Mater Dei College
Tubigon, Bohol
2nd Semester, A.Y. 2022-2023

TOPIC 1 in LABORATOY

COURSE NUMBER : **CC 105**
COURSE TITLE : INFORMATION MANAGEMENT 1

COURSE LEARNING OUTCOME

- *Analyze an existing database system with respect to quality issues: Reliability, scalability, efficiency, effectiveness and security.*

STUDENT LEARNING OUTCOMES

- *Understand the different SQL statements, its uses, and implementation in creating a database system*

A. LEARNING CONTENT:

1. DDL STATEMENT

B. LESSON CONTENT

DATA DEFINITION LANGUAGE (DDL) Statement

CREATE TABLE creates a table with a given name. User must have the create privilege for the table. To create a table, the ff. must be specified:

1. Table name 2. Attribute names 3. Data types 4. Constraints

Data Type – determines a column's allowable values and the operations it supports, each attribute in a table must have only one data type.

Categories of data types:

1. Character string – stores strings of characters.
2. Bit string - stores string of bits
3. Exact numeric – stores integers and decimal numbers
4. Approximate numeric – stores floating-point numbers
5. Datetime – stores date and time value
6. Interval – stores date and time intervals.

Types of Character String

1. Character – represents a fixed number of characters. Character(length) or char(length), ex. Char(6)
2. Character Varying – represents a variable number of characters. Varchar(length), character varying(length) or car varying(length). Ex. Varchar(6).
3. National Character – this data type is the same as character except it holds standardized multibyte characters or Unicode characters and must have a letter N in front of the first quote. National character(length), national char(length) or Nchar(length).
4. National Character Varying – same as character varying except it holds standardized multibyte characters or Unicode characters. National Character(length), NChar Varying(length).

Bit String Types

1. Bit – represents a fixed number of bits. Ex. Bit(length)
2. Bit Varying – represents a variable number of bits. Bit Varying(length)

Exact Numeric Types

1. Numeric – represents a decimal number. NUMERIC(length, precision)) ex. Numeric(5,2)
2. Decimal – similar to numeric. Decimal(length, precision) or DEC(length, precision)
3. Integer – represents an integer. The minimum and maximum values that can be stored in a column defined as integer depend on the DBMS used. Integer or Int
4. Smallint – this data type is the same as integer except that it may hold a smaller range of values depending on DBMS used. Smallint

Types of Datetime data types

1. Date – represents a date, a date stored in a column defined as DATE and it has three fields – Year, Month and Day – and is formatted yyyy-mm-dd (length of 10). Valid value for year – 0001 to 9999, month- 01 to 12, day – 01 to 31. Ex. DATE; value "2011-06-29".
2. Time – represents a time of day, a time stores in a column defined as TIME which has three fields – Hour, Minute, and Second- and formatted as hh:mm:ss (length of 8). Time(precision) the maximum precision for the time is 6. Hour and minute are integers, and second is a decimal. Hh:mm:ss.ssss. Valid values for the hour – 00 to 23, minute – 00 to 59, and second – 00 to 59.9999
3. Timestamp – represents a combination of date and time values separated by a space. The timestamp format is yyyy-mm-dd hh:mm:ss (with a length of 19). Timestamp(precision)

Constraints – allow you to define rules for values allowed in columns. There are four ways of declaring a constraint namely named table constraint, unnamed table constraint, named column, and unnamed column.

Types of Constraints

1. Not null – prevents null from being inserted into a column
2. Default – Sets the default values of a column
3. Primary key – sets the table's primary key columns
4. Foreign key – sets the table's foreign key columns
5. Unique – prevents duplicate values from being inserted into a column.
6. Check – limits the values that can be inserted into a column by using logical (Boolean) expressions

Example:

```
CREATE TABLE employee
        ( id char(5) primary key,
          firstname varchar(10) not null,
          lastname varchar(15) not null,
          address varchar(50) not null,
          contact_num char(11),
          salary int not null);

CREATE TABLE student
        (stud_id char(5) primary key,
        stud-fname varchar(20) not null,
        stud_lname varchar(20) not null,
        stud_address varchar(50) not null,
        stud_allow dec(10,2) not null,
        course char(8),
        Year int);
```

SQL STATEMENTS

Show databases; -allow you to see all the databases stored on the server
Show tables; -MySQL allows you to view all existing table on the current database that you are using.
Describe - used to obtain information about table structure.
Example: Describe tb_name;
Use - USE statement tells MySQL to use the named database as the default (current) database for subsequent statements. This statement requires some privilege for the database or some object within it. The named database remains the default until the end of the session or another USE statement is issued:
Example: Use db_name;

C. TEACHING-LEARNING ACTIVITIES

1. Create table SUBJECT with the following attributes or column names and its data type and constraint

SUBJECT

ATTRIBUTE NAME	DATA TYPE	LENGTH	CONSTRAINT
Sub_code	Character	8	Primar key
Sub_description	Character varying	50	Can't be empty
unit	integer		Can't be empty

D. ASSESSMENT

- Use your full name as the database name.
- Create a table named STAFF
- You will be the one to choose the appropriate data type based on the given requirements

1. STAFF

Attribute name	data type requirements	constraint
Staff id	accept fix number of character with a length of 4	unique identifier
Full Name	variable number of character with a length of 25	required
Address	variable number of character with a length of 50	default value Bohol
Position	variable number of character with a length of 20	accept null values
Date hire	appropriate data type	required
Contact number	variable number of character wit a length of 12	required
Salary	number with value that accept up to 10 digits including 1 decimal point	accept null values
Email address	variable number of character w/ a length of 15	accept null values