

DEPARTMENT OF COMPUTING
ISYS114 – ASSIGNMENT THREE -2017 S2
(Marked out of 10- worth 10%)

Topics 1-8 Due:

- **Submission deadline on iLearn: at 9:00 AM on the day you are going to present.**
- **Presentation: in Week 12 in your workshop**

Topics 9-16 Due:

- **Submission deadline on iLearn: at 9:00 AM on the day you are going to present.**
- **Presentation: in Week 13 in your workshop**

Learning Activities:

Your goal is to research and present a topic that informs others about an issue or concept that has been introduced in lectures and/or the textbook in Weeks 8-12. The presentation will explore ONE of the following topics:

Week 12 Topics:

1. Distinguish between **two-tier and three-tier architectures**. Discuss the advantages and disadvantages of both. When to use or not to use each?
2. Cloud Computing is now a trend in three-tier architecture. Discuss how **cloud computing** is use in each component of web-application. What are the advantage and disadvantages of using cloud computing in three-tier architecture and what are the future trends in cloud computing?
3. Discuss what is a **web service**, what is the framework of web service (the interoperation between UDDI, WSDL and SOAP, HTML), what are the new capabilities provided by web service. Examples of web services we (users) use them? What are web services Vulnerabilities? How to secure web services.
4. What is **query optimization**, and what is its goals? What are the considerations in performing query optimization? Please provide examples to each one of the considerations.
5. Explain the various forms and functions of **data transformations** needed to prepare data for a data warehouse.
6. Discuss **data governance** and what needs to be included in a data governance program. Provide definitions, explanations and examples.

7. Describe the importance of **data quality**, what are the reasons for poor-quality data? And how poor quality data can be avoided? Discuss several measures to improve data quality.
8. What are different **architecture in data warehouse**? Discuss the advantage and the disadvantage of each, when to use or not to use each?

Week 13 topics

9. Describe the reasons why data **management technologies and approaches** have expanded beyond relational databases and data warehousing technologies. Explain how NoSQL conceptually supports big data in different ways from traditional relational database management systems.
10. There are four main types of **NoSQL database data models** that include key-value stores, document stores, wide-column stores, and graph databases. Provide a brief description of each and an example DBMS.
11. Describe the **threats to database security** and list five techniques that are used to enhance security. Provide definitions and examples.
12. Describe and discuss the differences between a **centralized and distributed database**. What are the range of distributed database environments?
13. Describe the changing roles of the **data administrator and database administrator** in the current business environment. What does the role involve (now and before), why has the role changed?
14. Compare and contrast **GreenIT and GreenIS**? Providing descriptions and examples.
15. What can **data warehouses** do to reduce their carbon footprint? Who is doing a good job of this and how?
16. What can **End Users do to reduce the carbon footprint** of software technology and databases? Create a marketing advertisement or educational item to inform and encourage good behaviours by one or more of these stakeholders.

What to do?

1. Find a partner in your workshop class.
2. Select **ONE** available topic in your workshop (*either from week 12 or week 13*). Your tutor should arrange distributing the topics
3. Work with your partner to do some research and prepare a report (600-1000) words about the selected topic.
4. Work with your partner to prepare a Powerpoint presentation that may include:
 - a. Your topic question, both student's names and student IDs on the first slide,
 - b. Identifies and defines the key concepts and terms relevant to your topic,
 - c. Includes multiple slides (if required) that answers your topic question.
 - d. Summarize the result of your research by displaying examples, case studies, statistics...
 - e. Includes a final slide with 3-5 references (more are allowed) that have been cited in the context of the presentation.
 - f. The presentation should end their presentation with at least one question from the presenters to the class to ensure involvement from the class.
5. **ONE** presenter submit the slides or any supporting material on **iLearn** by the due date (there will be a submission link).
6. **ONE (and only one)** presenter should submit the report to **turnitin** by the due date (there will be a submission link on iLearn).
7. Present your topic in Week 12 *OR* Week 13 workshop class in around 10 minutes (plus 2 minutes question-time from the audience to the presenters).
8. Both students in a group need to present, it is up to the students to organize the presentation as they like.

NOTE: there is a penalty for too short or too long presentation. So please practice before the Showtime.

What to submit?

1. **ONE** presenters should submit their Powerpoint presentation on iLearn by submission due date.
2. **ONE** presenter should submit a report (600-1000) words on turnitin link by submission due date.

Note1: please do not submit the report two times. Please do not submit the report by the two presenters, otherwise turnitin will flag it as exact copy.

Note2: any submitted document (Powerpoint slides or report) should include students' details (name and ID).

Note3: naming convention for the submitted documents should be:

For the Report:

STUDENTNAME1(STUDDENTID1) STUDENTNAME2(STUDDENTID2)-
CLASSNUMBER.docx

For the slides:

slides-STUDENTNAME1(STUDDENTID1) STUDENTNAME2(STUDDENTID2)-
CLASSNUMBER.pptx

Marking Criteria

No	Marking Criteria	Mark
1	The topic motivated/introduced clearly <i>[perhaps with a question/problem/case that necessitate discussing the topic]</i>	1
2	Presented information is understandable <i>[the presenters seem to understand what they are talking about]</i>	2
3	There are some new information and not just what is textbook <i>[this is where presenters should find new and related information about the topic]</i>	1
4	Presented in an interesting way <i>[not just reading the slides, eye contact with audience, friendly atmosphere, BIG smile]</i>	2
5	Provided examples, case studies, figure, statistics... <i>[if you need these 2 marks, you need to come up/search for some data to materialize the topic]</i>	2
6	Presenters' question(s) at the end and their answers to audience's question(s) was plausible <i>[Presenters' question(s) is/are not too easy or too hard that the audience will be interested to answer. Also the question(s) asked by the audience was answered properly]</i>	1
7	The Sources to the presentation was identified within the presentation <i>[presenters need to provide at least 3-5 resources/references, not just at the end, but showing the references during the presentation]</i>	1
	Penalty: if the presentation is too short, too long or did not answer class' question(s) properly [up to -2 marks]	
	Penalty: if there is no report submitted, it is submitted late, not the right word count, or/and the similarity rate calculated by turnitin is over 40% [up to -3 marks]	
Total		10