

FIT3003
Business intelligence and data warehousing

Unit Guide

Semester 1, 2012

The information contained in this unit guide is correct at time of publication. The University has the right to change any of the elements contained in this document at any time.

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FIT3003 Business intelligence and data warehousing - Semester 1, 2012

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

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 Daminda Alahakoon

Campus Lecturer

Clayton

Daminda Alahakoon

Tutors

Clayton

Sumith Matharage

Consultation hours: To be advised

Hiran Ganegedera, Consultation hours: To be advised

Academic Overview

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.

Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:
 - a. engage in an internationalised world

Academic Overview

- b. exhibit cross-cultural competence
- c. demonstrate ethical values

critical and creative scholars who:

- a. produce innovative solutions to problems
- b. apply research skills to a range of challenges
- c. communicate perceptively and effectively

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.

Feedback

Our 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

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 SETU, Student Evaluation of Teacher and Unit. 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, and on student evaluations, see:

<http://www.monash.edu.au/about/monash-directions/directions.html>

<http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html>

Previous Student Evaluations of this unit

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

Prescribed text(s)

Prescribed texts are available for you to borrow in the library.

Brian Larson. (2009). *Delivering Business Intelligence with Microsoft SQL Server 2008*. (2009) McGraw Hill.

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

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 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 MUSO (Blackboard or Moodle) learning system.

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

([http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu](http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hurdles))

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:

Correctness and understanding - as 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.

Completeness and presentation - that you have answered all parts of each question and presented your answers in a suitably formatted report style.

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.

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:

Correctness and understanding - as 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.

Completeness and presentation - that you have answered all parts of each question and presented your answers in a suitably formatted report style.

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

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 VLE site for this unit, which you can access via links in the my.monash portal.

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.

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:

<http://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
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-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/key-dates/>);
- Orientation and Transition (<http://www.infotech.monash.edu.au/resources/student/orientation/>);
and
- Academic and Administrative Complaints and Grievances Policy
(<http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.html>)
- Codes of Practice for Teaching and Learning
(<http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-teaching-and-learning.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 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/>

The Monash University Library provides a range of services and resources that enable you to save time and be more effective in your learning and research. Go to <http://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/>.

Academic support services may be available for students who have a disability or medical condition. Registration with the Disability Liaison Unit is required. Further information is available as follows:

- Website: <http://monash.edu/equity-diversity/disability/index.html>;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus
- Telephone: 03 9905 5704, or contact the Student Advisor, Student Community Services at 03 55146018 at Sunway