CONCEPT OF MYSQL

You either all have made some kind of database or have seen your parents creating one for daily household items and budget. In your school, you have seen attendance register where your daily attendance is stored or shopkeepers who maintain a daily diary of all the items that are sold, items are in store and those items are in deficit. These all are paper-based database where the details are written on the paper and stored for the future use.

The SQL tells about maintaining database on the computer to make your daily work easy. For instance, the police have computerized data of the entire criminal like their name, address, blood group, figure print, contact number and the details of their crime. This database helps the police to retrieve the knowledge of any criminal when in need. Similarly, you must have seen in your library, a computerized database where the details of book available, books that are borrowed by students, total inventory management has been stored.

When you have to create or maintain a database on the computer, you need a specialized program that helps to maintain or create the database efficiently. This is called Database Management System (DBMS) that are based on various software like MySQL, Microsoft Access, DB2, PostgreSQL, Microsoft SQL Server, Sybase or Oracle. MySQL is the most popular software that enable its users various facilities during management of Database.

Tools of DBMS:

- ✓ You can store your entire data in a structured format
- ✓ You can retrieve the data on the questions like name, age, date etc.
- ✓ A DBMS provides you the facility of sorting and manipulating of data when it is needed.
- ✓ You can validate your data time to time and check for any problems or discrepancies.
- ✓ You can make your report based on the DBMS on the paper as well as on the computer screen. It helps to understand the data and report more clearly and hassle free.

What is Relational Database?

Usually, the various data are organized into separate tables and when these tables are linked with each other through the common column to produce a detail report, it is called relational database. For instance,

The database of 5 students in a class, their roll number, their preferred activities and the cost of these activities:

Student's data **database Learner**

Name	**Roll No.**
Rehan	**02**
Shristi	**03**
Arni	**04**
Sohail	**05**
Drisyam	**06**

Table

Participant

Roll No.	***Activity***
02	***skating***
03	***dancing***
03	***karate***
04	***skating***
05	***swimming***
05	***dancing***
06	***karate***
04	***swimming***

Activity Table

Activity	Cost/month
skating	600
dancing	600
swimming	800
karate	800

Let's see one more design of RDBMS based on airport retrieval system

Airport Information Retrieval System:

Airport Information Retrieval system provides information of Airbuses with all expected information that is needed to know about the arrival and departure of all flight on the particular airport.

Customer requests with their information for the retrieval of flight information. The information should be flight number, airport name, date, and depart/arrival.

Airport maintains their DB with the help of below information that is airport name, terminal number, flight number, depart _arrival, and depart _arrival time.

Airbuses also maintain their own DB based on the basis of their seat, available seat, booked seat.

RDBMS Design for Airline information retrieval:

Customer Request:

Customer Request Form DB

Airbus Name	Airport Name	date	Departure	Arrival Time
A 320	AB1	22-10-15	12.00	14.00
IN 456	AB1	22-10-15	16.32	18.45
J 334	AB1	22-10-15	19.49	22.15

Airport DB

Airbus DB

Terminal Number	Airbus Name	Depart/Arrival	D/A Time IST	Ex D/A Time
A	A 320	Depart	02:30	02:30
B	IN 456	Arrive	14:56	15:43
C	J 334	Arrive	22:10	22:10

Serial No.	Airbus Name	Total Seat	Booked seat	Available Seat
AB01	A 320	150	130	20
AB02	IN 456	150	100	50
AB03	J 334	200	80	120

Steps for Execution (Control Flow):

1. Customer enters the form with required information as mentioned above
2. Airport checks the status of airline based on their available information
3. If any information needed specially for airbus, then it gets information from that particular airbus information system

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Queries

Select Terminal number, airport name, flight number, flight status,

Flight Number = ……..

Airport Name=……..

Date =……..

Depart_Arrrival=……..

The query then will execute at Airport admin end. So as per the assumption, there should be three table needed in airline information retrieval

Request DataBase

Terminal Number	Airport Name	Flight No	Flight Status
A	AB1	A 320	Depart
B	AB1	IN 456	Arrival
C	AB2	J 334	Arrival
D	AB1	A 342	Depart
E	AB2	AIR 876	Depart
F	AB1	J274	Arrival

Note: This is the first table that validates the customer form. If Terminal No. or Airport name or any other information does not exit then the request will be discarded from here itself.

