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# 18+ Best Online Resources for Learning SQL and Database Concepts (2018 revision)

Tags eLearning, extras, get started, SQL basics

December 20, 2017



Patrycja Dybka



*We did it again! Each year, we review all SQL courses and tutorials on the market to help you find the best online resources to learn SQL. Find out which SQL courses are worth trying!*

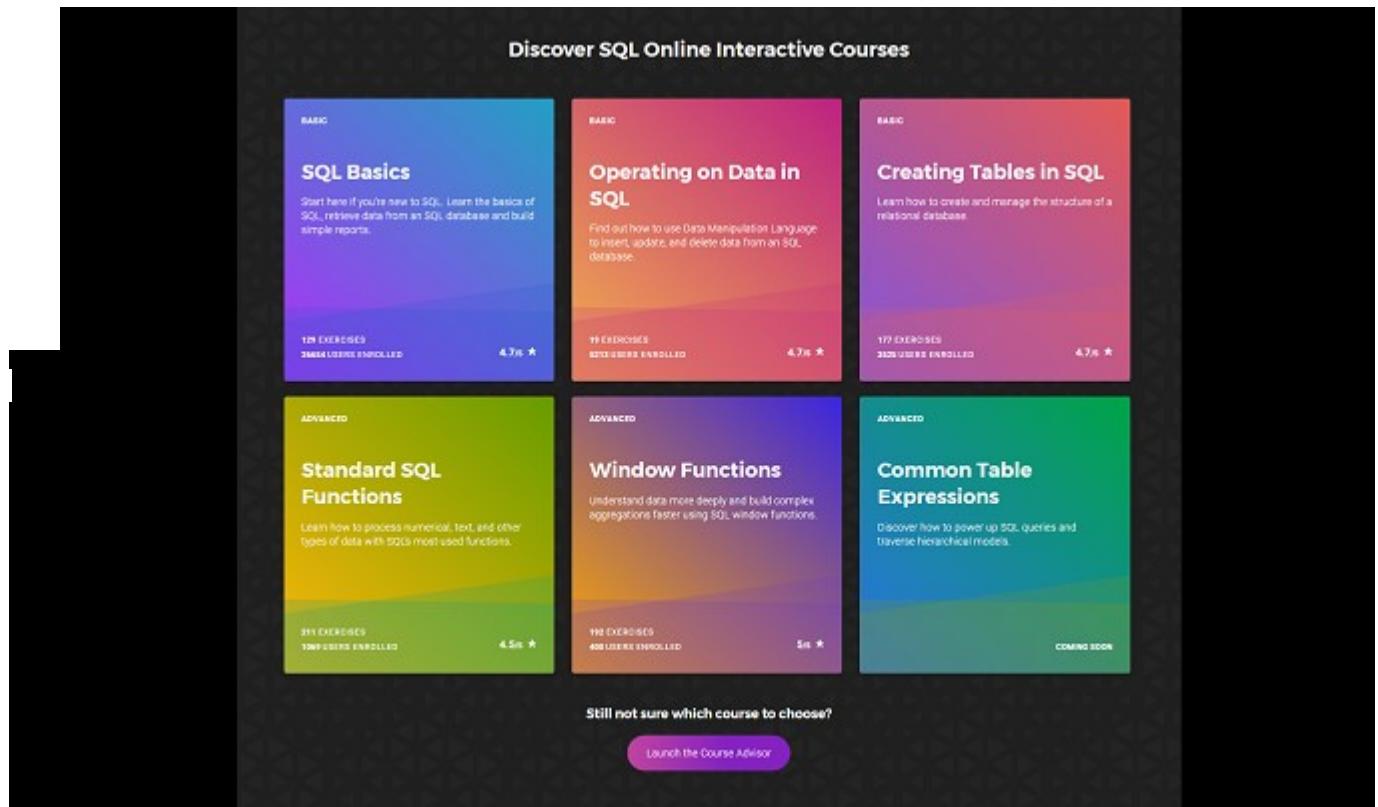
But let's get to the point and take a closer look at some of the best online resources

that can help beginners get started with SQL.

