MES College of Engineering Pune-01

Department of Computer Engineering

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GROUP: A ASSIGNMENT NO: 01

AIM: Study of Open Source Relational Databases : MySQL

OBJECTIVES:

- To develop basic, intermediate and advanced Database programming skills.
- To develop basic Database administration skill.

APPRATUS:

- Operating System recommended: 64-bit Open source Linux or its derivative
- SQL Database: MySql: 5.5.54

INSTALLATION STEP:

Step 1: Open terminal

Alt+Ctrl+t

Step 2: Update your system

sudo apt-get update

Step 3: ***Install MySQL***

sudo apt-get install mysql-server

Step 4: Root Login

mysql -u root -p

Step 5: ***Create a New Database***

create database mydatabase;

Step 6:***Exit MySQL.***

exit

For see the version use:*mysql --version*

Group A : Assignment No. 1.

Aim: Study of Open Source Relational Databases : MySQL

Questions:

1. What is Relational Database Management System?

→ A database management system consists of a collection of interrelated data & a collection of programs to access that data. The primary goal of DBMS is to provide a method to save & retrieve database information that is both efficient & easy.

RDBMS (Relational Database Management System) is a DBMS designed specifically for relational databases. The relational model uses a collection of tables to represent both data and relationships among those data. Each table has multiple columns & these columns have a unique name. Tables are also known as relations. The storage of data in a structured format makes locating easy & access specific values within the database.

While a relational database describes type of database an RDBMS manages, the RDBMS refers to the database program itself. It's the software that executes queries on the data, including adding, updating & searching for values.

eg - Oracle Database, MySQL, Microsoft SQL server & IBM DB2.

2. What is MySQL server?

→ MySQL Server is a database management system which can add, access & process data stored in a computer database. MySQL Database Server is a very fast, reliable, scalable & easy to use.
It offers a rich and useful function set.
MySQL server is a client/server system which consists of a multithreaded SQL server that supports different backends, several different client programs & libraries, administrative tools and a wide range of APIs.

3) What are features of MySQL?

Ans. Clients and Tools –
MySQL includes several client and utility programs. These include both command-line programs such as mysqldump and mysqladmin and graphical program such as MySQL Workbench.

Connectivity:
i) Clients can connect to MySQL Server using TCP/IP sockets on any platform.
ii) MySQL Client programs can be written in many languages. For this, connectors & APIs for C, C++, Eiffel, Java, Perl, PHP, Python, Tcl & Ruby are available.

Localization:

i) The server can provide error messages to clients in many languages.
ii) Full support for different character sets.
iii) The Server time zone can be changed dynamically, and individual clients can specify their own timezone

Internals & Portability —

i) Written in C & C++.
ii) Works on many different platforms.
iii) Uses very fast B-Tree disk tables with index compression.
iv) Uses very fast thread-based memory allocation system.

Security:

i) A privilege & password system that is very flexible and secure which enables host-based verification.
ii) Password security by encryption of all password traffic when connected to a server.

Scalability & Limits

i) Support for large database that contain 50 million records with 2 00,000 tables & about 5,000,000,000 rows.
ii) Support for upto 64 indexes per table.

4. What is default port for MySQL server?

Ans. The default port number is 3306. It is a TCP/IP port on which MySQL server is listening.

5. List different datatypes in MySQL.

Ans. MySQL uses many different data types broken into three categories:

i) Numeric Datatypes:

→ INT, INTEGER.

→ TINYINT, SMALLINT, MEDIUMINT, BIGINT

→ FLOAT, DOUBLE, DECIMAL

→ BOOL, BOOLEAN.

ii) Date & Time Types.

→ DATE, DATETIME.

→ TIMESTAMP, TIME

→ YEAR.

iii) String Types

→ CHAR, VARCHAR

→ BLOB, TINYBLOB, MEDIUMBLOB, LONGBLOB or TEXT, TINYTEXT, MEDIUMTEXT, LONGTEXT

→ ENUM, SET.

→ BINARY, VARBINARY.

6 Explain DML, DDL & DCL

→ DML (Data Manipulation Language):

A data manipulation language (DML) is a language that enables users to access or manipulate data as organized by the appropriate data model. The types of accesses are:

i) Retrieval of information stored in database.
ii) Insertion of new info into the database.
iii) Deletion of information from database.
iv) Modification of information stored in the database

To read records from table(s) – SELECT
To insert records into table(s) – INSERT
Update data in table(s) – UPDATE
Delete all records from table – TRUNCATE
Delete a record from table. – DELETE

DDL (Data Definition Language):

We specify a database schema by a set of definitions expressed by special language called a data-definition language.

To create database instance – CREATE
To alter structure of database – ALTER
To drop database instance – DROP
To rename database instance – RENAME

DCL (Data Control Language):

→ A data control language (DCL) is a language that is used for controlling privilege in the database. It is used for granting & revoking user access on a database

To grant access to user - GRANT
To revoke access from user - REVOKE

In practical, data definition language, data manipulation language and data control languages are not seperate language. rather they are parts of single database language such as SQL.

7. Write down command to get list of databases and tables in MySQL.

→ To get list of databases.

>> show databases;

To get list of tables in a database

>> show ~~databases;~~ tables;