Practical MySQL

Session 1

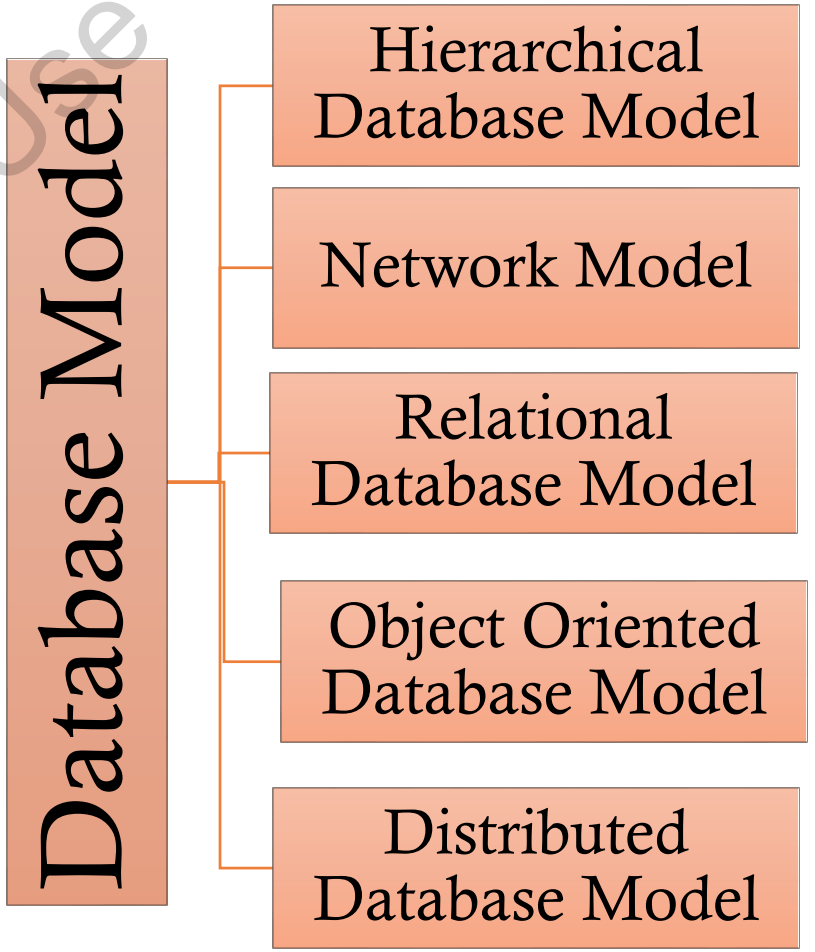
Introduction to MySQL

Session Overview

- Define database
- Explain and list different elements of database management system
- List different types of database models
- Describe the principles of MySQL
- Explain how to connect to Database Server using MySQL Workbench
- Explain features, limitations, and deployment of MySQL
- Explain different elements of Normalization in DBMS

Database and Database Model

Database can be defined as a collection of logically related data and information stored in a standardized format.



Relational Database Management System

- Overview of RDBMS
- RDBMS Terminology
- Database Design in RDBMS
- Normalization in RDBMS