## We'll start with websites that focus on SQL syntax and basic SQL concepts.

### 1. Vertabelo Academy

Vertabelo Academy offers interactive **SQL courses**, available directly in the browser. You can learn about **SQL queries**, **data management**, and **table creation**.



The “**SQL Basics**” course starts with simple queries, progressing through GROUP BY queries to advanced topics like subqueries. You will also find out about the subtle changes between various joining methods, including INNER JOIN, LEFT JOIN, RIGHT JOIN and OUTER JOIN. Finally, you'll have a chance to test your knowledge in a comprehensive quiz.

In the “**Operating on Data in SQL**” course, you will learn how to manage data in relational databases, i.e., how to insert, update, and delete information from a

database.

In the “**Creating Tables in SQL**” course, you will find out how to manage the structure of a relational database. You’ll learn to create tables and define their various elements, like primary keys, UNIQUE keys, and foreign keys. You will get to know how to use and define constraints. Finally, you will find out how to create views.

This course features dozens of interactive exercises with a detailed explanation of the theory behind the lesson, and an interactive console that verifies your solution. After completing all lessons, you can take a final quiz to test your knowledge.

You can start the course without registration but you will be asked to sign up after completing the first few exercises. You can register with your email address, or your social profiles (Facebook, Google+, Twitter, or GitHub).

## **W3Schools – “SQL Tutorial”**

**W3Schools** claims to be the largest web developer site on the Internet. It provides various tutorials and references on web development languages such as HTML, CSS, JavaScript, PHP, SQL, and JQuery, covering most aspects of web programming.

The screenshot shows the w3schools.com website with a navigation bar at the top. The 'SQL' tab is selected. The main content area is titled 'SQL SELECT Statement'. On the left, a sidebar lists various SQL topics, with 'SQL Select' currently highlighted. Below the title, there are links for '« Previous' and 'Next Chapter ». The main text explains that the SELECT statement is used to select data from a database, and the result is stored in a result table called the result-set. It then provides examples of SQL SELECT syntax:

```
SELECT column_name, column_name  
FROM table_name;
```

and

```
SELECT * FROM table_name;
```

Finally, it mentions a 'Demo Database' and states that the tutorial will use the well-known Northwind sample database.

Their online **SQL Tutorial** guides you through syntax and most important statements, keywords, and functions. Short but concrete descriptions and many examples make this tutorial easy to read and understand.

A distinctive feature is the ability to **test queries online**. At the start of the tutorial there is a sample database which you can modify and restore back to its original content at any time. The guide ends with a simple quiz.

The entire tutorial is available without registration.

### 3. Codecademy – “Learn SQL”

**Codecademy** is an online platform that offers a wide range of free coding courses in programming languages like HTML, JavaScript, jQuery, PHP, Python, and Ruby. In addition to these courses, Codecademy's students can learn how to manage data with SQL.

codecademy

LOG IN

SIGN UP

Back to Courses

CONTINUE

40K+ Enrolled Students

3 hours Estimated Course Time

Beginner Required Technical Level

MANIPULATION

Lesson: Manipulation

Get up and running with SQL by learning commands to manipulate data stored in relational databases.

Like all other courses at Codecademy, “**Learn SQL**” is free and interactive. It covers the basics of database fundamentals: tables, queries, aggregate functions, constructing advanced database queries and more.

