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Information Management 1
LECTURE

Title: Introduction to SQL	**Module No: 3**

I. INTRODUCTION

In order to develop well-meaning database, we need to understand the concept of SQL. SQL or structured query language that can help to administer the proper executions and manipulations of the entire database itself. It will also help in setting up parameters and distinguishing anomalies within a certain databases.

II. LEARNING OBJECTIVES

After studying this module, you should be able to:
- Understand all about SQL.
- Identify and understand the different Join queries.
- Understand and identify the basic sql commands.
- Understand the difference between fetch transaction and write transaction.

III. TOPICS AND KEY CONCEPTS
A. SQL STRUCTURE

SQL

SQL COMPONENTS

SQL is a comprehensive language that has its own DDL and DML components:

> DATA DEFINITION LANGUAGE
> It is used to provide commands for defining relation schemes, deleting relations, and creating indices, among others.

> INTERACTIVE DATA MANIPULATION LANGUAGE
> It can be used to insert, delete, and update tuples in a relation.

> EMBEDDED DATA MANIPULATION LANGUAGE
> The embedded form of the DML is used to incorporate SQL statements into programs created using other programming languages.

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➢ VIEW DEFINITION
It contains commands used for defining relational views.

➢ AUTHORIZATION
The DDL of SQL includes commands for specifying access rights to base relations and views.

➢ INTEGRITY
The DDL of SQL includes commands for specifying access rights to base relations and views.

➢ TRANSACTION CONTROL
These are commands used to specify the start and end of transactions. It is also used in data locking and concurrency controls.

BASIC STRUCTURE

SQL expression is made up of three clause: SELECT, FROM, WHERE

SELECT

The Select clause is used to list the attributes needed to be included in the output of the query.

FROM

The From clause is used to include the names of the relations that are to be used in the query.

WHERE

The Where clause consists of a predicate that involves the attributes of the relations described in the From clause.

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PERSONNEL

ENO	ENAME	MGR	DEPT	SALARY
2011	GOKONGWEI	4016	DB	65000
2351	SORIANO	5114	LANGUAGES	39000
3040	SY	4016	DB	40000
4016	YU	5015	STORAGE	75000
5114	ZOBEL	4016	DB	35000

SQL COMMANDS

- QUERY 1: LIST DOWN ALL EMPLOYEE IN PERSONNEL.

SELECT ENAME
FROM PERSONNEL

ENAME
GOKONGWEI
SORIANO
SY
YU
ZOBEL

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QUERY 2: LIST DOWN ALL ENAME WHOSE SALARY IS GREATER THAN 50,000.

SELECT ENAME
FROM PERSONNEL
WHERE SALARY > 50,000

ENAME
GOKONGWEI
YU

QUERY 3: LIST DOWN ALL ENO AND ENAME WHOSE NAME IS STARTS WITH S.

SELECT ENO, ENAME
FROM PERSONNEL
WHERE ENAME=S

ENO	ENAME
2351	SORIANO
3040	SY

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B. SQL JOIN QUERIES

JOIN QUERIES

SQL that involve in two or more relations = join operations

SIMPLE EQUIJOIN = combinations of all the relations

NATURAL JOIN = Produce a relation with two identical columns. If 2 identical columns is eliminated it is called natural join.

3 TYPES OF JOIN

- ❖ INNER JOIN
- ❖ OUTER JOIN
- ❖ SELF JOIN

EMPLOYEE

ID	NAME	DEPT	MGR
1	A	CCS	2
2	B	CCS	
3	C	COE	2
4	D	CCS	2
5	E	CCS	2

SALES

ID	CODE	QTY_SOLD
1	A	10
1	B	5
3	A	5
3	B	1
3	C	2
3	D	3
4	B	4
4	C	2
4	D	10

ITEMS

ID	ITEM	PRICE	QTY
A	A1	10	10
B	B1	5	10
C	C1	2	10
D	D1	5	10
E	E1	10	10

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INNER JOIN

SELECT EMPLOYEE.NAME, SUM
(SALES.QTY_SOLD) AS
[QUANTITY SOLD]

