MONASH University

**FIT5095
Data warehousing**

Unit guide

Semester 1, 2009

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Unit leader :

Rob Meredith

Lecturer(s) :

Caulfield

- Rob Meredith

Introduction

Welcome to FIT5095 Data Warehousing for semester 1, 2009. This is a six point postgraduate unit designed to provide you with an understanding of the potential benefits of data warehousing, the tools and techniques used to design and implement data warehouses, and the theories and principles of the use of a data warehouse to support managerial decision making.

Unit synopsis

Systems analysts are increasingly required to provide managers with information that is not readily available from operational information systems. The data warehouse is designed to provide managers with high quality data from a number of sources both inside and outside the organisation and is an example of a large-scale decision system. The data warehouse must be suitable for flexible and multi-dimensional retrieval and analysis of data. This subject presents students with a coverage of several important aspects of data warehousing. These include definitions of terminology, the purpose of a data warehouse, designing the data warehouse, data sourcing, implementing the data warehouse, delivery of data from the warehouse to the manager, organisational issues involved with designing and implementing a data warehouse and case studies of data warehousing practice.

Learning outcomes

Students who successfully complete the unit will:

- Have knowledge of the theories and principles of data warehousing;
- Understand the potential benefits of data warehousing;
- Understand the techniques and tools used to design a data warehouse;
- Understand the theories and principles of data warehousing with regard to the practice of decision support;
- Be able to design multi-dimensional data structures;
- Appreciate how to interact effectively with managers, consultants and vendors in the development of a data warehouse.

Workload

For on campus students, workload commitments are:

- two-hour lecture and
- one-hour laboratory

- a minimum of 3-4 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.

Unit relationships

Prerequisites

Before attempting this unit you must have satisfactorily completed FIT9003, or equivalent.

Relationships

FIT5095 is a core unit in the Business Intelligence track of the Master of Business Systems, Master of Information Management & Systems and Master of Business Information Systems degrees. It may be taken as an elective in other programs where you have satisfied the prerequisites and course rules permit.

You may not study this unit and IMS5026 in your degree.

Continuous improvement

Monash is committed to 'Excellence in education' (Monash Directions 2025 - http://www.monash.edu.au/about/monash-directions/directions.html) and strives for the highest possible quality in teaching and learning.

To monitor how successful we are in providing quality teaching and learning Monash regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through Unit Evaluation Surveys. The University's Unit Evaluation policy (http://www.policy.monash.edu/policy-bank/academic/education/quality/unit-evaluation-policy.html) requires that every unit offered is evaluated each year. Students are strongly encouraged to complete the surveys as they are an important avenue for students to "have their say". The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

Faculties have the option of administering the Unit Evaluation survey online through the my.monash portal or in class. Lecturers will inform students of the method being used for this unit towards the end of the semester.

Student Evaluations

If you wish to view how previous students rated this unit, please go to http://www.monash.edu.au/unit-evaluation-reports/

Unit staff - contact details

Unit leader

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Teaching and learning method

The unit utilises a number of teaching and learning approaches including lecture and laboratory sessions. An essential component of your learning in the unit, however, is your own personal study and reading. This will include use of online resources provided through MUSO including a discussion forum. Students who actively participated in discussion forums in previous offerings have mentioned that their learning experience was vastly improved by their engagement and interaction online with both staff and other students.

Tutorial allocation

Students should register for tutorials/laboratories using Allocate+.

Communication, participation and feedback

Monash aims to provide a learning environment in which students receive a range of ongoing feedback throughout their studies. You will receive feedback on your work and progress in this unit. This may take the form of group feedback, individual feedback, peer feedback, self-comparison, verbal and written feedback, discussions (on line and in class) as well as more formal feedback related to assignment marks and grades. You are encouraged to draw on a variety of feedback to enhance your learning.

It is essential that you take action immediately if you realise that you have a problem that is affecting your study. Semesters are short, so we can help you best if you let us know as soon as problems arise. Regardless of whether the problem is related directly to your progress in the unit, if it is likely to interfere with your progress you should discuss it with your lecturer or a Community Service counsellor as soon as possible.

Active participation in online discussion forums via MUSO is also an important part of learning in the unit.

Unit Schedule

Week	Topic	References/Readings	Key dates
1	Introduction to the unit and data warehouse concepts	See the unit website for weekly readings	
2	Data Warehousing as a process		
3	Multi-Dimensional Modelling		
4	Multi-Dimensional Modelling		
5	Physical Design		
6	Data Warehouse development lifecycle models		
Mid semester break			
7	Organisational issues, data warehousing techniques and case studies		Assignment One due
8	Guest lecture on data warehouse governance		
9	Data quality and metadata management		

10	Data warehouse technology decisions		
11	Data mining and knowledge discovery		Assignment Two due
12	Industry guest lecture		
13	Revision and conclusion		

Unit Resources

Prescribed text(s) and readings

There is no required text for the unit, due to the breadth of topics covered. Instead, an extensive reading list consisting, in most part, of items available electronically through the library (authcate username and password required) will be used. The readings for each week will be listed on the unit website.