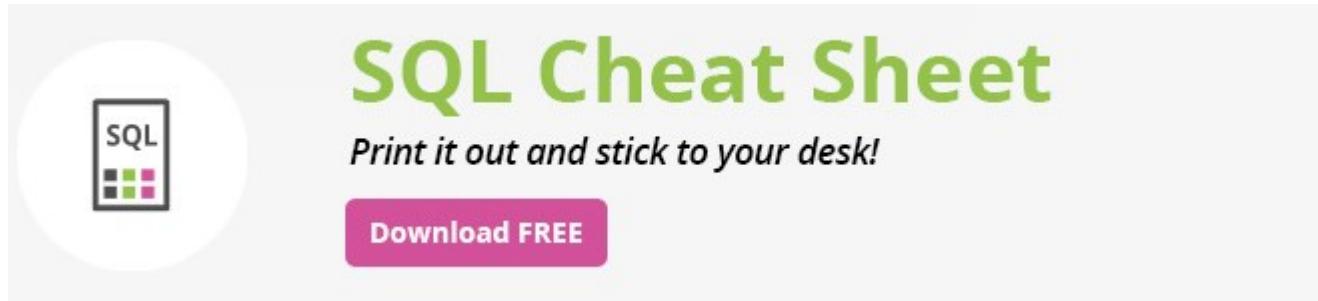
The course consists of 4 lessons that focus on:

- basic SQL commands to manipulate data stored in relational databases
- the most commonly used SQL commands to query a table in a database
- using SQL to perform calculations during a query
- querying multiple tables using joins

The user interface of each lesson is divided into three panels. The left one contains a description of the exercise with a brief theoretical introduction. In the center, there is an interactive SQL command line where the user writes SQL against an **SQLite** database. The panel on the right features a visual representation of the database schema with the query result.

After completing a lesson, you can test your knowledge with a quiz, or master your skills with a real-world project to teach you how to apply what you're learning in a hands-on, practical way. Unfortunately, both quizzes and projects are available only for users who have subscribed to a paid Pro version of Codecademy.

In order to participate in the course, you need to register using an email address or a Google or Facebook account.



## Khan Academy – “Intro to SQL”

**Khan Academy** provides its users with micro-lectures in the form of YouTube videos, lots of practice exercises, and a personalized learning dashboard. Combined, these tools empower learners to study at their own pace inside and outside of the classroom.

ALL CONTENT IN "INTRO TO SQL: QUERYING AND MANAGING DATA"

**SQL basics**

We'll show you the basics of creating tables and selecting data in various different ways.

- >Welcome to SQL
- Creating a table and inserting data
- Challenge: Book list database
- Querying the table
- Challenge: Box office hits database
- Aggregating data
- Challenge: TODO list database stats
- SQL or SEQUEL?
- Project: Design a store database

**More advanced SQL queries**

Learn how to perform more advanced SQL queries using AND/OR, IN, LIKE, HAVING, and more.

- More complex queries with AND/OR
- Challenge: Karaoke song selector
- Querying IN subqueries

Among many courses offered by Khan Academy, you can find a free SQL course called **"Intro to SQL: Querying and Managing Data."**