Airport Database:

Serial No.	Airport Name	Flight No.	Depart_Arrive	Depart_ArriveTime	Expected Depart_arrive time
1	AB1	A320	Depart	2.30	2.30
2	AB1	IN 456	Arrival	14.56	15.43 Late
3	AB2	J334	Arrival	22.10	22.10
4	AB2	A342	Depart	6.50	7.20 late

Airbus Information:

Serial No.	Airbus name	Total Seat	Booked Seat	Available Seat
AB01	A 320	150	130	20
AB02	IN 456	150	100	50
AB03	J 334	200	80	120

Airbus information is maintained based on Airbus Companies. Example: Jet Airways, Go Air, Air India, Indigo etc.

Introduction of MySQL:

MySQL is developed by David Axmark, Allan Laesson and Michael Widenius in Sweden. It is a Relational Database Management System (RDBS) that works as a platform independent application for operating systems like Window, UNIX, Linux etc.

The Key Features of MySQL:

- It is fast, easy and reliable
- It is emancipated under an open-source license and the usages are free.
- It has compatibility with many computer languages like JAVA, PERL, C++, PHP etc.
- It is easy to install and can handle large data
- Anyone can download free from internet for use.

How to download MySQL for platforms like Window and Linux:

- Search online for websites from where you can download MySQL free.
- Check that your OS is appropriate for the version of MySQL
- Find the "Download button" and click it.
- Choose the supported platform like 32 bit and 64 bit for OS
- Follow the instruction and install the file.
- Double click it to begin with MySQL setup wizard
- A welcome dialog box will appear, now click the next button.
- The wizard will ask to choose the installation directory on your computer
- It also offers you option for choose the installation of optional components.
- Choose "Typical" from the option and the MySQL will be installed in your default directory. Most of the cases, it is C: drive.
- Click the next button
- Now, the directory is ready to install the files of MySQL.
- Click the install button
- Let the setup complete and then configure the new server

How to configure MySQL into your system:

- Open the MySQL folder and an initial Server Instance Configuration Wizard dialog box will be open
- Click the next button
- Follow the instructions and keep selecting default options given in every window.
- You get the notice, that the configuration file has been completed, if no error occur during configuration.
- Now, MySQL is installed and ready to use.
- Your security system will identify and scan the software
- You get a prompt where a password will be asked
- Fill the password box and remember for further use.

How to test MySQL:

To start the SQL, you need to follow these steps

Start> Programs>MySQL>….>MySQL Command Line Client

You can also go the folder by following the path:

C:\Program Files\MySQL\MySQL Server 5.1\bin [Assuming C:\ drive as the drive having MySQL] and then on the file MySQL.EXE

You will see a prompt message from MySQL to provide the same password that you have filled during installation.

```
Enter Password:****

Welcome to the MySQL monitor.  Commands end with ; or \g.

Your MySQL connection id is 4

Server version: 5.0.51a-community-nt MySQL Community Edition (GPL)

Type 'help;' or '\h' for help.Type '\c' to clear the buffer.

Mysql>
```

To exit from the MySQL, you need to type either Quit or Exit

Mysq1>Quit

These steps will confirm the installation and configuration of the server correctly. Now, you are ready to create your database, and use other functions like making table, executing SQL queries etc.

How to install MySQL into Linux:

You can download the binary version of MySQL for Linux. You have to follow given instructions. You need to choose an appropriate version of Linux to install MySQL.

How to create MySQL Linux account:

- cd /usr/local
- groupaddmysql
- useradd -c "MySQL Software Owner" -g mysqlmysql
- passwdmysql

Changing password for user mysql.

password: all authentication tokens updated successfully

How to install Binary Version:

You need to unzip the file first and then you have to change the directory to MySQL

#cd mysql

#scripts/mysql_install_db --user=mysql

You have to follow the further instruction:

- Preparing db table
- Preparing host table Preparing
- user table Preparing func table
- . . .
- . . .
- . . .
- The latest information about MySQL is available on the web at
- http://www.mysql.com
- Support MySQL by buying support/licenses at
- https://order.mysql.com

How to start and stop the MySQL:

#Starting the MySQL Database

su –

cd /usr/local/mysql

bin/mysqld_safe --user=mysql&

You can Start MySQLd daemon with databases from:

/usr/local/mysql/data

How to stop the MySQL Database:

su –

cd /usr/local/mysql

bin/mysqladmin -u root shutdown

040803 23:36:27 mysqld ended

[1]+ Done bin/mysqld_safe --user=mysql

Answer the following questions:

1. What is RDBMS?
2. Establish a relative database for your library with the data of 5 books of your choice?
3. What is MySQL?
4. How will you download MySQL for Window?
5. How to define Database?
6. Why a database management is useful for anybody?