uCertify

Course Outline

SQL for Data Scientists

10 May 2024

1. Course Objective
2. Pre-Assessment
3. Exercises, Quizzes, Flashcards & Glossary

   Number of Questions
4. Expert Instructor-Led Training
5. ADA Compliant & JAWS Compatible Platform
6. State of the Art Educator Tools
7. Award Winning Learning Platform (LMS)
8. Chapter & Lessons

   Syllabus

   Chapter 1: Introduction

   Chapter 2: Data Sources

   Chapter 3: The SELECT Statement

   Chapter 4: The WHERE Clause

   Chapter 5: CASE Statements

   Chapter 6: SQL JOINs

   Chapter 7: Aggregating Results for Analysis

   Chapter 8: Window Functions and Subqueries

   Chapter 9: Date and Time Functions

   Chapter 10: Exploratory Data Analysis with SQL

   Chapter 11: Building SQL Datasets for Analytical Reporting

   Chapter 12: More Advanced Query Structures

   Chapter 13: Creating Machine Learning Datasets Using SQL

   Chapter 14: Analytical Dataset Development Examples

   Chapter 15: Storing and Modifying Data

   Videos and How To
9. Practice Test

   Here's what you get

Features

10. Live labs

Lab Tasks

Here's what you get

11. Post-Assessment

1. Course Objective

Get a hands-on experience in SQL with uCertify's course SQL for Data Scientists, which is designed to be a learning resource for anyone who wants to become (or who already is) a data analyst or data scientist. It teaches the ability to pull data from databases to build their own datasets without having to rely on others in the organization to query the source system and transform it into flat files (or spreadsheets) for them.

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. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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

10. 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: Introduction

- Who This Course Is For?
- Why You Should Learn SQL if You Want to Be a Data Scientist?
- Conventions

Chapter 2: Data Sources

- Data Sources
- Tools for Connecting to Data Sources and Editing SQL
- Relational Databases

- Dimensional Data Warehouses
- Asking Questions About the Data Source
- Introduction to the Farmer's Market Database
- A Note on Machine Learning Dataset Terminology
- Exercises

Chapter 3: The SELECT Statement

- The SELECT Statement
- The Fundamental Syntax Structure of a SELECT Query
- Selecting Columns and Limiting the Number of Rows Returned
- The ORDER BY Clause: Sorting Results
- Introduction to Simple Inline Calculations
- More Inline Calculation Examples: Rounding
- More Inline Calculation Examples: Concatenating Strings
- Evaluating Query Output
- SELECT Statement Summary
- Exercises Using the Included Database

Chapter 4: The WHERE Clause

- The WHERE Clause
- Filtering SELECT Statement Results
- Filtering on Multiple Conditions
- Multi-Column Conditional Filtering
- More Ways to Filter
- Filtering Using Subqueries
- Exercises Using the Included Database

Chapter 5: CASE Statements

- CASE Statement Syntax
- Creating Binary Flags Using CASE
- Grouping or Binning Continuous Values Using CASE
- Categorical Encoding Using CASE
- CASE Statement Summary
- Exercises Using the Included Database

Chapter 6: SQL JOINs

- Database Relationships and SQL JOINs

- A Common Pitfall when Filtering Joined Data
- JOINs with More than Two Tables
- Exercises Using the Included Database

Chapter 7: Aggregating Results for Analysis

- GROUP BY Syntax
- Displaying Group Summaries
- Performing Calculations Inside Aggregate Functions
- MIN and MAX
- COUNT and COUNT DISTINCT
- Average
- Filtering with HAVING
- CASE Statements Inside Aggregate Functions
- Exercises Using the Included Database

Chapter 8: Window Functions and Subqueries

- ROW NUMBER
- RANK and DENSE RANK
- NTILE

- Aggregate Window Functions
- LAG and LEAD
- Exercises Using the Included Database

Chapter 9: Date and Time Functions

- Setting datetime Field Values
- EXTRACT and DATE_PART
- DATE_ADD and DATE_SUB
- DATEDIFF
- TIMESTAMPDIFF
- Date Functions in Aggregate Summaries and Window Functions
- Exercises

Chapter 10: Exploratory Data Analysis with SQL

- Demonstrating Exploratory Data Analysis with SQL
- Exploring the Products Table
- Exploring Possible Column Values
- Exploring Changes Over Time

- Exploring Multiple Tables Simultaneously
- Exploring Inventory vs. Sales
- Exercises

Chapter 11: Building SQL Datasets for Analytical Reporting

- Thinking Through Analytical Dataset Requirements
- Using Custom Analytical Datasets in SQL: CTEs and Views
- Taking SQL Reporting Further
- Exercises

Chapter 12: More Advanced Query Structures

- UNIONs
- Self-Join to Determine To-Date Maximum
- Counting New vs. Returning Customers by Week
- Summary
- Exercises

Chapter 13: Creating Machine Learning Datasets Using SQL

- Datasets for Time Series Models

- Datasets for Binary Classification
- Taking Things to the Next Level
- Exercises

Chapter 14: Analytical Dataset Development Examples

- What Factors Correlate with Fresh Produce Sales?
- How Do Sales Vary by Customer Zip Code, Market Distance, and Demographic Data?
- How Does Product Price Distribution Affect Market Sales?

Chapter 15: Storing and Modifying Data

- Storing SQL Datasets as Tables and Views
- Adding a Timestamp Column
- Inserting Rows and Updating Values in Database Tables
- Using SQL Inside Scripts
- In Closing
- Exercises

11. Practice Test

Here's what you get

57	57
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.

12. 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

The SELECT Statement

- Retrieving Data from Employee Department
- Listing Materials
- Analysing Total amount Paid By Customers'
- Concatenating the First and Last Names

The WHERE Clause

- Getting Details of Employees Residing in the US
- Retrieving details of Sellers Whose Name Starts with Kick
- Checking the Functionality of TRIM() Function
- Retrieving Data of Employees Lived in the US and Canada
- Analyzing the Man Power in a Company

CASE Statements

- Grading Employees Punctuality
- Checking the Availability of Items Used in Production

SQL JOINs

- Getting Detailed View for Analyzing Population
- Updating Post Office Databases
- Getting Employees History

Aggregating Results for Analysis

- Using the GROUP BY Keyword

- Getting the Sum of Number of Items
- Adding Unit Price
- Retrieving the Minimum and Maximum Price of the Commodity
- Retrieving Unique Places
- Analyzing the Items on the Basis of Price Category

Window Functions and Subqueries

- Finding the Most Populated Territory
- Analyzing the Demography of Most Populated Territory
- Retrieving Pay Frequency
- Correcting the Entries of Database

Exploratory Data Analysis with SQL

- Analyzing Country Codes

Building SQL Datasets for Analytical Reporting

- Creating a Personalized Alias of a Query
- Creating a View

More Advanced Query Structures

- Analyzing Gender Ratio Inside a Company
- Finding Overlap Records

Creating Machine Learning Datasets Using SQL

- Retrieving Full Names

Analytical Dataset Development Examples

- Finding Last Names

Storing and Modifying Data

- Using the DROP Command
- Updating a Record

Here's what you get

33	33	47
LIVE LABS	VIDEO TUTORIALS	MINUTES

13. 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:

3187 Independence Drive
Livermore, CA 94551,
United States

+1-415-763-6300

support@ucertify.com

www.ucertify.com