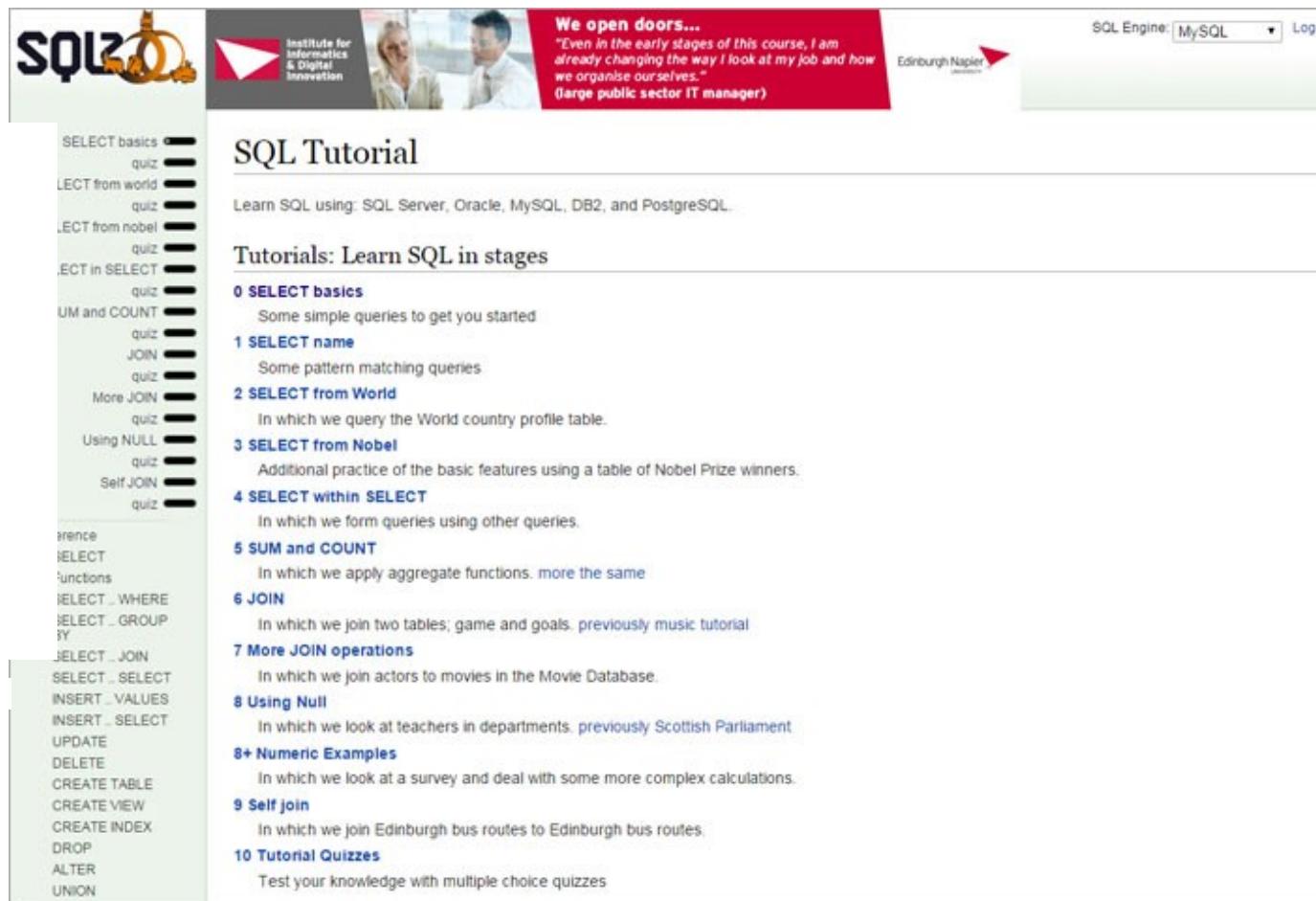
Each lesson consists of two elements. The window on the left is a video tutorial, while the window on the right shows real-time changes in the database structure and the results of queries performed under the SQLite database. Exercises are supported by documentation and useful hints. After finishing the first part of the course, learners can complete a more advanced project.

The whole course contains 5 parts, starting with SQL fundamentals. It continues with constructing more advanced SQL queries using operators (such as AND/OR, IN, LIKE etc.) and joins. An ending section called "What to learn next" provides useful tips and links.

Khan Academy allows users to watch videos without registering; however, after registration (via Facebook, Google, or email) they can ask questions regarding video and participate in discussions.

## 5. SQLZoo

**SQLZoo** is a nice free and **interactive SQL tutorial** developed and maintained by Edinburgh Napier University.



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**SQL Tutorial**

Learn SQL using: SQL Server, Oracle, MySQL, DB2, and PostgreSQL.

**Tutorials: Learn SQL in stages**

- 0 SELECT basics**  
Some simple queries to get you started
- 1 SELECT name**  
Some pattern matching queries
- 2 SELECT from World**  
In which we query the World country profile table.
- 3 SELECT from Nobel**  
Additional practice of the basic features using a table of Nobel Prize winners.
- 4 SELECT within SELECT**  
In which we form queries using other queries.
- 5 SUM and COUNT**  
In which we apply aggregate functions. more the same
- 6 JOIN**  
In which we join two tables: game and goals. previously music tutorial
- 7 More JOIN operations**  
In which we join actors to movies in the Movie Database.
- 8 Using Null**  
In which we look at teachers in departments. previously Scottish Parliament
- 8+ Numeric Examples**  
In which we look at a survey and deal with some more complex calculations.
- 9 Self join**  
In which we join Edinburgh bus routes to Edinburgh bus routes.
- 10 Tutorial Quizzes**  
Test your knowledge with multiple choice quizzes

The course features live interpreters and interactive exercises for multiple types of databases, such as **MySQL**, **PostgreSQL**, **Oracle**, **SQL Server**, and **DB2**.

