FIT1004
Data management

Unit Guide

Semester 1, 2014

Last updated: 24 Feb 2014

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FIT1004 Data management - Semester 1, 2014

This unit will provide an introduction to the concepts of database design and usage and the related issues of data management. Students will develop skills in planning, designing, and implementing a data model using an enterprise-scale relational database system (Oracle). Methods and techniques will also be presented to populate, retrieve, update and implement integrity features on data in the implemented database system.

Manipulation of a database necessarily raises issues of data collection/creation and management, data rights (ownership, copyright, access, privacy etc) and data curation, which this unit will also address.

Mode of Delivery

Caulfield (Day)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

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

- Two hours lectures
- Two hours laboratories

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

- Off-campus students generally do not attend lecture, tutorial and laboratory 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.

Additional workload requirements

Pre-lecture reading is a wise thing for all students to do.

Unit Relationships

Prohibitions

BUS3112, CPE2005, CSE2132, CSE2138, CSE2316, CSE3180, CSE3316, FIT2010, GCO2815, IMS1907, IMS2112, MMS2801

Chief Examiner

Dr Maria Indrawan-Santiago

Campus Lecturer

Caulfield

Maria Indrawan-Santiago

Consultation hours: To 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 considered to be 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 will have:A 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 issues related to data creation and management, data rights and data curation;
- the techniques and tools to design and implement a database suitable for an information system;
- a database retrieval and manipulation language;
- methods to put in place physical structures to permit efficient operation of a database;
- the role of a database administrator.

Developed attitudes that enable them to:

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

Unit Schedule

Week	Activities	Assessment
0	Please check the Moodle 2 site: http://moodle.vle.monash.edu/	No formal assessment or activities are undertaken in week 0
1	Introduction to Data Management and Peer Instruction	Peer Instruction Participation and Quiz Completion will be due throughout the semester
2	Relational Data Model	
3	SQL data definition and manipulation	
4	SQL Query 1 - single table and multi-tables retrieval	
5	SQL Query 2 - aggregate functions and group by clause	Unit Test 1 - SQL Data definition and data manipulation
6	SQL Query 3 - subquery and Oracle functions	
7	Oracle Triggers	
8	Conceptual Modelling	Unit Test 2 - SQL Query 1, 2 and 3
9	Logical and Physical Design	
10	Normalisation	Assignment 1 Part A: Conceptual Design due 10 PM Friday, 16th May 2014
11	Transaction Management and database maintenance	
12	Current trends in data management technology and exam preparation	Assignment 1 Part B: Full Database Design due 10 PM Friday, 30th May 2014
	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.

Teaching Approach

Peer assisted learning

This teaching and learning approach provides facilitated learning, practical exploration and peer learning, where you are required to prepare for and participate in all activities in order for you to achieve a successful outcome in this unit.

Assessment Summary

Examination (3 hours): 50%; In-semester assessment: 50%

Assessment Task	Value	Due Date
Pre-lecture online quizzes	5%	Weekly. The exact due date will be

		announced as Moodle's quiz notification.
Peer Instruction Participation in Lecture Sessions	5%	Weekly. Lecture sessions in week 2-11.
Unit Test 1 - SQL Data definition and data manipulation	10%	Tutorial classes in week 5.
Unit Test 2 - SQL Query 1, 2 and 3	15%	Tutorial classes in week 8.
Assignment 1 Part A: Initial Conceptual Design	Hurdle to the submission of Assignment 1 Part B	10 PM, Friday 16th May 2014
Assignment 1 Part B: Full database design	15%	10 PM, Friday 30th May 2014
Examination 1	50%	To be advised

Assessment Requirements

Assessment Policy

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

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 online quizzes
    Description:
    Students will be asked to complete online quizzes in Moodle based on the prescribed
    reading of the week.
    Weighting:
    5%
    Criteria for assessment:
    The average marks across a number of quizzes from week 2 to week 12.
    Due date:
    Weekly. The exact due date will be announced as Moodle's quiz notification.

