# MySQL for Database Administrators Training

Duration: **5 Day**

BILGINC IT Academy
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## Overview

**The MySQL for Database Administrators course teaches DBAs and other database professionals how to maximize their organization's investment in MySQL and about the benefits of using the MySQL Cloud Service. Learn to configure the MySQL Server, set up replication and security, perform database backups, optimize query performance, and ensure high availability.**

Through a variety of realistic, hands-on activities, expert MySQL instructors will teach you to install, configure, secure, and maintain your database server which you can deploy on-premise or as a MySQL Cloud Service instance.

Learn To:

- Install and configure MySQL Server and client programs.
- Recognize the key components of the MySQL architecture.
- Secure your server.
- Troubleshoot server slowdowns and other issues.
- Improve query performance.
- Configure and administer a variety of replication topologies.
- Understand the benefits of MySQL Cloud.

Benefits To You:

After taking this course, you will be equipped to use all the features of MySQL to get the best out of your Web, Cloud, and embedded applications, whether you work with the command line or graphical tools such as MySQL Workbench and MySQL Enterprise Monitor, whether you use on-premise or MySQL Cloud-based instances, and whether your challenge is complex replication requirements, or highly-tuned transactional systems

## Prerequisites

Required Prerequisites:

- Should be knowlegeable with relational database concepts and using the mysql command-line client
- Should be knowlegeable with MySQL data types and executing basic DDL and DML queries using SQL
- Should be knowlegeable with Joining tables

Suggested Prerequisites:

- MySQL for Developers

Those delegates who are attending via either virtual or extended classroom will be required to provide either dual monitors or single monitor plus a tablet device.

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## What You Will Learn

- 
  - Define and implement a backup strategy
  - Perform physical and logical backups of your data
  - Describe MySQL replication and its role in high availability and scalability
  - Configure simple and complex replication topologies
  - Administer a replication topology
  - Install the MySQL server and client programs
  - Upgrade MySQL on a running server
  - Describe MySQL architecture
  - Explain how MySQL processes, stores, and transmits data
  - Configure MySQL server and client programs
  - Use server logs and other tools to monitor database activity
  - Create and manage users
  - Protect your data from common security risks
  - Identify and optimize poorly-performing queries
  - Troubleshoot server slowdowns and other common problems
  - Gain an understanding of MySQL Cloud

## Outline

- Introduction to MySQL
  - MySQL overview
  - MySQL Enterprise Edition
  - MySQL on the Web
  - MySQL in the Cloud
  - The MySQL community
- Installing MySQL
  - Installing MySQL
  - Installed Files and Directories
  - Initial Configuration
  - Starting and Stopping MySQL
  - Upgrading MySQL
- MySQL Architecture
  - Architectural Overview
  - How MySQL Transmits Data
  - How MySQL Processes Requests
  - How MySQL Stores Data
  - Tablespaces
  - Redo and Undo Logs
  - How MySQL Uses Memory
  - Plug-in Interface

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- Configuring MySQL
    - Server Options, Variables, and the Command Line
    - Option Files
    - System Variables
    - Launching Multiple Servers on the Same Host
- Monitoring MySQL
    - Monitoring MySQL with Log Files
    - Monitoring MySQL with Status Variables
    - Monitoring MySQL with Performance Schema
    - MySQL Enterprise Audit
    - MySQL Enterprise Monitor
    - Monitoring User Activity
- User Management
    - MySQL Privilege System
    - Creating and Modifying User Accounts
    - Configuring Passwords and Account Expiration
    - Authentication Plug-Ins
    - Granting Permissions
    - Grant Tables
    - Resetting a Forgotten Root Password
- MySQL Security
    - Security Risks
    - Network Security
    - Secure Connections
    - Password Security
    - Operating System Security
    - Protecting Against SQL Injections
    - MySQL Enterprise Firewall
- Maintaining a Stable System
    - Stability
    - Why Databases Fail
    - Capacity Planning
    - Troubleshooting
    - Identifying the Causes of Server Slowdowns
    - InnoDB Recovery
- Optimizing Query Performance
    - Identifying Slow Queries
    - The EXPLAIN statement
    - Working with Indexes
    - Index Statistics
- Backup Strategies

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  - Understanding Backups
  - Backup Techniques
  - Creating a Backup Strategy

- Performing Backups

  - MySQL Backup Tools
  - Raw Backup Methods
  - Techniques that Use the Binary Log

- Configuring a Replication Topology

  - Overview of Replication
  - Replication Conflicts
  - When to Use Replication
  - Configuring Replication

- Administering a Replication Topology

  - Failover
  - MySQL Utilities
  - Replication Threads
  - Monitoring Replication
  - Troubleshooting Replication

- Group Replication

  - Overview
  - Single-Primary and Multi-Primary Modes
  - Configuring Group Replication
  - Monitoring Group Replication

- Conclusion

  - Course Overview
  - MySQL Curriculum
  - Course Evaluation
  - Thank You!
  - Q&A Session