This site has three major sections: **Tutorials**, **Assessments**, and **Reference**.

A tutorial is a set of exercises that aims to acquaint you with new topics. You start with SQL basics, then go through nested SELECT statements and aggregate functions (such as COUNT, SUM, or AVG), ending with more advanced JOIN operations. At any time, you can consult the Reference section for background on the appropriate theory, explained with interactive examples.

After completing each tutorial, you can take a **quiz** to show how well you understand the concepts.

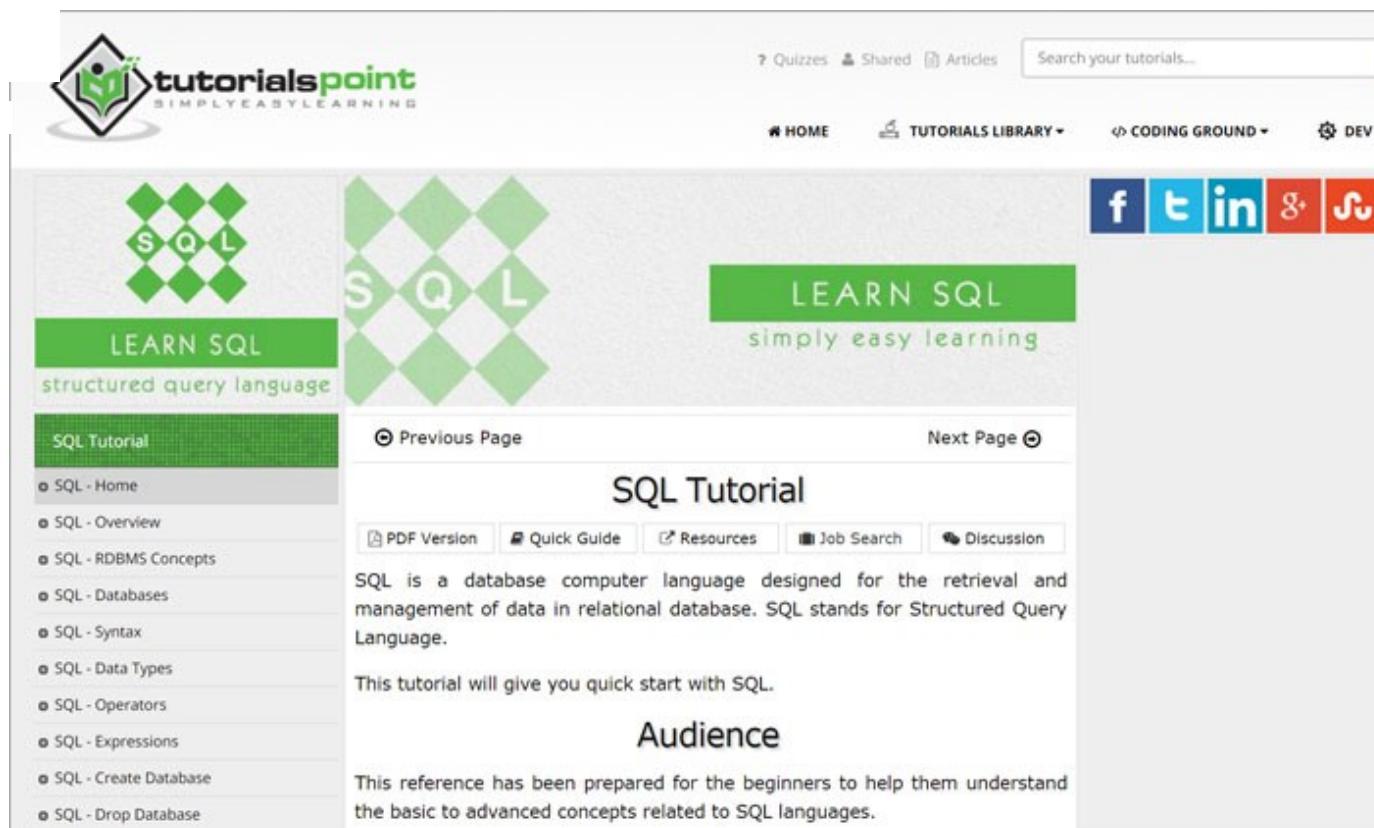
the topic.