Overview of RDBMS

Difference between DBMS and RDBMS

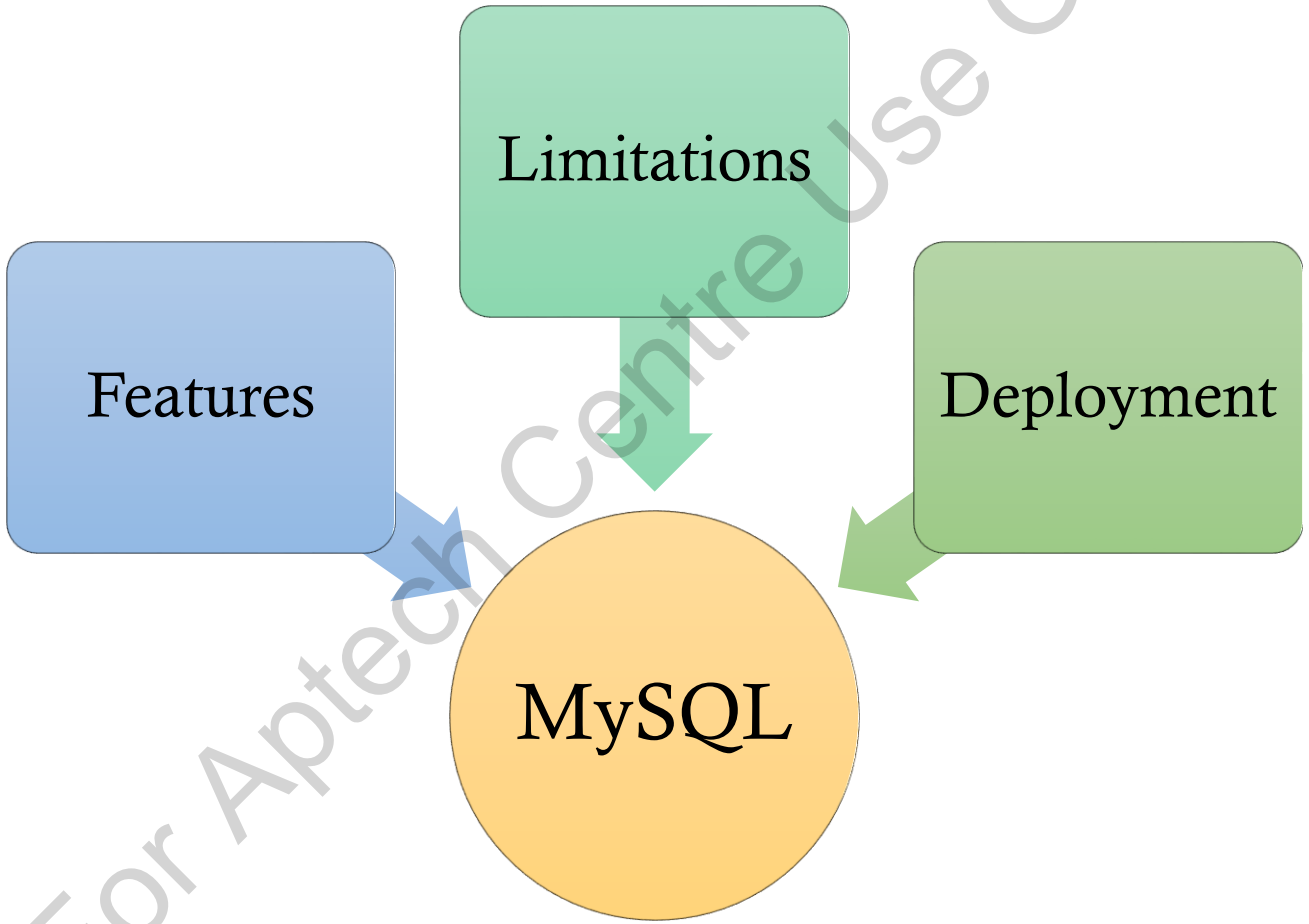
DBMS	RDBMS
Data is contained as a file	Data is contained in table format
Data is stored in either a hierarchical form or a navigational form	The tables have identifiers called as Primary Keys
Normalization is not possible	Normalization is possible
There is no security for data in DBMS	There is an integrity constraint
Does not support distributed database	Supports distributed database
Used for storing small data used for small business	Used for handling a large amount of data and supports multiple users

