

B Robert Carmel

Course: Database Warehouse Design & Implementation

Introduction and Course Outline

MySQL Workbench

test x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

Views
Stored Procedures
Functions

sakila

Tables

- actor
- address
- category
- city
- country
- customer
- film
- film_actor
- film_category
- film_text
- inventory
- language
- payment
- rental
- staff
- store

Administration Schemas

Information

Table: **payment**

Columns:

- payment_id smallint UN AI PK
- customer_id smallint UN
- staff_id tinyint UN
- rental_id int
- amount decimal(5,2)
- payment_date datetime
- last_update timestamp

Table Name: payment Schema: sakila

Charset/Collation: utf8mb4 utf8mb4_0900_ai_ci Engine: InnoDB

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
payment_id	SMALLINT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
customer_id	SMALLINT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
staff_id	TINYINT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
rental_id	INT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
amount	DECIMAL(5,2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
payment_date	DATETIME	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
last_update	TIMESTAMP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CURRENT_TIMESTA...

Column Name: Data Type: Charset/Collation: Default: Storage: Virtual Stored Primary Key Not Null Unique Binary Unsigned Zero Fill Auto Increment Generated

Columns Indexes Foreign Keys Triggers Partitioning Options

Apply Revert

Output

#	Time	Action	Message	Duration / Fetch
1	15:54:58	SELECT `payment`.`payment_id`, `payment`.`customer...	1000 row(s) returned	0.015 sec / 0.000 sec
2	15:58:09	SELECT * FROM sakila.payment LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Introduction

The Database Warehouse Design and Implementation course is an introductory data engineering course that includes 10 lessons. The course is designed for students with little or no technical background.

The cost of this 10-lesson course is \$1,295. Students may be eligible for a 20% discount.

This course is designed to teach students the key concepts and terminology for relational database and data warehouse systems. Students will learn most of the critical aspects of relational database systems and how they are used. Students will also build a small database warehouse using MySQL and/or SQL Server.

I will be working closely with students during the entire course to ensure that they understand the material and complete the lesson's hands-on training.

Note: Students should have a Windows 64bit computer with a minimum of 8GB memory.

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Introduction and Course Outline

This course lessons will include:

- Reviewing and discussing the key concepts and terminology for relational database systems.
- Reviewing the course’s case study database warehouse.
- Downloading and installing MySQL and SQL Server database management system.
- Downloading and installing MySQL Workbench and/or SQL Server Management Studio (SSMS) database development environments using the Microsoft Windows platform.
- Understanding and using MySQL Workbench and/or SSMS.
- Implementing the case-study’s database warehouse tables, columns, indexes, and foreign keys.
- Reviewing some advanced database concepts including views and stored procedure.
- Finally, students will learn some key database utilities including backing up databases, restoring databases, and importing and exporting data.

About Instructor B Robert Carmel

I have more than 25 years of experience as a senior software and data engineer, solutions architect and technical trainer. I worked for several multi-national Fortune 500 companies in the USA:

Company	Industry	Position(s)
Texaco Inc.	Oil & Gas	Programmer Analyst
Lockheed Inc	Aerospace	Senior Analyst
Price Waterhouse Coopers	Management Consulting	Senior Information Systems Consultant
Roche Inc.	Pharmaceuticals	Senior Systems Consultant
Boulder County Mental Health Dept.	Government	Lead Programmer, Technical Trainer
Century Link Inc	Telecommunications	Lead Programmer Analyst
Wipro Inc	IT Consulting	Senior Solutions Architect, Technical Trainer

I am an excellent teacher and mentor. I have the patience and dedication to support new students who take on difficult challenges.

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Lesson 1: Relational Database Concepts & Terminology

Lesson 1 introduces essential database concepts and terminology, and the course's case study database warehouse.

- Key concepts and terminology for relational databases.
- Online Transaction Processing (OLTP) & Online Analytical Processing (OLAP) databases.
- The course's case-study database (Colorado Covid) and dimensional modeling in an OLAP database warehouse.

Lesson 2: Database Schemas

Lesson 2 is a presentation and in-depth discussion of database schemas including:

- Key Database Schema Concepts
- Database Relationships
- Database Normalization
- Data Models
- Schema Best Practices
- Advanced Topics

Lessons 3 & 4: Creating the Database Development Platform

In lessons 3 and 4, the MySQL and SQL Server database servers, and MySQL Workbench and SSMS will be installed on the student's computer.

Option 1: Download & Install Databases on Windows Platform

- MySQL

MySQL and the MySQL workbench will be downloaded and then installed on the student's Windows computer.

AND/OR

- Microsoft SQL Server

SQL Server and the SQL Server Management Studio (SSMS) will be downloaded and installed on the student's Windows computer.

Students will become familiar with the database development platform's features and functionality.

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Lessons 5 & 6: Building the Case Study Database Schemas: Tables & Indexes

In Lessons 5 & 6 students will do the hands-on build of the course's case-study database warehouse schemas: tables, table columns, column data types, constraints and the required indexes. Students will use MySQL Workbench /or SSMS to create the course's schemas.

Lesson 7: Creating the Database Foreign Keys (Relationships)

Lesson 7 will cover the fundamentals of database foreign keys and relationships. The lesson will review the foreign keys and relationships for the Colorado Covid case-study database warehouse. Students will then implement the foreign keys and their relationships using MySQL Workbench and/or SSMS.

Lesson 8: Advanced Practices: Views, Stored Procedures & Functions

Lesson 8 will cover database views and stored procedures. Students will be introduced to Structured Query Language (SQL) and see how it is used to create views that are logical representations of the database, and database stored procedures and functions that are SQL programs maintained in the database and used to perform a variety of specific functions.

Lesson 9: Database Utilities (Backup, Restore, Data Import and Export)

In Lesson 9, students will practice using the database utilities to backup and restore databases, and utilities to export and import data from the database to external flat files.

Lesson 10: Review & Questions

Lesson 10 will offer students a review of the material covered in the course, and to review any questions.