The Assessments section offers several mini projects; each includes 15 questions of varying levels of difficulty.

The course is available without registration, however, you can create an account with your email. This is recommended if you want to publish comments or contribute to the site.

## Tutorials Point - "Learn SQL"

**Tutorials Point** claims to be the web's largest library of tutorials. Indeed, it offers thousands of online courses in computer engineering, information technology, programming languages, and management.



If you're looking to learn SQL or database concepts, you will find several tutorials here, including courses in **SQL**, **MySQL**, **PostgreSQL**, **SQLite**, **DB2**, **PL/SQL**, and others.

The **"Learn SQL"** tutorial provides a nice guide to basic SQL, its most useful functions,

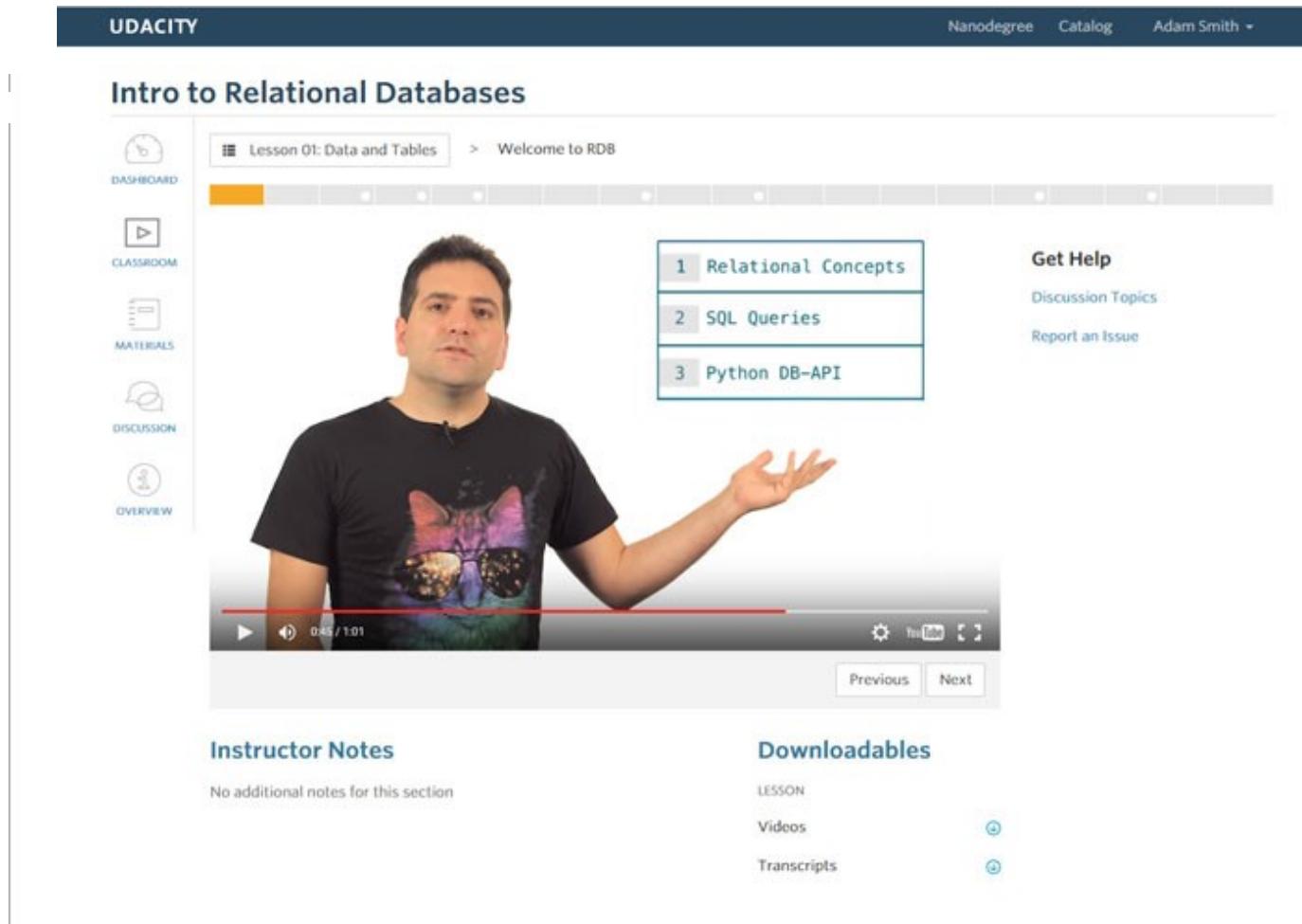
and more advanced topics. There are plenty of easy-to-understand examples, but interactive exercises to practice what you have learned.