Uses of MySQL

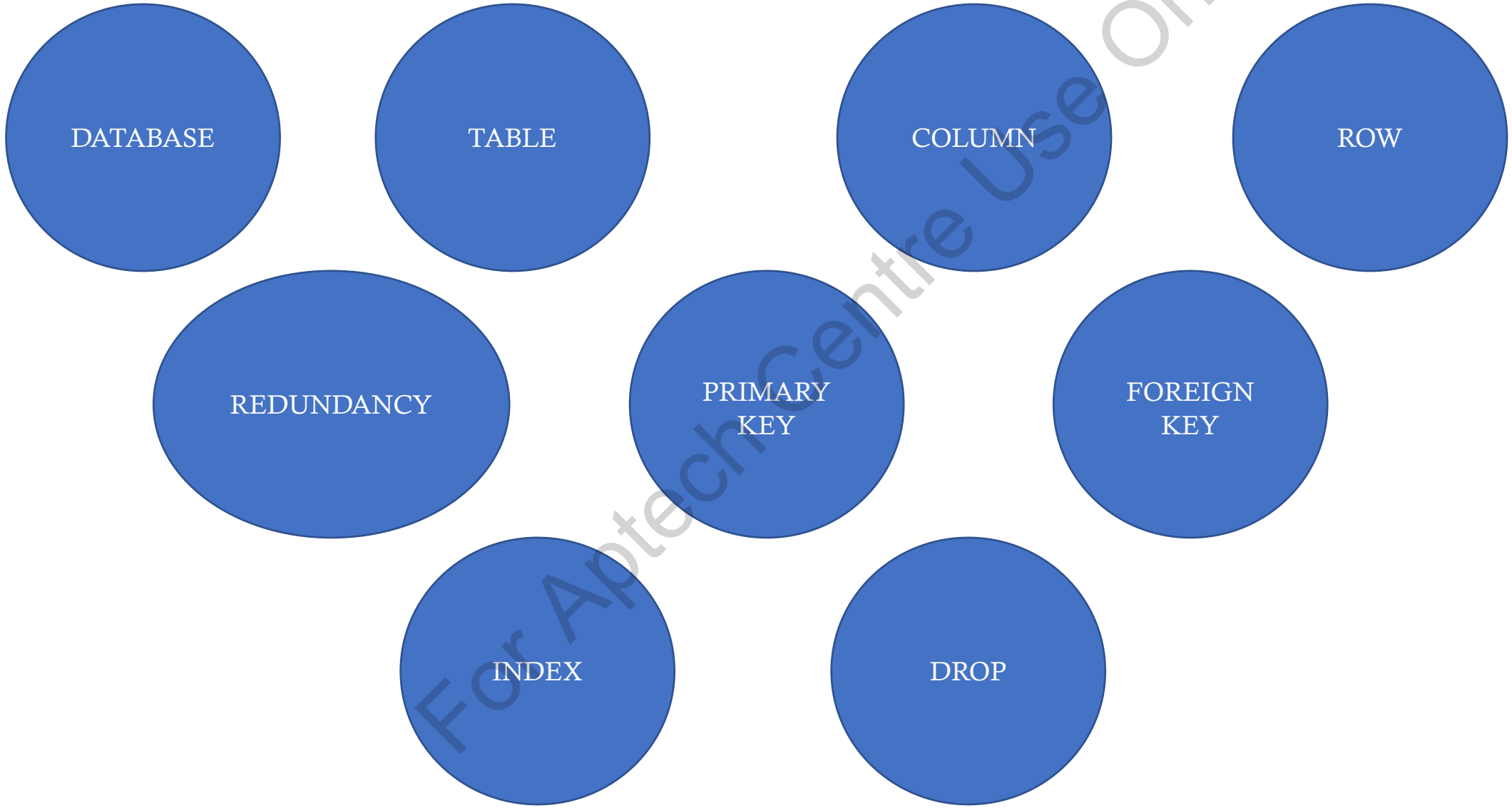
Used on multiple platforms

Provides comprehensive support for Web Application Development	Used for popular Web applications such as Twitter, Instagram Facebook, You tube, and Google	Used by database-driven applications and Content Management Systems (CMS) such as WordPress, Drupal, Joomla, phpBB

Features Limitations and Deployment of MySQL



RDBMS Terminology



Database Table

A collection of:

