

12. STRUCTURED QUERY LANGUAGE

Learning Objectives

After studying this lesson, students will be able to:

- ◆ The processing skills of SQL.
- ◆ The components of SQL.
- ◆ To create a table by specifying the fields and records.
- ◆ To apply various manipulations like inserting, updating and deleting records in a table.
- ◆ To learn about various constraints and to apply it on tables.
- ◆ To generate queries in the table by applying various clauses.
- ◆ To modify the structure of an existing table.
- ◆ The commands to delete records, table and revoke the commands.

Important Points and Notes

- ❖ The Structured Query Language (SQL) is a standard programming language to access and manipulate databases.
- ❖ Latest SQL standard as of now is SQL 2008, released in 2008.
- ❖ RDBMS stands for Relational DataBase Management System.
- ❖ The data in RDBMS, is stored in database objects, called Tables. A table is a collection of related data entries and it consist of rows and columns.
- ❖ A field is a column in a table that is designed to maintain specific related information about every record in the table.

- ❖ A Record is a row, which is a collection of related fields or columns that exist in a table.
- ❖ **SQL**-Structured Query Language is a language used for accessing databases while **MySQL** is a database management system, like SQL Server, Oracle, Informix, Postgres, etc. **MySQL** is a **RDBMS**.
- ❖ **WAMP** stands for “**Windows, Apache, MySQL and PHP**”. **WAMP** is a variation of **LAMP** for windows systems and is installed as a software bundle (Apache, MySQL and PHP). It is often used for web development and internal testing, but may also be used to serve live websites.
- ❖ SQL commands are divided into five categories:
 - I. DML - Data Manipulation Language
 - II. DDL - Data Definition Language
 - III. DCL - Data Control Language
 - IV. TCL - Transaction Control Language
 - V. DQL - Data Query Language
- ❖ The Data Definition Language (DDL) consist of SQL statements used to define the database structure or schema.

- ❖ A **Data Manipulation Language (DML)** is a computer programming language used for adding (inserting), removing (deleting), and modifying (updating) data in a database.
- ❖ A **Data Control Language (DCL)** is a programming language used to control the access of data stored in a database.
- ❖ **Transactional control language (TCL)** commands are used to manage transactions in the database.
- ❖ The Data Query Language consist of commands used to query or retrieve data from a database.
- ❖ Constraint is a condition applicable on a field or set of fields.
- ❖ The check constraint may use relational and logical operators for condition.
- ❖ In the INSERT command the fields that are omitted will have either default value defined or NULL value.
- ❖ The **DELETE** command permanently removes one or more records from the table.
- ❖ The **UPDATE** command updates some or all data values in a database.
- ❖ The **TRUNCATE** command is used to delete all the rows from the table, the structure remains and the space is freed from the table.
- ❖ The **DROP TABLE** command is used to remove a table from the database.

- ❖ The **ALTER** command is used to alter the table structure like adding a column, renaming the existing column, change the data type of any column or size of the column or delete the column from the table.
- ❖ The **DISTINCT** keyword is used along with the **SELECT** command to eliminate duplicate rows in the table.
- ❖ Non NULL values in a table can be listed using IS NOT NULL.
- ❖ The ORDER BY clause does not affect the original table.
- ❖ Sorting can be done on multiple fields.
- ❖ The * is used with the COUNT to include the NULL values.