FIT3003
Business intelligence and data warehousing

Unit Guide

Semester 2, 2009

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FIT3003 Business intelligence and data warehousing - Semester 2, 2009

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Introduction

Welcome to FIT3003 Business Intelligence and Data Warehousing for semester 2, 2009. This is 6 point core unit in the Bachelor of Business Information Systems degree.

Unit synopsis

This unit provides students with an understanding of Business Intelligence (BI) systems and the infrastructure needed to support them. Over the past decade OLAP tools, data mining and other data analysis techniques have been used to obtain value from data in ways not possible with earlier tools. Topics covered include the nature and purpose of BI, the relationship between BI and data warehousing, design issues related to BI tools and data warehouses, and common data analysis techniques such as OLAP, data mining and other computational techniques. The differences between these kinds of systems and other, more traditional information systems will be highlighted.

Learning outcomes

To acquire the Knowledge and Understanding of:

1. Role of Data Warehousing (DW) as oposed to operational databases;
2. The definition and the need of Business Intelligence (BI);
3. DW development methodology;
4. Dimensional models compared to ER models;
5. BUS architecture;
6. DW architectures, ETL and data quality issues;
7. How DW can support BI;
8. BI tools, techniques and OLAP;
9. Data Mining (DM) techniques;
10. Data Mining Tools.

To develop the following Attitudes, Values and Beliefs:

1. Recognise the value of DW and BI for a business organisation;
2. Adapt a critical approach to DW and BI technology in a business context;
3. Appreciate the value of DW for effective management support and decision making;
4. Understand the importance and value of BI tool and techniques compared to traditional data analysis techniques;
5. Appreciate the value BI tools and DM for providing knowledge for decision making, in ways unavailable with traditional techniques.

To develop the following Practical Skills:

1. Create dimensional models;
2. Create DW architectures suitable for different organisations and requirements;
3. Interpret results from OLAP and dimensional models;
4. Create data analysis models using BI tools;
5. Interpret results from BI and DM tools.

In addition, it is expected that the following Relationships, Communication and Team Work skills will be developed and enhanced:

1. Document and communicate DW architectures and BI techniques;
2. Work in a team during DW architecture design and BI model development;
3. Communicate and coordinate during the team activities.

Contact hours

4 x contact hrs/week

Workload

Workload commitments are:

* two-hour lecture and
* two-hour tutorial (or laboratory) (requiring advance preparation)
* a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.

You will need to allocate up to 5 hours per week in some weeks, for use of a computer, including time for newsgroups/discussion groups.

Unit relationships

Prerequisites

One of FIT1004, FIT2010, FIT1013 (BUS1010), BUS3112, CSE2316/3316

Relationships

FIT3003 is a core unit in the Bachelor of Business Information Systems.

Teaching and learning method

The unit will be delivered via lectures and laboratories.
Lecture: During the lecture, your lecturer will introduce key theoretical concepts and demonstrate various approaches to database tasks. The time in lectures is quite brief, please ensure you gain the best advantage from this time by:
Prior to the lecture:
- reading the study guide for the appropriate week, and
- downloading and reading the lecture notes,
During the lecture ensuring that you:
- annotate a printed set of lecture notes as the lecture proceeds, and
- participate, question, seek clarification
After the lecture:
- read over you notes and make sure you understand the concepts
- seek help if you are unsure

Timetable information

For information on timetabling for on-campus classes please refer to MUTTS, http://mutts.monash.edu.au/MUTTS/

Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system:
http://allocate.cc.monash.edu.au/

Unit Schedule

Week	Topic	Key dates
1	Introduction to Data Warehousing	
2	Inroduction to Data Warehousing with SQL Server 2005	
3	Data Warehouse Modeling	
4	Extract - Transform - Load	
5	Populating a Data warehouse and Reporting	
6	OLAP	
7	Data Mining with Statistics	
8	Decision Trees	Assignment 1 due.
9	Neural Networks and Data Mining	
10	Collaborative Filtering	
Mid semester break		
11	User Profiling	
12	CRM and Customer Management	Assignment 2 due.
13	Revision	

Unit Resources

Prescribed text(s) and readings

- Berry M, Linoff M. "Data Mining Techniques", John Wiley & Sons, 2004

Text books are 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.

Recommended text(s) and readings

- Kimball R, "Data warehousing toolkit" 2nd Edition, John Wiley & Sons, 2002
- Inmon W. H. "Building the Data warehouse" 2nd Edition, John Wiley & Sons, 2002
- Vitt E, Luckevich M, Misner S, "Business intelligence", 2002

Required software and/or hardware

- Microsoft SQL Server 2008 with BI Toolkit
- Tanagra data mining software

Equipment and consumables required or provided

Students studying off-campus are required to have the minimum system configuration specified by the Faculty as a condition of accepting admission, and regular Internet access. On-campus students, and those studying at supported study locations may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook. You will need to allocate up to **n** hours per week for use of a computer, including time for newsgroups/discussion groups.

Study resources

Study resources we will provide for your study are:

Study resources we will provide for your study are:

* Weekly detailed lecture notes outlining the learning objectives, discussion of the content, required readings and exercises;
* Weekly tutorial or laboratory tasks and exercises with sample solutions provided one to two weeks later;
* Assignment specifications and sample solutions;
* A sample examination and suggested solution
* This Unit Guide outlining the administrative information for the unit;
* The unit web site on MUSO, where resources outlined above will be made available.

Assessment

Overview

Examination: 60%
Assignments, class tests and laboratory exercises: 40%
Students must pass the examination in order to pass the unit.

Faculty assessment policy

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment, and
- an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 44% then a mark of no greater than 44-N will be recorded for the unit.

To pass this unit, a student must obtain :

- 40% or more in the unit's examination and
- 40% or more in the unit's non-examination assessment and
- an overall unit mark of 50% or more

If a student does not achieve 40% or more in the unit examination or the unit non-examination assessment then a mark of no greater than 44-N will be recorded for the unit.

Assignment tasks

Assignment coversheets

Assignment coversheets are available via "Student Forms" on the Faculty website:
http://www.infotech.monash.edu.au/resources/student/forms/
You MUST submit a completed coversheet with all assignments, ensuring that the plagiarism declaration section is signed.

Assignment submission and return procedures, and assessment criteria will be specified with each assignment.

- **Assignment task 1**

  Title:
  Assignment 1 - SQL Server and Data Warehousing
  Description:
  Weighting:
  20%
  Due date:
  Week 8

- **Assignment task 2**

  Title:
  Assignment 2 - Data Mining
  Description:
  Weighting:
  20%
  Due date:
  Week 12

Examination

- **Weighting:** 60%
  Length: 2 hours
  Type (open/closed book): Closed book

See Appendix for End of semester special consideration / deferred exams process.

Due dates and extensions

Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are not regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.

A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms:
http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html

Late assignment

Assignments received after the due date will be subject to a penalty of 5% per day, including weekends. Assignments received later than one week (seven days) after the due date will not normally be accepted. In some cases, this period may be shorter if there is a need to release sample solutions.

This policy is strict because comments or guidance will be given on assignments as they are returned, and sample solutions may also be published and distributed, after assignment marking or with the returned assignment.

Return dates

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Appendix

Please visit the following URL: http://www.infotech.monash.edu.au/units/appendix.html for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams