uCertify

Course Outline

MySQL

20 May 2024

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4. Expert Instructor-Led Training
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Here's what you get

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1. Course Objective

The MySQL course empowers you with essential insights you need to make the most out of MySQL. This course breaks down how databases function and teaches you useful skills such as writing and managing SQL queries, designing databases, and improving their performance. By the end of this course, you'll have the practical expertise to create, manage, and optimize robust databases using MySQL. Whether you're a beginner or have some experience, this course is your gateway to mastering the art of database management.

2. Pre-Assessment

Pre-Assessment lets you identify the areas for improvement before you start your prep. It determines what students know about a topic before it is taught and identifies areas for improvement with question assessment before beginning the course.

3. Exercises

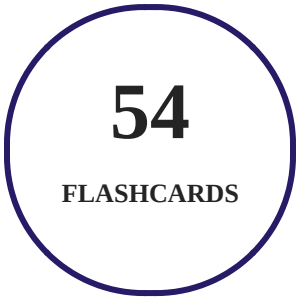
There is no limit to the number of times learners can attempt these. Exercises come with detailed remediation, which ensures that learners are confident on the topic before proceeding.

4. Quiz

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.

5. flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.



6. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.

7. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

8. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

9. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

10. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been

recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**
    1. Best Postsecondary Learning Solution

- **2015**
    1. Best Education Solution
    2. Best Virtual Learning Solution
    3. Best Student Assessment Solution
    4. Best Postsecondary Learning Solution
    5. Best Career and Workforce Readiness Solution
    6. Best Instructional Solution in Other Curriculum Areas
    7. Best Corporate Learning/Workforce Development Solution

- **2016**
    1. Best Virtual Learning Solution
    2. Best Education Cloud-based Solution
    3. Best College and Career Readiness Solution
    4. Best Corporate / Workforce Learning Solution
    5. Best Postsecondary Learning Content Solution
    6. Best Postsecondary LMS or Learning Platform
    7. Best Learning Relationship Management Solution

- **2017**
    1. Best Overall Education Solution
    2. Best Student Assessment Solution
    3. Best Corporate/Workforce Learning Solution
    4. Best Higher Education LMS or Learning Platform

- **2018**
    1. Best Higher Education LMS or Learning Platform

2. Best Instructional Solution in Other Curriculum Areas
3. Best Learning Relationship Management Solution

- **2019**
  1. Best Virtual Learning Solution
  2. Best Content Authoring Development or Curation Solution
  3. Best Higher Education Learning Management Solution (LMS)

- **2020**
  1. Best College and Career Readiness Solution
  2. Best Cross-Curricular Solution
  3. Best Virtual Learning Solution

11. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

Syllabus

Chapter 1: Preface

- Who this course is for
- What this course covers
- To get the most out of this course

Chapter 2: Background Concepts

- Introducing databases
- Exploring MySQL
- Exercise 1.01: Organizing data in a relational format
- Exploring MySQL architecture
- Storage engines (InnoDB and MyRocks)
- Data modeling
- Normalization
- Activity 1.01: Creating an optimized table for an employee project
- Summary

Chapter 3: Creating a Database

- Developing databases
- The MySQL Workbench GUI
- Accessing MySQL through the command-line interface
- Creating a database
- Using Workbench to add a table

- MySQL table indexes and foreign keys
- Reverse engineering a database
- Activity 2.01 – modifying the EER diagram, the model, and the database
- Summary

Chapter 4: Using SQL to Work with a Database

- An introduction to working with databases using SQL
- Working with data
- Backing up databases
- Restoring databases
- Working with SQL code to maintain a database
- Creating a new database
- Creating and modifying tables
- SQL queries to create indexes and foreign keys
- Activity 3.1 – creating a table with indexes and foreign keys
- Altering table queries
- Adding data to a table
- Updating data in a record

- Deleting data from tables
- Blobs, files, and file paths
- Activity 3.2 – adding image file paths to the database
- Summary

Chapter 5: Selecting, Aggregating, and Applying Functions

- An introduction to querying data
- Querying tables in MySQL
- Exercise 4.01 – working with simple queries
- Filtering results
- Exercise 4.02 – filtering results
- Using functions on data
- Exercise 4.03 – using functions
- Aggregating data
- Exercise 4.04 – aggregating data
- Case statements
- Exercise 4.05 – writing case statements
- Activity 4.01 – collecting information for a travel article

- Summary

Chapter 6: Correlating Data across Tables

- Introduction to processing data across tables
- Joining two tables
- Analyzing subqueries
- Common table expressions
- Analyzing query performance with EXPLAIN
- Activity 5.01: The Sakila video store
- Activity 5.02: Generating a list of years
- Summary

Chapter 7: Stored Procedures and Other Objects

- Introduction to database objects
- Exploring various database objects
- Working with views
- Activity 6.01 – updating the data in a view
- Working with user-defined functions
- Working with stored procedures

- Working with IN, OUT, and INOUT
- Exploring triggers
- Using transactions
- Summary

Chapter 8: Creating Database Clients in Node.js

- Introduction to database management with Node.js
- Best practices for SQL client development
- JavaScript using Node.js
- Connecting to MySQL
- Activity 7.01 – building a database application with Node.js
- Summary

Chapter 9: Working with Data Using Node.js

- Interacting with databases
- Inserting records in Node.js
- Updating the records of a table
- Activity 8.01 – multiple updates

- Displaying data in browsers
- ODBC connections
- Activity 8.02 – designing a customer database
- Summary

Chapter 10: Microsoft Access – Part 1

- Introduction to MS Access
- MS Access database application configurations
- Upsizing an MS Access database to MySQL
- Manually exporting MS Access tables
- Adjusting field properties
- Migrating with wizards
- Linking to your tables and views
- Refreshing linked MySQL tables
- Activity 9.01 – linking the remaining MySQL tables to your MS Access database
- Summary

Chapter 11: Microsoft Access – Part 2

- Introduction to MS Access

- Migrating an MS Access application to MySQL
- Activity 10.01 – Converting gender and job statistics
- Calling MySQL functions
- Activity 10.02 – Creating a function and calling it
- Calling MySQL stored procedures
- Activity 10.03 – Creating MySQL stored procedures and using them in VBA
- Using parameters
- Activity 10.04 – Parameterized stored procedure (series list)
- Activity 10.05 – Multiple parameters stored procedure (date list)
- The Bad Bits form
- Summary

Chapter 12: MS Excel VBA and MySQL – Part 1

- Introduction to Excel
- Exploring the ODBC connection
- Exploring the Excel VBA structure
- Learning about VBA libraries
- Connecting to the MySQL database using VBA

- Reading data from MySQL using VBA
- Populating charts
- Activity 11.01 – Creating a chart (artist track sales)
- Summary

Chapter 13: Working With Microsoft Excel VBA – Part 2

- An introduction to MySQL connections
- Connecting to the MySQL database using ODBC
- Exploring generic data read functions
- Creating connections to MySQL in Excel
- Inserting data using MySQL for Excel
- Updating data using MySQL for Excel
- Pushing data from Excel
- Pivot tables
- Activity 12.01 – building a MySQL-based Excel document
- Summary

Chapter 14: Getting Data into MySQL

- An introduction to data preparation
- Working with the X DevAPI
- Inserting documents
- Loading data from a SQL file
- Loading data from a CSV file
- Loading data from a JSON file
- Using the CSV storage engine to export data
- Using the CSV storage engine to import data
- Searching and filtering JSON documents
- Using JSON functions and operators to query JSON columns
- Using generated columns to query and index JSON data
- Activity 13.01 – Exporting report data to CSV for Excel
- Summary

Chapter 15: Manipulating User Permissions

- Introduction to user permissions
- Exploring users and accounts
- Exercise 14.01 – creating users and granting permissions

- Changing users
- Flush privileges
- Changing permissions
- Exercise 14.02 – modifying users and revoking permissions
- Using roles
- Exercise 14.03 – using roles to manage permissions
- Troubleshooting access problems
- Activity 14.01 – creating users for managing the world schema
- Summary

Chapter 16: Logical Backups

- An introduction to backups
- Understanding the basics of backups
- Logical and physical backup
- Types of restore
- Scheduling backups
- Using point-in-time recovery with binlog files
- Activity 15.01 – backing up and restoring a single schema

- Activity 15.02 – performing a point-in-time restore
- Summary

12. Practice Test

Here's what you get

55	55
PRE-ASSESSMENTS QUESTIONS	POST-ASSESSMENTS QUESTIONS

Features

Each question comes with detailed remediation explaining not only why an answer option is correct but also why it is incorrect.

Unlimited Practice

Each test can be taken unlimited number of times until the learner feels they are prepared. Learner can review the test and read detailed remediation. Detailed test history is also available.

Each test set comes with learn, test and review modes. In learn mode, learners will attempt a question and will get immediate feedback and complete remediation as they move on to the next question. In test mode, learners can take a timed test simulating the actual exam conditions. In review mode, learners can read through one item at a time without attempting it.

13. Live Labs

The benefits of live-labs are:

- Exam based practical tasks
- Real equipment, absolutely no simulations
- Access to the latest industry technologies
- Available anytime, anywhere on any device
- Break and Reset functionality
- No hardware costs

Lab Tasks

Background Concepts

- Creating a Relational Database
- Creating a New Database Using MS Access
- Normalizing Data from 2NF to 3NF
- Normalizing Data from 1NF to 2NF

Creating a Database

- Creating a Connection With the MySQL Workbench GUI
- Creating a Database using MySQL Workbench
- Creating a Table Using MySQL Workbench
- Creating an Index
- Creating a Foreign Key
- Creating an EER Diagram

Using SQL to Work with a Database

- Modifying an Existing Table
- Adding a Record

- Updating a Record
- Deleting Data from a Table

Selecting, Aggregating, and Applying Functions

- Filtering Results
- Using Functions
- Aggregating Data
- Using CASE Statements

Correlating Data across Tables

- Joining Two Tables
- Using Common Table Expressions (CTEs)
- Using the EXPLAIN Command

Stored Procedures and Other Objects

- Creating a View
- Creating a Stored Procedure
- Using Triggers
- Implementing a Transaction

Creating Database Clients in Node.js

- Testing the Output of a Node.js Script
- Writing to a Disk File

Working with Data Using Node.js

- Creating a LAN DSN/ODBC Connection

Microsoft Access – Part 1

- Creating an ODBC for a MySQL Database Schema
- Upsizing a Table from Microsoft Access to MySQL

Microsoft Access – Part 2

- Calling a MySQL Function
- Creating a Parameterized Stored Procedure

MS Excel VBA and MySQL – Part 1

- Activating the Developer tab and the VBA IDE
- Creating a Code Module

Getting Data into MySQL

- Importing a SQL File using MySQL Workbench

Here's what you get

35	31	43
LIVE LABS	VIDEO TUTORIALS	MINUTES

14. Post-Assessment

After completion of the uCertify course Post-Assessments are given to students and often used in conjunction with a Pre-Assessment to measure their achievement and the effectiveness of the exam.

GET IN TOUCH: