Module
Presenter's Manual

for

Working with MySQL

Effective From: April 2022
Ver. 1.0

Amendment Record

Version No.	Effective Date	Change	Replaced Pages
1.0	April 2022	New	-

Table of Contents

1. Introduction

At the end of this course, students will be able to:

- Understand basics of MySQL.
- Understand various installation steps for MySQL.
- Learn commands to create, view and alter a database and table.
- Learn various commands to work with data.
- Identify the different types of table joins in MySQL
- Use various functions in MySQL.
- Create and use Stored Procedures.
- Explain transactions and how to handle them.
- Describe Performance Optimization.
- Explain capability of MySQL for scaling and availability.
- Explain replication in MySQL.
- Perform data management using replication.
- Understand concepts of partitioning in MySQL.
- Understand concepts of Storage Systems and Management.

2. Information on Session Allocation

Module	Online (No. of Hrs)	Self-Study (No. of Hrs)
MYSQL	24	10

Throughout this Presenter's Manual, the module *Working with MySQL* will be referred to as **MYSQL**.

3. Session Deliverables

To aid the teaching process, following are the deliverables

(*Faculties can access eBooks and other components in Onlinevarsity through Aptrack.*)

Resources available on Onlinevarsity:

Icons	Feature - Description/Functionality
	Download Book - Student has the option to download the subject related e-book and read offline.
	Glossary - Student can access a list of subject related specialized words with their definitions.
	FAQ - Student can access frequently asked questions and their answers.
	Show Me How - Student can view a step-wise simulation/demonstration of the module related topics.
	Practice 4 Me - Student can test and evaluate their understanding of module related topics.
	Work Assignments - Student can solve scenario based lab assignments (Hands-on). The faculty will evaluate and give their feedbacks.
	References - Student can access additional subject related material for reading.
	Feedback - Student can provide feedback on the course material.
	Ask to Learn – Student can submit subject related technical queries. Queries submitted will be directed to the particular course coordinator/head.

4. Week-wise Session Schedule

- **A Session is of 2 hours duration.**

> **Week-Wise Schedule**

Week	Day 1	Day 2		Day 3	Day 4	
1	Session 1 MYSQL – TL1	Session 2 MYSQL – TL2		Session 3 MYSQL – TL3	Session 4 MYSQL – TL4	S1
2	Session 5 MYSQL – TL5	Session 6 MYSQL – TL6		Session 7 MYSQL – TL7	Session 8 MYSQL – TL8	S2
3	Session 9 MYSQL – TL9	Session 10 MYSQL – TL10	S3	Session 11 MYSQL – TL11	Session 12 MYSQL – TL12	S4 & S5

MySQL: Working with MySQL
TL: Online Session

5. Session Coverage

Session No.	Session Title	Session Details	Deliverables' Mapping
1	**MySQL – TL1**	All the topics as listed below from Session 1 and Session 2 of *Practical MySQL* book should be covered in this session. **Session 1 - Introduction to MySQL** ➢ Define database ➢ List and explain different elements of database management system ➢ Describe the principles of MySQL ➢ List different types of database models ➢ Define RDBMS and its terminology ➢ Establish MySQL Connection ➢ Outline the concepts of Database Design in DBMS ➢ Explain how to connect to Database Server Using MySQL Workbench ➢ Explain features, limitations, and deployment of MySQL ➢ Explain different elements of Normalization in DBMS **Session 2 – Essentials of MySQL** ➢ List MySQL Data Types ➢ List and explain different commands in MySQL ➢ Explain the basics of creating a database ➢ Identify ways to create and drop a database in MySQL ➢ Identify ways to select a database in MySQL ➢ Outline how to create, alter and drop a table	**Practical MySQL** SG-Session 1 & 2 XP-Session 1 & 2 TG-Session 1 & 2
2	**MySQL – TL2**	All the topics as listed below from Session 3 and Session 4 of *Practical MySQL* book should be covered in this session.	**Practical MySQL** SG-Session 3 & 4 XP-Session 3 & 4 TG-Session 3 & 4

