

Experiment No. 3: Execute DDL commands to manage Database using SQL

I. Practical Significance

DDL commands are used to define database structure or Schema. DDL deals with description of database schema. It is used to create and modify the structure of database objects. DDL provides a set of definition to specify storage structure and access methods used by the database system. Design database by applying the constraints and modify the structure of table. This practical will help students to create and modify the database.

II. Industry/Employer Expected Program Outcomes (POs)

The aim of this practical is to design databases and modify the database structure as per the database applications.

III. Course level learning outcomes

This practical is expected to develop the following skills in you:

1. Understand how to design the Database system based on the requirements
2. Modify the structure of the database and apply the constraints.

IV. Laboratory Learning Outcome(s)

1. Write and execute SQL queries for creating database.
2. Write queries to Modifying the database.
3. Write queries to apply suitable constraints.

V. Relevant Affective domain related Outcome(s)

1. Follow ethical practices.
2. Use appropriate DBMS software.
3. Demonstrate analytical and logical knowledge as an Individual.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VI. Minimum Theoretical Background

Basic SQL Datatypes:

1. CHAR
2. VARCHAR/ VARCHAR2(SIZE)
3. NUMBERS (P, S)
4. DATE

5. LONG
6. RAW/LONG RAW
7. MISCELLANEOUS (clob, blob, xml, Json)

DDL Commands:

It is a set of SQL commands used to create, modify and delete database structure but not the data. These commands normally used by Database administrator (DBA).

1. CREATE
2. ALTER
3. DROP
4. RENAME
5. TRUNCATE
6. DESCRIBE

Create Tables for the Given Application:

Syntax:

CREATE TABLE table_name (column1 name datatype(size), column2 name datatype(size).....);

Modify the Table as per the Application:

Syntax:

ALTER TABLE table_name ADD column_name datatype;

or removing a column:

ALTER TABLE table_name DROP COLUMN column_name;

Procedure:

1. Create Database for given application
2. Create tables for the given application
3. Assign Primary key for created table
4. Modify the table as per the application needs.

VII. Additional Software required

.....
.....
.....

VIII. Precautions

- 1) Use of appropriate syntax
- 2) Select required relations and use relevant conditions.

IX. Additional Resources used

.....
.....
.....

X. Result (Output of the procedure)

Hence we execute DDL Commands to manage Database using SQL

XI. Practical Related Questions

Note: Below are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VII and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

1. Create a table EMPLOYEE with following schema:

Emp (EMP_no as primary key, E_name, Dept_no, Dept_name, Job_id, salary)

2. Create tables EMPLOYEE and DEPARTMENT with following schema by applying Primary and Foreign key:

Emp(empno as primary key, empname, salary, phoneno)

Dept(deptno primary key, empno foreign key, deptname, location).

Theory related Questions

1. List DDL commands with its syntax
2. List different SQL Binary datatypes
3. Write difference between Drop and Truncate command.
4. Write the use of Describe command.

(Space for answers)

.....
.....

XII. Exercise

Attempt following and teacher shall design and allot more questions to attain desired outcome: (Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create table for stud using attributes Rollno, Studname, Percentage. Apply primary key for rollno and check constraint on percentage that the percentage should not be greater than 100.
2. Change the stud table structure by adding column City.
3. Increase the size by 10 of studentname column.
4. Write the output of the following:

Create table Passenger_details(passenger_name varchar2(30), train_details varchar2(30),travelling_date date, birthdate date);	Output:
---	---------

(3)

* Practical Related questions.

