Assignment 1

Title: Study of Open Source Relational Databases : MySQL

Objective: Understanding the open source tool Mysql and its installation on fedora**.**

1) What is database?

Database is a systematic collection of interrelated data. Databases support storage and manipulation of data. Databases make data management easy.

Examples:-

1. An online telephone directory would definitely use database to store data pertaining to people, phone numbers, other contact details, etc.
2. Your electricity service provider is obviously using a database to manage billing , client related issues, to handle fault data, etc.
3. Teacher keeps student data base like name,roll_no,add,Date of birth.

2) What is database management system?

A d*atabase* m*anagement* s*ystem* (DBMS) is a collection of programs that enables you to store, modify, and extract information from a database.

A **DBMS** is a software that allows creation, definition and manipulation of database. Dbms is actualy a tool used to perform any kind of operation on data in database.

A DBMS receives instruction from a database administrator (DBA) and accordingly instructs the system to make the necessary changes. These commands can be to load, retrieve or modify existing data from the system.

Examples:-

alter table employee **modify** column e_id int primary key;

3) Define RDBMS?

A **relational database management system** (**RDBMS**) is a database management system (DBMS) that is based on the relational model . It organizes data into related rows and columns. The relational model has relationship between tables using primary keys, foreign keys and indexes.

Features:

- Provides data to be stored in tables
- Persists data in the form of rows and columns
- Provides facility primary key, to uniquely identify the rows
- Creates indexes for quicker data retrieval
- Provides a virtual table creation in which sensitive data can be stored & query can be applied.
- Sharing a common column in two or more tables(primary key and foreign key)
- Provides multiuser accessibility that can be controlled by individual users.

4) Difference between RDBMS and DBMS?

No.	DBMS	RDBMS
1)	DBMS applications store **data as file**.	RDBMS applications store **data in a tabular form**.
2)	In DBMS, data is generally stored in either a hierarchical form or a navigational form.	In RDBMS, the tables have an identifier called primary key and t data values are stored in the form of tables.
3)	**Normalization is not** present in DBMS.	**Normalization is** present in RDBMS.
4)	DBMS does **not apply any security** with regards to data manipulation.	RDBMS **defines the integrity constraint** for the purpose of AC (Atomocity, Consistency, Isolation and Durability) property.
5)	DBMS uses file system to store data, so there will be **no relation between the tables**.	in RDBMS, data values are stored in the form of tables, so **relationship** between these data values will be stored in the form a table as well.
6)	DBMS has to provide some uniform methods to access the stored information.	RDBMS system supports a tabular structure of the data and relationship between them to access the stored information.
7)	DBMS **does not support distributed database**.	RDBMS **supports distributed database**.
8)	DBMS is meant to be for small organization and **deal with small data**. it supports **single user**.	RDBMS is designed to **handle large amount of data**. it suppo **multiple users**.
9)	Examples of DBMS are file systems, **xml** etc.	Example of RDBMS are **mysql, postgre, sql server, oracle** etc.

5) Define Table and Database?

Table:-

A **table** is a collection of data elements organised in terms of rows and columns. A table is also considered as convenient representation of **relations**. But a table can have duplicate tuples while a true **relation** cannot have duplicate tuples. Table is the most simplest form of data storage. Below is an example of Employee table.

ID	Name	Age	Salary
1	Dipika	22	13000
2	Sonu	20	15000
3	Sneha	21	18000
4	Priya	19	19020

Database:-

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6) Define Record, Attribute?

Record:-

A single entry in a table is called a **Record** or **Row**. A **Record** in a table represents set of related data. For example, the above **Employee** table has 4 records.

Following is an example of single record.

Gray highlighted data is called as Touple.

Yellow highlighted data is called as Attributes

1	Sonu	34	13000
2	monu	45	15000

Attribute:-

It is the name of the column. An attribute gives the characteristics of the entity.
For example, A customer of bank may be described by: name, address, customer ID number. It is also called as data element, data field, a field, a data item, or an elementary item.

Type of Attributes in DBMS –

1) Simple Attribute.

2) Complex Attribute.

3) Multivalued Attribute.

4) Derived Attribute.

5) Single Attribute.

7) What is MY SQL?

MySQL is the world's most popular open source database. With its proven performance, reliability and ease-of-use, MySQL has become the leading database choice for web-based applications, used by high profile web properties including Facebook, Twitter, YouTube, Yahoo! and many more.

MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages. MySQL uses a standard form of the well-known SQL data language.

MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc. MySQL works very quickly and works well even with large data sets.

8) Steps to install MY SQL on fedora?

1. switch user:

[root@localhost admin]# yum install mysql -server

2. To install my sql type following command on terminal

[root@localhost admin]# systemctl start mysqld.service
[root@localhost admin]#mysql

3. After installation is finished, check the installation

root@localhost admin]# mysql