Session No.	Session Title	Session Details	Deliverables' Mapping
		Session 3 – Working with Data in MySQL ➢ Explain the SELECT command in detail ➢ Identify the use of INSERT, UPDATE, and DELETE in the manipulation of data ➢ Outline the use of LIKE, IN, BETWEEN, and DISTINCT clauses ➢ Explain MERGE command and its usage **Session 4 – Joins** ➢ Define JOINS ➢ Explain the use of JOINS ➢ Identify different types of JOINS ➢ Explain the use of SET operators ➢ Outline the differences between JOINS and UNIONS	
3	**MYSQL – TL3**	The Code Snippets and Commands from Session 1 to Session 4 of *Practical MySQL* book should be covered in this session.	**Practical MySQL** Session 1-4
4	**MySQL – TL4**	All the topics as listed below from Session 5 of *Practical MySQL* book should be covered in this session. **Session 5 – Subqueries** ➢ Explain subqueries and their usage ➢ Outline the clauses and keywords used in subqueries ➢ Describe practical uses of WHERE and FROM clauses in subqueries ➢ Define IN, NOT IN, EXISTS, and NOT EXISTS keywords ➢ List and explain different types of subqueries	**Practical MySQL** SG-Session 5 XP-Session 5 TG-Session 5
5	**MySQL – TL5**	All the topics as listed below from Session 6 of *Practical MySQL* book should be covered in this session.	**Practical MySQL**

Session No.	Session Title	Session Details	Deliverables' Mapping
		Session 6 – Functions and Stored Procedures ➢ Explain the use of functions in MySQL ➢ Explain different types of functions ➢ Describe the usage of stored routines ➢ Explain how functions are created ➢ Outline the uses of stored procedures and functions	SG-Session 6 XP-Session 6 TG-Session 6
6	**MySQL – TL6**	All the topics as listed below from Session 7 of *Practical MySQL* book should be covered in this session. **Session 7 – MySQL Clauses and Indexes** ➢ Explain the use of functions in Describe MySQL HAVING and ORDER BY clause ➢ Describe MySQL GROUP BY clause ➢ Define and use ROLLUP Modifier ➢ Explain Indexes in MySQL	**Practical MySQL** SG-Session 7 XP-Session 7 TG-Session 7
7	**MySQL – TL7**	All the topics as listed below from Session 8 of *Practical MySQL* book should be covered in this session. **Session 8 – Transactions, Performance Management and Backup** ➢ Define transaction ➢ List different commands used in transactions ➢ Describe transaction using JDBC Driver ➢ Outline different techniques to improve and manage database performance ➢ Explain Replication	**Practical MySQL** SG-Session 8 XP-Session 8 TG-Session 8

Session No.	Session Title	Session Details	Deliverables' Mapping
8	**MYSQL – TL8**	The Code Snippets and Commands from Session 5 to Session 8 of *Practical MySQL* book should be covered in this session.	**Practical MySQL** Session 5-8
9	**MySQL – TL9**	All the topics as listed below from Session 9 of *Practical MySQL* book should be covered in this session. **Session 9 – Replication and Scalability** ➢ Explain MySQL replication architecture ➢ Develop and build on replication ➢ Describe replication topologies ➢ List replication use cases ➢ Summarize types of replications ➢ Identify advantages and disadvantages of MySQL replication	**Practical MySQL** SG-Session 9 XP-Session 9 TG-Session 9
10	**MySQL – TL10**	All the topics as listed below from Session 10 of *Practical MySQL* book should be covered in this session. **Session 10 – Partitioning** ➢ Define partitioning and its different types ➢ Describe how partitioning works ➢ List the benefits of partitioning ➢ Explain partitioning maintenance, pruning and selection ➢ Outline the restrictions and limitations of partitioning	**Practical MySQL** SG-Session 10 XP-Session 10 TG-Session 10
11	**MySQL – TL11**	All the topics as listed below from Session 11 and Session 12 of *Practical MySQL* book should be covered in this session. **Session 11 – Performance Optimization in MySQL** ➢ Explain optimizing queries with MySQL query optimization guidelines	**Practical MySQL** SG-Session 11 & 12 XP-Session 11 & 12 TG-Session 11 & 12

Session No.	Session Title	Session Details	Deliverables' Mapping
		➢ Outline the process of optimizing workload ➢ Define how to monitor fundamental resources ➢ Describe restructuring queries ➢ Describe optimizing subqueries ➢ Identify scalability problems ➢ Explain queue cache ➢ Describe and explain automating of configuration ➢ Explain specific types of queries **Session 12 – Concept of Storage System and Management** ➢ Outline the types of data storage ➢ Explain different types of storage ➢ Describe demand paging and thrashing ➢ Explain process management in DBMS ➢ Define paging and segmentation	
12	**MYSQL – TL12**	The Code Snippets and Commands from Session 9 to Session 12 of *Practical MySQL* book should be covered in this session.	**Practical MySQL** Session 9-12

6. Library References

➢ **Learning MySQL** by Sergey Kuzmichev and Vinicius M. Grippa
➢ **Murach's MySQL** by Joel Murach
➢ **MySQL(TM): The Complete Reference** by Vikram Vaswani

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