

# SIT103 – Data and Information Management

Trimester 3 – 2018

Due Date: Week 6

Sunday 9<sup>th</sup> December 2018 before  
midnight

Total mark of the assignment: 100 (20% of the final unit assessment).

## Introduction

This assignment is for you to understand:

- Background knowledge of database design, application and information retrieval
- The context of this unit topics
- Current challenges and development of database technology.

## Late Submission and Extension Policy

- All students MUST submit an assignment on the due date, whether it is completed or not.
- Students who have just cause may email your lecturer and apply for an extension **BEFORE** the due date unless they are hospitalised or there are extenuating circumstances that prevent this. All applications must be accompanied by documentary evidence of the disadvantage causing this request.
- Late Assignments will be penalised by 5% for each day late. After one week, assignments will not be marked.

## Unit Learning Outcomes

- Of the three Unit Learning Outcomes (ULOs) of this unit, this assessment task focuses on the first two ULOs. These are:
  - *ULO 1 – At the end of this unit students will be able to describe the techniques used in storing and retrieving data.*
  - *ULO 2 - At the end of this unit students will be able to evaluate data models and apply data modelling techniques to capture the data aspects of real-world situations.*
- The assessment of this report will indicate whether students can partially attain these two ULOs.

## Instructions

- Cover page (with student number, name and a signed statement that mentioned all the work is your own work.)- Failing of one of the items will applied for 5 marks of penalty form the final mark
- Answer the following questions **IN YOUR OWN WORDS** based on your resource survey or research.

- write descriptions in their own words
- Use proper references for each question, and list all references in the reference section of the report
- Label your answers Q1(a), Q1(b), Q1(c) and so on, to assist markers in finding your answers.
- This is an individual assessment task that requires students to prepare a report not exceeding 1000 words, plus or minus 10%.
- Submit a copy of your solution – a single document (Word or pdf format – 5 marks of penalty will be applied for other format of submissions), electronically on the course portal, on or before the due date.

### Question 1 (20 marks)

Find, read, cite and reference several sources for each of the following: DBMS advantages, and DBMS functionality.

In your own words:

- Briefly describe four advantages of a DBMS.
- Briefly describe four functions of a DBMS.

### Question 2 (20 marks)

- What is Big Data?
- What are the challenges the database technology is facing regarding Big Data?
- Generally describe the current technologies that deal with Big Data.

### Question 3 (20 marks)

- Provide a definition for each of the following concepts.
  - transaction.
  - Deadlocks.
- What are the properties of a transaction? Explain each.

### Question 4 (15 marks)

Find, read, cite and reference several sources for each of the following three SQL statements.

In your own words:

- Briefly describe an SQL DML statement for storing new data into a table.
- Briefly describe an SQL DML statement for changing existing data in a table.
- Briefly describe an SQL DML statement for retrieving existing data from a table.

### Question 5 (20 marks)

Describe the general process of relational database design, indicating how the following tasks are integrated into the process:

- Gathering business rules
- E-R modeling
- Relational modeling
- Normalization

### References (5 marks)

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