1] →

```
CREATE TABLE EMPLOYEE (  
EMP_NO int PRIMARY key;  
EMP_name Varchar (50);  
Dept_no int [2],  
Dept_name Varchar (10),  
Job_id int [4],  
Salary int (10),  
);
```

2] →

```
CREATE TABLE EMPLOYEE (  
EMP_No int PRIMARY key,  
EMP_Name Varchar (50),  
Salary int (10),  
Phone_no int (2),  
);
```

* Theory Related questions

1] →

DPL Commands with its syntax are given below

1. CREATE

Syntax:

```
CREATE TABLE <table_name>  
(
```

Column - 1 attribute,
Column - 2 datatype,
Column - 3 datatype,
!
);

2. Alter

Syntax:

ALTER TABLE <table_name>

ADD attribute or name datatype;

3. TRUNCATE:

Syntax:

TRUNCATE TABLE student_info;

4. DROP:

Syntax:

DROP TABLE <table name>

5. RENAME

Syntax:

RENAME TABLE <TABLE - NAME> to <New - Table Name>;

Q.2 →

Binary datatypes of SQL are as follow

1. BINARY (n);

2. Varbinary (n);

3. Varbinary (max);

4. image

5. BLOB

6. BYTE

7. RAW

3] →

DROP

TRUNCATE

① It is used to eliminate the whole database from the table

① It is used to eliminate the tuples from the table

② Integrity constraints get removed in the DROP command

② Integrity constraint doesn't get removed in the truncate command

③ Here the table is free from memory

③ Here the table is not free from memory

④ It is slow as compared to the truncate command

④ It is fast as compared to the DROP command

4] →

The describe command in SQL is used to see the table's structure. The describe command gives you complete information about the structure we have given to the table while creating it. The database command will help us view the table in the describe tab.

* Exercise

1] →

```
CREATE TABLE STUD (  
  Stud_Rollno int PRIMARY KEY,  
  Stud_Name Varchar [50],  
  Stud_Percentage int (2),  
);
```

2] →

```
CREATE TABLE STUD (  
  Stud_Rollno int PRIMARY KEY,  
  Stud_Name Varchar [50],  
  Stud_Percentage int (2),  
  City Varchar [50];  
);
```

3] →

```
CREATE TABLE STUD (  
  Stud_Rollno int Primary Key,  
  Stud_name Varchar [20],  
  Stud_Percentage int (10),  
  city Varchar [20],  
  alter table stud modify, stud_name  
  (50);  
);
```

4] →

Passenger Details

Passenger name	Train details	Travelling date	Birth Date
Vaishnavi	Secunderabad	12/8/24	2/11/2007
Nayan	to Vishakhapatnam	12/8/24	2/12/2003

* Exercise :

1] →

```
CREATE TABLE Stud ( roll_no int(2) Primary key,  
Stud_name VARCHAR (100) ,  
Percentage DECIMAL (5, 2),  
Check (percentage >= 100));
```

} int(2);

2] →

To add a new city column we have to use alter command.

```
ALTER TABLE Stud  
ADD city VARCHAR (100);
```

Output:

Roll no	Stud_name	stud_percentage	city
71	Vaishnavi	88	Pune
79	Sanskriti	87	Nashik

3] →

To increase the size of stud_name column by 10 character, you can use the ALTER TABLE with modify.

```
ALTER TABLE stud  
MODIFY stud_name VARCHAR (110);
```

Stud name size increased by 10.

Alter table stud add phone_no number;
 (Space for answers) Output:
 Alter table stud
 ADD phone_no number int(10);

Stud ID	Stud Name	Stud age	Dept
191	Vaishnavi	17	Co
172	Samarudhi	17	EJ
131	Mansi	17	EE

After adding the command of alter to add the phone_no the table is given below

Alter table stud add phone_no;

Stud Id	Stud name	Stud Age	Dept	Ph.no
191	Vaishnavi	17	Co	9403707507
172	Samarudhi	17	EJ	9503181814
151	Mansi	17	EE	8167420311

XIII. Precautions to be followed

1. Use of appropriate syntax
2. Select required relations and use relevant conditions.

XIV. References/ Suggestions for further Reading

1. <https://blogs.oracle.com/sql/post/how-to-use-create-table-alter-table-and-drop-table-in-oracle-database>
2. <https://support.microsoft.com/en-us/office/database-design-basics-eb2159cf-1e30-401a-8084-bd4f9c9ca1f5>
3. <https://www.oracle.com/>
4. www.w3school.com
5. https://www.youtube.com/watch?v=vUj-kUEC_oA