- Rows and Columns

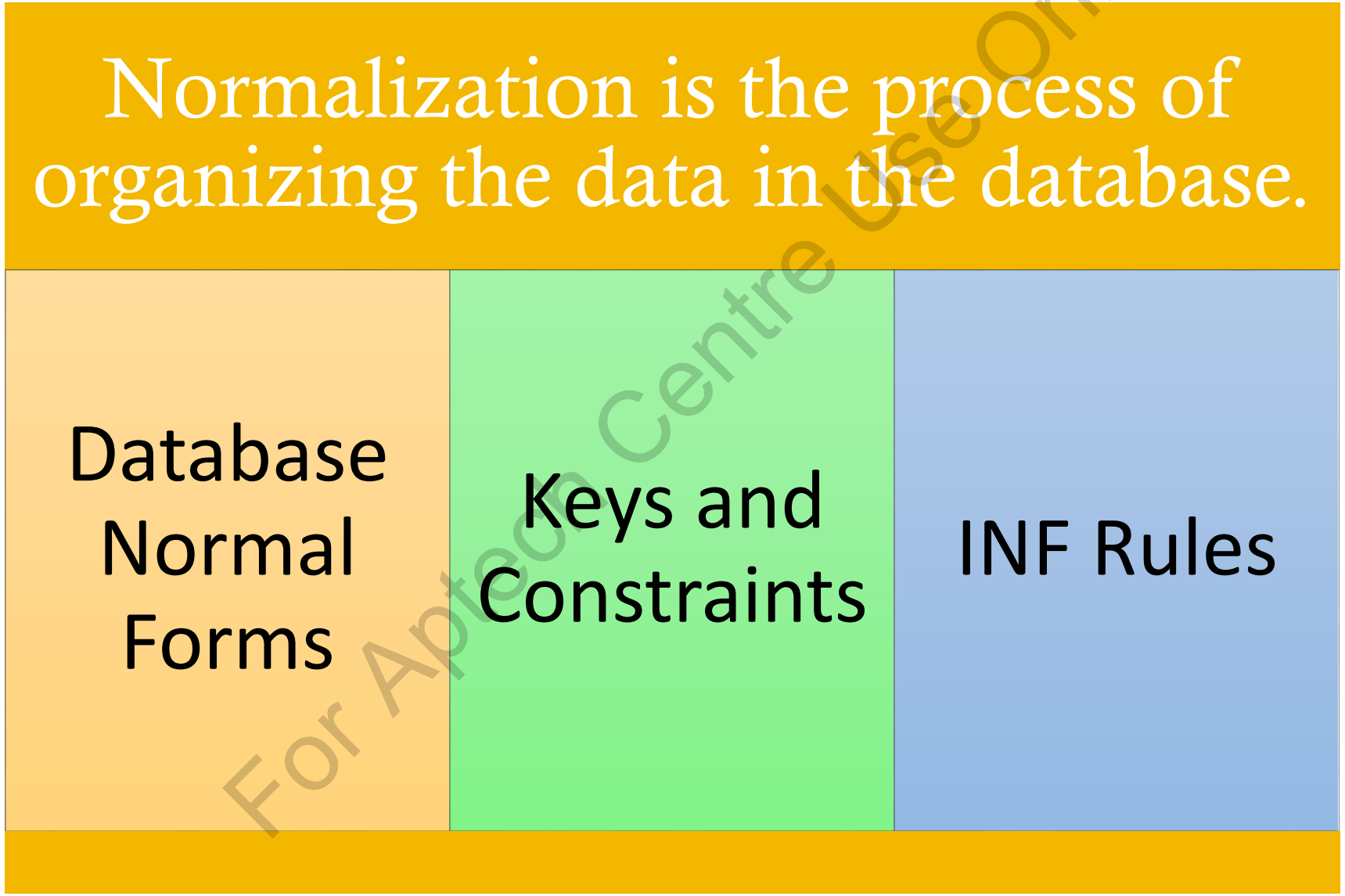
Used to:

- Store
- Retrieve
- Update the data

Used in many areas:

- Communication
- Data analysis
- Research
- Administration

Normalization in RDBMS



Database Design in RDBMS

Database Designing is a process of facilitating the designing, development, implementation, and maintenance of DBMS

Data Modelling	Types of Data Modelling: Conceptual Data Model Logical Data Model Physical Data Model	Importance of Database Design

MySQL
Installation and Post installation Steps

Installation steps

- Installing MySQL on Windows
- Start or Stop MySQL Server on Windows
- Verifying MySQL Installation
- Using mysqladmin Utility to Obtain Server Status
- Executing Simple SQL commands using the MySQL Client

Post installation steps

- Initializing the Data Directory
- Testing the server
- Securing the initial MySQL Account
- Starting and Stopping MySQL Automatically

Running MySQL at Boot Time

Step 1: From Applications → Ubuntu Software Center, search for 'boot up manager'.

Step 2: Click 'boot up manager', go to System → Administration → BootUP-Manager.

Step 3: Open webmin browser, type https://localhost:10000/ and start working on the program.

MySQL Administration

MySQL Connection Types

MySQL Server Connection using Command-Line Client

Connect to Database Server using MySQL Workbench

Summary

- MySQL is an open source RDBMS developed, distributed, and supported by Oracle.
- MySQL administration is used to perform administrative tasks such as – monitoring, configuring, managing users, and so on.
- Database design is the technique of organizing the data. A well designed database provides access to accurate and up-to-date information.
- Commands in MySQL are powerful directives used to perform specific tasks.
- Normalization is the process of organising the data to reduce data redundancy and avoid anomalies such as update, insert, delete, and so on.
- Normalization in MySQL reduces data redundancy by eliminating insertion and updating records.