Recommended text(s) and readings

If you wish to purchase a textbook to assist your study, either of the following texts will be useful, especially in the first half of the semester:

- Kimball , R., Reeves, L., Ross, M., & Thornthwaite, W. (1998 - or later editions) *The Data Warehouse Lifecycle Toolkit*. John Wiley & Sons

or

- Kimball, R. & Ross, M. (2002). *The Data Warehouse Toolkit : The Complete Guide to Dimensional Modelling* (2nd Ed). John Wiley & Sons. ISBN: 047120024-7

Required software and/or hardware

While no software is necessarily required, we will be making use of Microsoft SQL Server 2005 in the laboratories. You will also find that a copy of Microsoft Office and Microsoft Visio will be of use during assignments. All of this software is installed by default in the student laboratories, but copies can be borrowed and installed on your personal computer through the Faculty of IT Helpdesk (Level 6, Building H, Caulfield Campus).

Equipment and consumables required or provided

Students will need access to:

- a personal computer with Windows XP or later
- the internet via dial-up connection or preferably by broadband
- a printer for assignments

On-campus students 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.

Study resources

Study resources we will provide for your study are:

- Weekly detailed lecture slides outlining the learning objectives, discussion of the content, required readings and exercises (note these are not a replacement for attending and taking your own notes during lectures);
- Weekly laboratory tasks and exercises with sample solutions provided where appropriate

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- Assignment specifications
- A sample examination and consultation on your solutions
- Access to past examination papers;
- Discussion groups;
- This Unit Guide outlining the administrative information for the unit;
- The unit web site on Moodle, where resources outlined above will be made available.

Library access

The Monash University Library site contains details about borrowing rights and catalogue searching. To learn more about the library and the various resources available, please go to http://www.lib.monash.edu.au.

The Educational Library and Media Resources (LMR) is also a very resourceful place to visit at http://www.education.monash.edu.au/library/

Monash University Studies Online (MUSO)

All unit and lecture materials are available through MUSO (Monash University Studies Online). Blackboard is the primary application used to deliver your unit resources. Some units will be piloted in Moodle. If your unit is piloted in Moodle, you will see a link from your Blackboard unit to Moodle (http://moodle.monash.edu.au) and can bookmark this link to access directly. In Moodle, from the Faculty of Information Technology category, click on the link for your unit.

You can access MUSO and Blackboard via the portal: http://my.monash.edu.au

Click on the Study and enrolment tab, then Blackboard under the MUSO learning systems.

In order for your Blackboard unit(s) to function correctly, your computer needs to be correctly configured.

For example:

- Blackboard supported browser
- Supported Java runtime environment

For more information, please visit: http://www.monash.edu.au/muso/support/students/downloadables-student.html

You can contact the MUSO Support by phone : (+61 3) 9903 1268

For further contact information including operational hours, please visit: http://www.monash.edu.au/muso/support/students/contact.html

Further information can be obtained from the MUSO support site: http://www.monash.edu.au/muso/support/index.html

Assessment

Unit assessment policy

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 Task

  Title : Assignment One: Data Warehouse Design

  Description :

  Using the multi-dimensional modelling technique, a logical design and requirements specification for a data warehouse will be produced by students for a given case study.
  Weighting : 20%

  Criteria for assessment :

  Assignment one will be assessed according to the following criteria:

  1. Correctness of schema notation;
  2. Quality of schema design in regards to elegance and support for all business requirements, and quality of justification of the design;
  3. Quality of sample reports demonstrating user requirement;
  4. Quality and professionalism of presentation, including layout, structure and grammar.

  Due date : Week 7
- ## Assignment Task

  Title : Assignment Two: Research Essay

  Description :

  A 3000 word essay on a data warehousing issue or topic.
  Weighting : 30%

  Criteria for assessment :

  The essay will be assessed according to the following criteria:

  1. Logical structure
  2. Critical analysis and understanding of the topic
  3. Literature utilised, including range, relevance and number
  4. Conclusions drawn
  5. Quality of writing, including expression, presentation and citation technique.

