

LESSON 1.4

98-364 Database Administration Fundamentals

# Understand Data Definition Language (DDL)

## Lesson Overview

### 1.4 Understand data definition language (DDL)

In this lesson, you will review:

- **DDL—DML relationship**
- **DDL**
- **Schema**
- **CREATE**
- **ALTER**
- **DROP**

## DDL—DML Relationship

### DML

- **Data Manipulation Language. (DML)** In a database management system (DBMS), a language that is used to insert data in, update, and query a database. DMLs are often capable of performing mathematical and statistical calculations that facilitate generating reports. *Acronym:* DML.
- DML is used to manipulate the data of a database. In lesson review 1.3, you can find more details on DML.

## DDL

- **Data Definition Language (DDL)** A language that defines all attributes and properties of a database, especially record layouts, field definitions, key fields, file locations, and storage strategy.  
*Acronym: DDL.*
- DDL is used to create the framework for the database, the schema of the database, or both. DDL works at the table level of the database.

## Schema

- **Schema** A description of a database to a DBMS in the language provided by the DBMS. A schema defines aspects of the database, such as attributes (fields) and domains and parameters of the attributes. Schemas are generally defined as using commands from a DDL supported by the database system.

## CREATE

- There are two forms of the CREATE statement.

This statement creates a database called students.

```
CREATE DATABASE Students
```

This statement creates a table with four attributes/fields in the current database. All fields must have data when populated because of the null attribute.

```
CREATE TABLE grant_info  
(first_name char(20) not null,  
last_name char(20) not null,  
student_id int not null,  
aid_awarded int not null)
```

## ALTER

- ALTER changes the structure of the table; in this example, we change the structure of the table Grant\_info. We are adding a numeric field for a federal funding reference number. The field may be empty, or it may have a null value.

```
ALTER TABLE Grant_info  
ADD Federal int null
```

- You can also change attributes; in this example, we change the structure of the table Grant\_info field last\_name to the data type of VARCHAR(size).

```
ALTER TABLE Grant_info ALTER last_name VARCHAR(35)
```

## DROP

The DROP TABLE statement removes the table and all its data.

In this code, we remove the table Grant\_info and all the table's data.

```
DROP TABLE Grant_info
```



## DML

- DML is used to retrieve and modify database information. These commands will be used by all database users during a routine workday.
- Following is a basic review of some of the most common DML commands:
  - **SELECT**—The **SELECT** command is the most common one in SQL. It allows a user to retrieve specific information from the database.

```
SELECT *  
FROM Grant_info  
WHERE aid_awarded > $36000
```

This code selects all students from the `Grant_info` table that have been awarded more than \$36,000.

## INSERT

**INSERT** - The **INSERT** command is used to add records to an existing table.

```
INSERT INTO Grant_info  
values ('John, 'Doe', 12345, $2200)
```

There are four data values specified for the record. These correspond to the table attributes/fields in the order that they were defined: `first_name`, `last_name`, `student_id`, and `aid_awarded`.

We have added John Doe to the `grant_info` table and set the data value associated this record: `Student_id = 12345` and `aid_award = $2200`.

## UPDATE

The UPDATE command can be used to modify information contained within a table, either individual data or groups of data .

```
UPDATE Grant_info  
SET aid_awarded = aid_awarded + $4000  
WHERE student_id = 12345
```

This UPDATE command calls the Grant\_info table and changes the value of aid awarded by an additional \$4,000 for student 12345.

## DELETE

The DELETE command is used to remove records from an existing table.

```
DELETE FROM Grant_info  
WHERE student_id = 12345
```

Since we are deleting all fields of the record from the table, we do not have to specify the fields' names, as we did when we inserted the record. This removes only the record with `student_id = 12345`.