Deakin College Information of Computing

**Assignment 1**

ID: JEOMD1702

NAME: Munseong Jeong

UNIT CODE: SIT103

UNIT NAME: Data and Information Management

TEACHER: Alanni, Russul

DUE DATE: 9/December/2018

**DECLARATION**

I certify that the attached work is entirely my own (or where submitted to meet the requirements of a group assignment is the work of the group), except where work quoted or paraphrased is acknowledged in the text. I also certify that it has not been submitted for assessment in any other unit or course.

Student Signature: munseong jeong \_\_\_ Date: 8/December/2018\_\_\_\_\_\_\_\_\_\_\_\_

**Question 1**

(a)

1. Data Sharing

DBMS provides us with a better assess to data and management data. This can assist users to share data more efficiently.

2. Improvement Data Security

Great enforce data separation and security policies. Reduce data security risks.

3. Effective data integration

When data management is updated, it's simple to see how works in one part of the system affect other parts of the system. The efficient mixture of data within the use of data management solutions.

4. Better access to data

The management system lets users to immediately take a database query resolution, so data path is quicker and more precise.

(b)

1. Data Dictionary Management

A data dictionary is a finding from information about information purposes that benefit programmers and others who need to reference them.

2. Backup and Recovery Management

backup and restoration refers to the method of backing up data in case of a disaster and setting up operations that allow that data restoration due to data failure.

3. Data Transformation and Presentation

Data conversion is the process of converting data or information of one form to different, normally of the construction of the source operation to the format required for the new target operation.

4. Security management

Security management is the classification of organizational assets and the construction, documentation, and implementation from methods and systems to defend these assets.

(von Thile & Melzer 2005)

**Question 2**

**(a)** Big data is an expression of a huge number of structured and disorderly data that is very big that it is hard to treat managing regular database and software technologies.

**(b)**

The most important thing about big data is the following three points.

STORAGE: Because the collected data needs to be stored in a storage device. So it takes a lot of space and money to spend on storage equipment

PROCESS: Processing speed is also a very important factor. Big data needs to analyze data from ten Gigabytes to hundreds of Gigabytes. A high-performance processor that processes this data is essential.

ANALYSIS: Only 1% of all data is valuable. So how to get useful 1% data is very important. Need a lot of manpower and efficient analysis algorithms to get useful data.

**(c)**

**IBM DB2:** A system for many databases where various users together access various related databases using SQL data language.

**R:** The programming language to searching and updating is the patterned structured query language regulated by the International Organization for Standardization (ISO).

**Microsoft SQL Server:** A relational database control system and presents a broad class of transaction processing, analytics applications, and business intelligence in corporate IT backgrounds.

(Swan 2013)

**Question 3**

**(a)**

**i. transaction.**

A transaction is a very small unit program that may contain several low-level tasks

**ii. Deadlocks.**

deadlock is when two or more transactions are waiting to give up locking each other in a database.

**(b)**

**Atomicity:**

Indicates that all changes are made or not changed, which is a single operation.

**Consistency:**

The data will remain the same when things start and end

**Isolation**:

Indicates that a serialized transaction is running, and the intermediate process of the transaction is not visible to other transactions.

**Durability:**

Fully retain data when the system fails and will not be revoked after the transaction completes successfully,

(tutorialspoint 2018)

**Question 4**

**(a) INSERT:** INSERT is used to add rows to the database table

INSERT INTO table\_name VALUES (data1, data2, ...)

**(b) UPDATE:** UPDATE is used for modifies table data in the database.

UPDATE table\_name

SET column\_name = value [, column\_name = value]...[ WHERE condition ];

**(c) SELECT:** selecy is used to gain data from the database table.

SELECT column\_name FROM table\_name;

**Question 5**

**- Gathering business rules**  
Business rule is a policy that should be followed in the database. It regulates and constrains a specific part of the database. For example, it can be used to define a specific relationship or an element for a particular field. The business rule is determined by how the business manages its data and runs its business.

**- E-R modeling:** It is a graph demonstrating entities and their relationships. It is used to calculate data in an information system or database.  
- Relational modeling: Relational modeling is a method using a data table to classify element groups in terms of their relationships.

**- Normalization**  
Normalization is a technique that can standardize the data in the database. Data will be organized into refined tables which reduces the complexity of the database. Contents in the table should have high relativity with the table's topic.

**References**

von Thile, A.H. and Melzer, I., 2005. Smart Files: Combining the Advantages of DBMS and WfMS with the Simplicity and Flexibility of Spreadsheets. In BTW (pp. 175-184).

IBM 2010, *WHAT IS A DATABASE MANAGEMENT SYSTEM*, IBM Corporation, retrieved 7 December 2018, <https://www.ibm.com/support/knowledgecenter/en/zosbasics/com.ibm.zos.zmiddbmg/zmiddle\_46.htm >.

tutorialspoint 2018, *DBMS - Transaction*, tutorialspoint, retrieved 7 December 2018, < https://www.tutorialspoint.com/dbms/dbms\_transaction.htm>.

IBM 2018, *ACID properties of transactions*, IBM Knowledge Center, retrieved 7 December 2018, <https://www.ibm.com/support/knowledgecenter/en/SSGMCP\_5.4.0/product-overview/acid.html >.

Swan, M., 2013. The quantified self: Fundamental disruption in big data science and biological discovery. Big data, 1(2), pp.85-99.

Techopedia 2018, *Business Rule*, Techopedia, retrieved 7 December 2018, <https://www.techopedia.com/definition/28018/business-rule>.