- **Assessment task 2**

    Title:
    Peer Instruction Participation in Lecture Sessions
    Description:
    Students participation through the response gathering system will be recorded.
    Weighting:
    5%
    Criteria for assessment:
    Students' answers during the peer instruction session will not be graded based on
    correctly answering questions. The grade will be based on participation. **A full mark will
    be awarded if student answers at least 80% of the questions throughout the
    semester. 0 mark will be awarded if student answers less than 80% of total
    questions presented in the semester during lecture.**
    Due date:
    Weekly. Lecture sessions in week 2-11.

- **Assessment task 3**

    Title:
    Unit Test 1 - SQL Data definition and data manipulation
    Description:
    Given a database design and sample data, students will be required to create tables and

populating the tables using appropriate SQL statements.

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.

Due date:

Tutorial classes in week 5.

- **Assessment task 4**

Title:

Unit Test 2 - SQL Query 1, 2 and 3

Description:

Student will be asked to write SQL statements to retrieve data from database.

Weighting:

15%

Criteria for assessment:

Task Criteria:

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

Due date:

Tutorial classes in week 8.

- **Assessment task 5**

Title:

Assignment 1 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 1 will require the submission of a "beginning" conceptual design.

Weighting:

Hurdle to the submission of Assignment 1 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 1 Part B.

Due date:

10 PM, Friday 16th May 2014

- **Assessment task 6**

Title:

Assignment 1 Part B: Full database design

Description:

Based on the feedback from assignment 1 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.

Please note that this assignment will *not be available* unless you have already submitted assignment 1 Part A.

Weighting:

15%

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:

10 PM, Friday 30th May 2014

Examinations

- **Examination 1**

Weighting:

50%

Length:

3 hours

Type (open/closed book):

Closed book

Electronic devices allowed in the exam:

None

Learning resources

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

Assessment Requirements

- Test results and feedback
- 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.

Resubmission of assignments

At the Chief Examiners discretion, students may be permitted to resubmit assignments where *serious* medical issues or problems have impacted a students work.

Referencing requirements

Students are required to use the APA style of referencing for this unit - details are available from:

- http://www.lib.monash.edu.au/tutorials/citing/apa.html
- http://guides.lib.monash.edu/content.php?pid=88267&sid=656564
- Chapter 10 of the Faculty of Business and Economics Q Manual
  (http://www.buseco.monash.edu.au/publications/qmanual/qmanual.pdf)

Assignment submission

It is a University requirement
(http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-managing-pla
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

Please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

Unless informed otherwise, students will submit their assignments in 2 places online (Moodle and Damocles) and also in printed hard copy.

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.

If students wish to work on this unit *from home*, you will require a copy of SQL Developer and Power*Architect please see the links below in Recommended Resources. Both items of software are readily available and free of charge (it is suggested you obtain a copy from the Moodle unit web site).

TEXTBOOK

Rob, P., Morris, S. and Coronel, C., *Database Systems* 10th Edition, Cengage Learning, 2013

This text is 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.

The text is also available as an eBook from Cengage Learning. The URL to the eBook version on the Cengage site is: http://www.cengagebrain.com.au/. The Cengage (CourseSmart) book format is HTML5 and thus can be read on a range of devices, markup (notes and highlighting) and a number of other functions are possible. The eReader FAQ is available from:http://www.cengagebrain.com.au/shop/FAQ.html

Recommended Resources

This unit will make use of the Oracle 11G database running on the Monash ITS server zebra.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:

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

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:

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

For database Design we will be making use of the community edition of Power*Architect (version 1.06) developed by SQLPower:

- http://code.google.com/p/power-architect/

Power*Architect will also be available in the labs, for download from the Moodle site and can be downloaded directly from the link above.

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

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.h
- 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

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.h

Student Charter

www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.html

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 Commuity 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

Other

Getting the most from your studies in this unit:

Lecture: During the lecture, your lecturer will conduct the peer instruction session.

- Prior to the lecture

    ♦ reading the precribed reading from the textbook
    ♦ complete the pre-lecture quiz in Moodle,
- During the lecture

    ♦ **participate in the peer instruction activities, question, seek clarification**
- After the lecture

    ♦ read over your notes and make sure you understand the concepts
    ♦ **seek help** if you are unsure

Laboratory/Tutorials: 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 data and 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.

Off Campus students: Off campus students should pay particular attention to the Moodle OCL discussion forum for matters specifically related to them.