

## **Department Of Information Technology**

A.Y. 2023-24

Class: SE-ITA/B, Semester: III

Subject: **Structured Query Lab**

### **Experiment – 3: a) Create and alter database using SQL DDL. b) Apply various constraints on the chosen system**

**1. Aim:**

- a) To Create and alter database using DDL queries on the chosen system
- b) To Apply various constraints on the chosen system

**2. Objective:**

- After performing the experiment, the students will be able to formulate and use various SQL queries for construction of tables, altering the table and view structure with the help of DDL queries.
- Students will be able to design database schema by application of various constraints during creation of data

**3. Outcome:** L303.3: To Create and populate a RDBMS, using SQL.

**4. Prerequisite:** Understanding of various constraints, DDL and DML queries, notations and terminologies along with sample syntax.

**5. Requirements:** PC, Mysql Workbench, Microsoft Word, Internet

**6. Pre-Experiment Exercise:**

**Brief Theory:(To be hand written)**

**Data Definition Language (DDL)**

Explain what is DDL?

DDL commands and their syntax with example.

### **Constraints**

What are constraints?

SQL constraints are used to specify rules for the data in a table. Constraints are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the table. If there is any violation between the constraint and the data action, the action is aborted. Constraints can be column level or table level. Column level constraints apply to a column, and table level constraints apply to the whole table.

Explain constraint with example?

- NOT NULL - Ensures that a column cannot have a NULL value

- UNIQUE - Ensures that all values in a column are different
- PRIMARY KEY - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table
- FOREIGN KEY - Uniquely identifies a row/record in another table
- CHECK - Ensures that all values in a column satisfies a specific condition
- DEFAULT - Sets a default value for a column when no value is specified
- INDEX - Used to create and retrieve data from the database very quickly

## 7. Laboratory Exercise

### A. Procedure:

- i) Open Mysql Command Line Client/Mysql Workbench using below login credentials:  
Username: root, Password: lab306b
- ii) Create a new query
- iii) Construct your own database
- iv) Construct tables for any two to three entities from your chosen case study
- v) Use DDL queries to create tables using below syntax

#### **Create Table Command:**

```
CREATE TABLE Student
    (Reg_no varchar2(10),
    Name char(30),
    DOB date,
    Address varchar2(50));
```

#### **DROP Command:**

```
DROP TABLE Student;
```

#### **TRUNCATE Command:**

```
TRUNCATE TABLE Student;
```

#### **RENAME Command:**

```
RENAME <Student> TO <Stu>
```

#### **ALTER Table Command:**

```
ALTER TABLE Student ADD (Age number(2), Marks number(3)); or
ALTER TABLE Student DROP COLUMN Age;
```

- vi) Apply constraints using below syntax

#### **NOT NULL:**

```
CREATE TABLE Persons (
    ID int NOT NULL,
    LastName varchar(255) NOT NULL,
```

```

        FirstName varchar(255) NOT NULL,
        Age int
    );
Unique
CREATE TABLE Persons (
    ID int NOT NULL UNIQUE,
    LastName varchar(255) NOT NULL,
    FirstName varchar(255),
    Age int
);
PRIMARY KEY
CREATE TABLE Persons (
    ID int NOT NULL,
    LastName varchar(255) NOT NULL,
    FirstName varchar(255),
    Age int,
    PRIMARY KEY (ID)
);
FOREIGN KEY
CREATE TABLE Orders (
    OrderID int NOT NULL PRIMARY KEY,
    OrderNumber int NOT NULL,
    PersonID int FOREIGN KEY REFERENCES Persons(PersonID)
);
CHECK
CREATE TABLE Persons (
    ID int NOT NULL,
    LastName varchar(255) NOT NULL,
    FirstName varchar(255),
    Age int CHECK (Age>=18)
);
DEFAULT
CREATE TABLE Persons (
    ID int NOT NULL,
    LastName varchar(255) NOT NULL,
    FirstName varchar(255),
    Age int,
    City varchar(255) DEFAULT 'Sandnes'
);

```

vi) Write/Print output for each query

**B. Result/Observation/Program code:** Attach all queries executed code with proper output

## 8. Post Experimental Exercise-

### A. Questions:

1. What is the difference between drop and truncate command?
2. Why no rollback operation can be performed when we use DDL commands?
3. What is the execution pattern of an SQL query?

**B. Conclusion:**

1. Write in brief about the different key constraints used in DDL and what you learn from this experiment.

**C. References:**

- [1] Elmasri and Navathe, “Fundamentals of Database Systems”, 5th Edition, PEARSON Education.
- [2] Korth, Silberchatz, Sudarshan, “Database System Concepts”, 6th Edition, McGraw – Hill
- [3] [https://www.w3schools.com/sql/sql\\_default.asp](https://www.w3schools.com/sql/sql_default.asp)