Chapter 01

Introduction to MySQL

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Introduction

- MySQL is an open source, free and powerful Relational Database Management System (DBMS) that uses SQL.

- It was developed by Michael Widenius and AKA Monty. It was named after Monty's daughter *My*. The logo of MySQL - the dolphin, is named as *Sakila*.

- It is a fast, reliable, scalable alternative to many of the commercial RDBMS.

- MySQL is created and distributed by MySQL AB, a company based in Sweden, now part of the Sun Microsystems.

- It can be freely downloaded from www.mysql.org

Key features of MySQL

Speed

It if faster than most of the commercial RDBMSs like Oracle, MS SQL Server.

Free of Cost

It is available free of cost as Open Source database. It is part of LAMP (Linux, Apache, MySQL, PHP/ Perl/ Python)

Portability

It can be installed and run on different types of Hardware and Operating System platform.

Security

It offers privilege and password system for authorization.

Connectivity

It may connect various types of client using different protocols.

Ease of Use

It is simple database system and offers an interactive environment to work.

Query Language

It uses SQL (Structured Query Language) as query language, which is standardized by ANSI.

MySQL & SQL

In order to access data from MySQL database, all program and user must use SQL (Structured Query Language). SQL is a set of commands that are recognized by all the RDBMSs and has become a standard.

SQL is a language that enables you to create and manage a relational database, in which all the information are kept in tables.

There are numerous version of SQL. The original version was developed at IBM's San Jose Research Laboratory with a name of Sequal, as a part of System R project in 1970s. It was standardized by ANSI in 1986 by the name of SQL.

Features of SQL- Capabilities

The processing capabilities of SQL are followings-

- ## Data Definition Language (DDL)
  - The SQL DDL provides commands to create, alter and delete database schema objects like table, views, index etc.
- ## Data Manipulation Language (DML)
  - These commands are used to insert, delete, update and retrieve the stored records from the table.
- ## Embedded Data Manipulation Language
  - The SQL DML command can be executed or used in General Programming Languages like Pascal, C,C++ and JAVA etc.
- ## View Definition
  - The SQL DDL command also used to create Views for simplicity and privacy.
- ## Authorization
  - The SQL DDL command also used for specifying access rights to the Relations (Table) and Views.
- ## Integrity
  - Various data validation rules (Integrity constraints) can also implemented by SQL to insure correctness of data.
- ## Transaction control
  - The SQL includes commands to the database transactions effectively.

Types of SQL Commands

The commands of SQL can be categorized in the followings-

- ## Data Definition Language (DDL)

- These SQL commands are used to create, alter and delete database objects like table, views, index etc.
- CREATE TABLE, CREATE VIEW, CREATE INDEX,
- ALTER TABLE, DROP TABLE, DRP INDEX etc.

- ## Data Manipulation Language (DML)

- These commands are used to insert, delete, update and retrieve the stored records from the table.
- SELECT□ ., INSERT□ , DELETE□ , UPDATE□ . etc.

- ## Transaction Control Language (TCL)

- These commands are used to control the transaction.
- COMMIT, ROLLBACK, SAVEPOINT etc.

- ## Data Control Language (DCL)

- These commands are used to manipulate permissions or access rights to the tables etc.
- GRANT.. , REVOKE...