>
<td>Assignment 3 Part A due, Friday, the 9th October, 10 PM AEST</td>
</tr>
<tr>
<td>9</td>
<td>PL/SQL Triggers</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Transactions Management and Database Maintenance</td>
<td>Assignment 3 Part B due, Tuesday, the 20th October, 10 PM AEST</td>
</tr>
<tr>
<td>11</td>
<td>Current trends in database management and exam preparation</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

Peer assisted learning

In this unit, we will use the Peer Assisted learning approach. To maximise the learning experience for students in this approach, students are expected to read the suggested sections from the textbook prior to attending the lecture sessions. The preparation prior to the lecture is CRUCIAL to the successful participation of students in peer assisted learning during the lecture sessions and getting most of the learning that happens during the lecture.

The concepts and knowledge learnt through self-study prior to the lecture and the lecture sessions will be emphasized and put into practise during the tutorial classes. Students are expected to complete a
number of questions and practical exercises during tutorial classes.

**Assessment Summary**

Examination (2 hours): 50%; In-semester assessment: 50%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-lecture Quiz Questions</td>
<td>5%</td>
<td>Weekly prior to the lecture (Weeks 2 to 11)</td>
</tr>
<tr>
<td>Peer Instruction Participation</td>
<td>5%</td>
<td>On campus: during weekly lectures (Weeks 2 to 11), off campus: weekly on Wednesday (Weeks 2 to 11)</td>
</tr>
<tr>
<td>Assignment 1 - Data Definition and Data Manipulation</td>
<td>10%</td>
<td>Week 5, Friday 10 PM AEST</td>
</tr>
<tr>
<td>Assignment 2 - SQL Data Retrieval</td>
<td>10%</td>
<td>Week 8, Friday, 10 PM AEST</td>
</tr>
<tr>
<td>Assignment 3 Part A - Initial Conceptual Design</td>
<td></td>
<td>Week 10, Friday 10 PM AEST</td>
</tr>
<tr>
<td>Assignment 3 Part B - Full Design</td>
<td>20%</td>
<td>Week 12, Tuesday, 10 PM AEST</td>
</tr>
<tr>
<td>Examination 1</td>
<td>50 %</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: Pre-lecture Quiz Questions
  Description: There will be weekly quiz posted in Moodle from weeks 2 to 11. The due date and time will be posted in Moodle. In general, the closing time will be 2 hours prior to lecture.
  Weighting: 5%
  Criteria for assessment: Correctness of the answers. The average mark of all the quizzes will be taken at the end of the semester.
  Due date: Weekly prior to the lecture (Weeks 2 to 11)

• Assessment task 2

  Title: Peer Instruction Participation
  Description:
  On campus students:
  Active participation in lecture sessions using the response systems is expected. 5% of the final marks is allocated for this participation. The mark will be allocated based on the percentage of attended lecture sessions from week 2 to 11 (10 weeks). A student is considered attending the lecture if he/she provided responses at least 50% to the available questions on that session.
  Off campus (ONLINE) students:
  Throught the semester, students are expected to submit their answer to a selected weekly (from week 2 to 11) tutorial question to the discussion forum. The weekly due date will be announced in Moodle. 5% of the final marks is allocated for this participation. The mark will be allocated based on the number of submitted work and to certain degree the quality of the attempt.
This assessment relates to unit learning outcome 1, 2, 5, 6.

**Weighting:**
5%

**Criteria for assessment:**

**On Campus students:**

Students' answers during the peer instruction session will not be graded based on correctly answering questions. The grade will be based on participation. A percentage of total attendance of the lecture sessions as recorded by the system will be counted at the end of the semester.

**Off campus (ONLINE) students:**

The submitted answer to the weekly tutorial will be checked. The grade will be based on the quality of the attempt. We don't expect students to get the perfect answer but mark will be awarded when the answer shows a genuine attempt to understand the topic and answer the question.

**Due date:**
On campus: during weekly lectures (Weeks 2 to 11), off campus: weekly on Wednesday (Weeks 2 to 11)

**Assessment task 3**

**Title:**
Assignment 1 - Data Definition and Data Manipulation

**Description:**
Given a database and sample data, students will be required to use Oracle to create tables and populating the tables using appropriate SQL statements.

This assessment relates to unit learning outcomes 3 and 4.

**Weighting:**
10%

**Criteria for assessment:**

Task Criteria:

♦ Correct application of SQL statements to create table according to a given database design.
♦ Correct application of SQL statements to populate the tables using some sample data.
♦ Correct application of SQL statements to make changes to the data according to specification.

**Due date:**
Week 5, Friday 10 PM AEST

**Assessment task 4**

**Title:**
Assignment 2 - SQL Data Retrieval

**Description:**
Students will be asked to write SQL statements to retrieve data from database.

This assessment relates to unit learning outcome 5.
Assessment Requirements

Weighting:
10%

Criteria for assessment:
Task Criteria:

♦ Correctness of the SQL statement in retrieving the required data.
♦ Appropriate use of SQL constructs.

Due date:
Week 8, Friday, 10 PM AEST

• Assessment task 5

Title:
Assignment 3 Part A - Initial Conceptual Design

Description:
Students will be supplied with a case study and asked to model this using Entity Relationship modelling. This part of assignment 3 will require the submission of a "beginning" conceptual design.

This assessment relates to unit learning outcome 4 and 5.

Weighting:
Hurdle to the submission of Assignment 3 Part B

Criteria for assessment:
Student designs will not be graded. Tutors will discuss with each student individually during tutorials their submitted design, against the case study, as a first stage of the database design task. This task is a hurdle requirement, students who do not submit this task will not be able to submit assignment 3 Part B.

Due date:
Week 10, Friday 10 PM AEST

• Assessment task 6

Title:
Assignment 3 Part B - Full Design

Description:
Based on the feedback from assignment 3 Part A and the supplied case study, students will be required to complete the database design and produce a logical model. The final design will be tested by implementing the logical ERD in Oracle via a set of 'create table' statements.

This assessment relates to unit learning outcome 4 and 5.

Weighting:
20%

Criteria for assessment:
Task Criteria:

♦ Correct application of normalisation process with use of dependency diagrams at each normal form
♦ Correct Logical ERD model created including - entities, PK's, attributes, relationships (connectivity and participation)
♦ Generated Oracle schema file executes correctly against Oracle to produce valid database structure

Due date:
Week 12, Tuesday, 10 PM AEST
Examinations

- Examination 1

  **Weighting:**  
  50 %

  **Length:**  
  2 hours

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

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

  **Remarks:**  
  This assessment relates to unit learning outcomes 1, 2, 3, 4, 5 and 6

Learning resources

Monash Library Unit Reading List (if applicable to the unit)  
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
- Quiz results
- 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 electronic submission). 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.

Prescribed text(s)

Limited copies of prescribed texts are available for you to borrow in the library.


Recommended Resources

This unit will make use of the Oracle 11G database running on the Monash ITS server hippo.its.monash.edu.au. All students will have an account on this server 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 (eXpress Edition) from the unit Moodle site or directly from the Oracle technet site:


Please note:

1. for technet, 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:


Additional subject costs

On-Campus students are required to purchase a Turning Point clicker from the Campus Bookstore or directly from the Australian Distributor.
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

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