  Due date : Week 11

Examinations

- ## Examination 1

  Weighting : 50%

  Length : 2 hours

  Type (open/closed book) : Closed book

Assignment submission

Assignments will be submitted by **paper** submission to **your tutor during your tutorial.** Assignments must include the appropriate cover sheet correctly filled out and attached

Assignment coversheets

Assignment coversheets can be found at http://infotech.monash.edu.au/resources/student/assignments/

University and Faculty policy on assessment

Due dates and extensions

The due dates for the submission of assignments are given in the previous section. 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 seldom regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Requests for extensions must be made to the unit lecturer at your campus at least two days before the due date. You will be asked to forward original medical certificates in cases of illness, and may be asked to provide other forms of documentation where necessary. A copy of the email or other written communication of an extension must be attached to the assignment submission.

Late assignment

Assignments received after the due date will be subject to a penalty of 10% per day, not including weekends (Friday night to Monday morning counts as one day). Assignments received later than one week (seven days) after the due date will not be accepted.

Return dates

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

Assessment for the unit as a whole is in accordance with the provisions of the Monash University Education Policy at http://www.policy.monash.edu/policy-bank/academic/education/assessment/

We will aim to have assignment results made available to you within two weeks after assignment receipt.

Plagiarism, cheating and collusion

Plagiarism and cheating are regarded as very serious offences. In cases where cheating has been confirmed, students have been severely penalised, from losing all marks for an assignment, to facing disciplinary action at the Faculty level. While we would wish that all our students adhere to sound ethical conduct and honesty, I will ask you to acquaint yourself with Student Rights and Responsibilities (http://www.infotech.monash.edu.au/about/committees-groups/facboard/policies/studrights.html) and the Faculty regulations that apply to students detected cheating as these will be applied in all detected cases.

In this University, cheating means seeking to obtain an unfair advantage in any examination or any other written or practical work to be submitted or completed by a student for assessment. It includes the use, or attempted use, of any means to gain an unfair advantage for any assessable work in the unit, where the means is contrary to the instructions for such work.

When you submit an individual assessment item, such as a program, a report, an essay, assignment or other piece of work, under your name you are understood to be stating that this is your own work. If a submission is identical with, or similar to, someone else's work, an assumption of cheating may arise. If you are planning on working with another student, it is acceptable to undertake research together, and discuss problems, but it is not acceptable to jointly develop or share solutions unless this is specified by your lecturer.

Intentionally providing students with your solutions to assignments is classified as "assisting to cheat" and students who do this may be subject to disciplinary action. You should take reasonable care that your solution is not accidentally or deliberately obtained by other students. For example, do not leave copies of your work in progress on the hard drives of shared computers, and do not show your work to other students. If you believe this may have happened, please be sure to contact your lecturer as soon as possible.

Cheating also includes taking into an examination any material contrary to the regulations, including any bilingual dictionary, whether or not with the intention of using it to obtain an advantage.

Plagiarism involves the false representation of another person's ideas, or findings, as your own by either copying material or paraphrasing without citing sources. It is both professional and ethical to reference clearly the ideas and information that you have used from another writer. If the source is not identified, then you have plagiarised work of the other author. Plagiarism is a form of dishonesty that is insulting to the reader and grossly unfair to your student colleagues.

Register of counselling about plagiarism

The university requires faculties to keep a simple and confidential register to record counselling to students about plagiarism (e.g. warnings). The register is accessible to Associate Deans Teaching (or nominees) and, where requested, students concerned have access to their own details in the register. The register is to serve as a record of counselling about the nature of plagiarism, not as a record of allegations; and no provision of appeals in relation to the register is necessary or applicable.

Non-discriminatory language

The Faculty of Information Technology is committed to the use of non-discriminatory language in all forms of communication. Discriminatory language is that which refers in abusive terms to gender, race, age, sexual orientation, citizenship or nationality, ethnic or language background, physical or mental ability, or political or religious views, or which stereotypes groups in an adverse manner. This is not meant to preclude or inhibit legitimate academic debate on any issue; however, the language used in such debate should be non-discriminatory and sensitive to these matters. It is important to avoid the use of discriminatory language in your communications and written work. The most common form of discriminatory language in academic work tends to be in the area of gender inclusiveness. You are, therefore, requested to check for this and to ensure your work and communications

are non-discriminatory in all respects.

Students with disabilities

Students with disabilities that may disadvantage them in assessment should seek advice from one of the following before completing assessment tasks and examinations:

- Faculty of Information Technology Student Service staff, and / or
- your Unit Coordinator, or
- Disabilities Liaison Unit

Deferred assessment and special consideration

Deferred assessment (not to be confused with an extension for submission of an assignment) may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Information and forms for Special Consideration and deferred assessment applications are available at http://www.monash.edu.au/exams/special-consideration.html. Contact the Faculty's Student Services staff at your campus for further information and advice.