MONASH University
Information Technology

FIT3003
Business intelligence and data warehousing

Unit Guide

Semester 2, 2013

Last updated: 25 Jul 2013

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FIT3003 Business intelligence and data warehousing - Semester 2, 2013

Automation and the use of technological tools have resulted in the accumulation of vast volumes of data by modern business organisations. Data warehouses have been set up as repositories to store this data and improved techniques now result in the speedy collection and integration of such data. OLAP technology has resulted in the faster generation of reports and more flexible analysis based on the data repositories. Business intelligence (BI) can be considered as the art of exploring and analysing this data, extracting relevant information and identifying patterns, and turning such information and patterns into knowledge upon which actions can be taken. This unit will explore the concepts of BI, including the emergence of BI and factors influencing BI, technology requirements for BI and will provide hands on experience on designing and building business intelligence systems.

Mode of Delivery

Clayton (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:

- 2 hour lecture and
- 2 hour tutorial (or laboratory) (requiring advance preparation)
- a minimum of 2 hours of personal study per 1 hour of contact time in order to satisfy the reading and assignment expectations.

Unit Relationships

Prerequisites

One of FIT1004, FIT2010, FIT1013, BUS1010, BUS3112, CSE2316, CSE3316

Chief Examiner

Dr Sue Bedingfield

Campus Lecturer

Clayton

Dr. Nayyar Zaidi

Tutors

Clayton

Leelani Kumari Wickramasinghe

Consultation hours: To be advised

Leon Zhu

Consultation hours: To be advised

Kefeng Xuan

Consultation hours: To be advised

Academic Overview

Learning Outcomes

At the completion of this unit students will have -A knowledge and understanding of:

- the role of Data Warehousing (DW) as opposed to operational databases;
- the definition and the need of Business intelligence (BI);
- DW development methodology;
- dimensional models compared to ER models;
- DW architectures, ETL and data quality issues;
- how DW can support BI;
- BI tools, techniques and OLAP;
- Data Mining (DM) techniques;
- Data Mining Tools.

Developed attitudes that enable them to:

- recognise the value of DW and BI for a business organisation;
- adapt a critical approach to DW and BI technology in a business context;
- appreciate the value of DW for effective management support and decision making;
- understand the importance and value of BI tool and techniques compared to traditional data analysis techniques;
- appreciate the value BI tools and DM for providing knowledge for decision making, in ways unavailable with traditional techniques.

Gained practical skills to:

- create dimensional models;
- create DW architectures suitable for different organisations and requirements;
- interpret results from OLAP and dimensional models;
- create data analysis models using BI tools;
- interpret results from BI and DM tools.

Demonstrated the communication skills necessary to:

- document and communicate DW architectures and BI techniques;
- work in a team during DW architecture design and BI model development;
- communicate and coordinate during the team activities.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction to Business Intelligence and Data Warehousing	
2	The Dimensional Data Warehouse	
3	Data Cubes and Online Analytical Processing (OLAP)	Assignment 1 available to students Week 3
4	Guest Lecture	
5	Applying the Dimensional Model with Microsoft BI Tools	
6	MDX for Complex Analysis	
7	Introduction to Business Data Mining and the Customer Life Cycle	Assignment 1 due Week 7
8	Data Mining Techniques 1	
9	Data Mining Techniques 2	Assignment 2 available to students Week 9
10	Data Exploration and Mining with Microsoft Tools	
11	Delivering BI and Performance Management	
12	Revision	Assignment 2 due Week 12
	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 (2 hours): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
Assignment 1 - SQL Server and Data Warehousing	20%	Week 7
Assignment 2 - Data Mining	20%	Week 12
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:
  Assignment 1 - SQL Server and Data Warehousing
  Description:
  Students will be required to use a given case study to complete the following tasks:

  1. Design and build data cubes based on a given data mart.
  2. Develop OLAP queries.
  3. Carry out OLAP analysis and propose recommendations to address issues identified in the case study.

  This is an individual assignment.
  Weighting:
  20%
  Criteria for assessment:

  1. Correctness and understanding - there may be more than one "right" answer in many cases. We will look for answers that reflect understanding of the underlying principles and theories.
  2. Completeness - that you have answered all parts of each question.
  3. Presentation - that you have presented your answers in a suitably formatted report style.
  4. Use of evidence and argument - you are able to explain your position by using logical argument drawing on the theory presented in the unit.

  Due date:
  Week 7

- **Assessment task 2**

  Title:
  Assignment 2 - Data Mining
  Description:
  Students will be required to use several given data sets (related to customers and their buying behaviour) to complete the following tasks:

  1. Carry out a data mining based exploration of the data sets.
  2. Analyse the findings, and describe and profile the customers and their behaviours.

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Assessment Requirements

3. Recommend strategies for improving business performance, upsell and cross-sell, and also target marketing, based on the findings.

This is an individual assignment.

Weighting:
20%

Criteria for assessment:

1. Correctness and understanding - there may be more than one "right" answer in many cases. We will look for answers that reflect understanding of the underlying principles and theories.
2. Completeness - that you have answered all parts of each question.
3. Presentation - that you have presented your answers in a suitably formatted report style.
4. Use of evidence and argument - you are able to explain your position by using logical argument drawing on the theory presented in the unit.

Due date:
Week 12

Examinations

- **Examination 1**

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

Learning resources

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.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/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). 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.

Brian Larson. (2008). *Delivering Business Intelligence with Microsoft SQL Server 2008*. () McGraw Hill.

Michael J. A. Berry and Gordon Linoff. (2011). *Data Mining Techniques: For Marketing, Sales, and Customer Relationship Management*. (2nd Edition) John Wiley & Sons.

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:

- Aademic integrity;
  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
- Code of Practice for Teaching and Learning;
  http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-teac

Graduate Attributes Policy

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

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