FROM EMPLOYEE INNER JOIN
SALES ON EMPLOYEE.ID =
SALES.ID

GROUP BY EMPLOYEE.NAME

ORDER BY SUM
(SALES.QTY_SOLD) DESC

OUTER JOIN

SELECT EMPLOYEE.NAME,
SUM (SALES.QTY_SOLD) AS
[QUANTITY SOLD]

FROM EMPLOYEE LEFT JOIN
SALES ON EMPLOYEE.ID =
SALES.ID

GROUP BY EMPLOYEE.NAME

ORDER BY SUM
(SALES.QTY_SOLD) DESC

SELF JOIN

SELECT E NAME, M NAME AS MANAGER

FROM EMPLOYEE AS E INNER JOIN EMPLOYEE AS M

ON E MGR = M.ID

C. DATABASE ENVIRONMENT

TRANSACTION

Is defined as a distinct activity within a computer system that reads or modifies the content of a database.

Treating one or more SQL statements as one unit.

There are two types of transaction:

> ➢ FETCH TRANSACTION
> ➢ WRITE TRANSACTION

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IV. TEACHING AND LEARNING MATERIALS RESOURCES

- PC Computer || Laptop || Smartphone
- Internet Connection
- Browsers
- Any available Programming Software
- GC-LAMP
- Google Classroom
- Google Meet
- Facebook Group
- Facebook Messenger
- For online activity sites:
  - ✓ https://www.blogger.com/about/?r=1-null_user
  - ✓ https://www.wix.com/html5bing/hiker-blog?utm_source=bing&utm_medium=cpc&utm_campaign=ms_en_e_1_NEW^bl_blogging_rest&experiment_id=blogging^be^79714673617818^blogging&msclkid=983ab99d6f3e1cb92c8de6b674948445

V. LEARNING TASKS

A. ENGAGE

Activity 1: Blogging

A blog is a discussion or informational website published on the World Wide Web consisting of discrete, often informal diary-style text entries. Posts are typically displayed in reverse chronological order, so that the most recent post appears first, at the top of the web page.

Materials Needed: PC/Laptop/Smart phone, Internet Connection and Browser

Instruction: Based on your own understanding, kindly define the following terminologies:

A. DATA DEFINITION LANGUAGE
B. INTERACTIVE DATA MANIPULATION LANGUAGE
C. EMBEDDED DATA MANIPULATION LANGUAGE

Your answer will be in a form of a blog.
Kindly create your own title for each post.
Each post must contain at least 2 to 3 images.
Only one blog site per student.

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You can create your blog using the following online sites:

https://www.blogger.com/about/?r=1-null_user or
https://www.wix.com/html5bing/hiker-blog?utm_source=bing&utm_medium=cpc&utm_campaign=ms_en_e_1_NEW^bl_blogging_rest&experiment_id=blogging^be^79714673617818^blogging&msclkid=983ab99d6f3e1cb92c8de6b674948445

Rubric:

Completed the activities and understood the topic based on the given answer	Outstanding 50 points	Very Good 40 points	Good 30 points	Fair 20 points	No Work Output

B. EXPLORE & EXPLAIN

Answer the following questions:

1. What are the basic sql expression?

   _____
   _____
   _____

2. What is the difference between simple equijoin and natural join?

   _____
   _____
   _____

3. What are the different types of join?

   _____
   _____
   _____

4. What are the different components of sql structure?

   _____
   _____
   _____

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5. What is the different between write and fetch transaction?

_____

_____

_____

Rubric:

Each correct answer will be given 10 points. Total score = 50 points	Question 1	Question 2	Question 3	Question 4	Question 5	Total Score

C. ELABORATE & EVALUATION

Answer the following questions: **Identification**

_____**1.** Consists of a predicate that involves the attributes of the relations described in the From clause.

_____**2.** Combinations of all the relations.

_____**3.** Is defined as a distinct activity within a computer system that reads or modifies the content of a database.

_____**4.** A comprehensive language that has its own DDL and DML components.

_____**5.** Is used to list the attributes needed to be included in the output of the query.ate statements in query language.

Rubrics:

Each correct answer will be given 5 points. Total score = 25 points	Question 1	Question 2	Question 3	Question 4	Question 5	Total Score

VI. REFERENCES

- Database System for Management J.F. Courtney, et al. – Global Text Project, 2010
- DBMS Tutorial, retrieved from https://www.tutorialspoint.com/dbms/, retrieved on August 5, 2019