All courses available at [TutorialsPoint.com](http://TutorialsPoint.com), including the “Learn SQL” tutorial, can be accessed without registration.

It's worth mentioning that you can download the whole tutorial as a PDF file to get back to it at any time, even when offline.

## Udacity - “Intro to Relational Databases”

**Udacity** offers interactive online courses aimed at advancing academic and professional skills. Although Udacity is profit-oriented, some courses are available for free.



UDACITY

Nanodegree Catalog Adam Smith ▾

### Intro to Relational Databases

Lesson 01: Data and Tables > Welcome to RDB

**Get Help**

Discussion Topics

Report an Issue

**Instructor Notes**

No additional notes for this section

**Downloadables**

LESSON

Videos

Transcripts

One of its free courses is “**Intro to Relational Databases**”, which provides the

learner with the basics of SQL and database design. Since the course uses examples and programming exercises in Python, you'll also get to know the Python API. For this reason, Python fundamentals are required. You don't need any previous database experience since this course is an entry-level introduction to relational databases.

The course consists of video lessons, and each lesson includes a final quiz. The lessons are divided into four parts:

- Relational Concepts

- SQL queries

- Python DB-API (accessing a relational database from Python code)

- Advanced SQL (joins, normalization)

The course ends with a project that focuses on building a database-backed Python module to run a game tournament.

You don't have to register to preview the course, but if you want to get full access, you must sign up with your email, Google, or Facebook account.

## 8. SQL Problems and Solutions

**SQL Problems and Solutions** is an **interactive textbook** which lets you visualize tables and execute queries against a sample database. The tutorial explains the basic concepts and constructs of SQL and provides examples at various levels of expertise.

**SQL Interactive Textbook**

- If you want to know what SQL is, this site is intended for you.
- If you already have an idea, what SQL is, but want to learn how to program queries in this language, this site is for you.
- If you think that you can program queries, don't quit the site immediately. It is quite possible that you will discover something new for you.
- If you do not know how and using which server to write queries – this site is what you have been looking for ages. You will be able to execute\* queries against sample databases on site.
- If everything seems clear to you in this textbook, examine your knowledge using tests from [SQL-EX.RU](#). Learn-stage exercises are available there for a few DBMS including MSSQL, MySQL, Oracle, and PostgreSQL.

We hope that the site will prove useful both for beginners and professionals of SQL programming.

The queries inside of the e-book are processed by real DBMS. So far it is Microsoft SQL Server, but we consider\*\* the possibility of using other database servers, beginning with those in free sale and finishing with commercial products:

MySQL  
PostgreSQL  
Oracle  
...  
so that it was possible to study features of dialects of SQL language in different DBMS.

However already now you can write queries not only to MS SQL Server, but also to MySQL and PostgreSQL, using [the console](#).

sql-ex team

\* [Registering/authorization](#) is required.

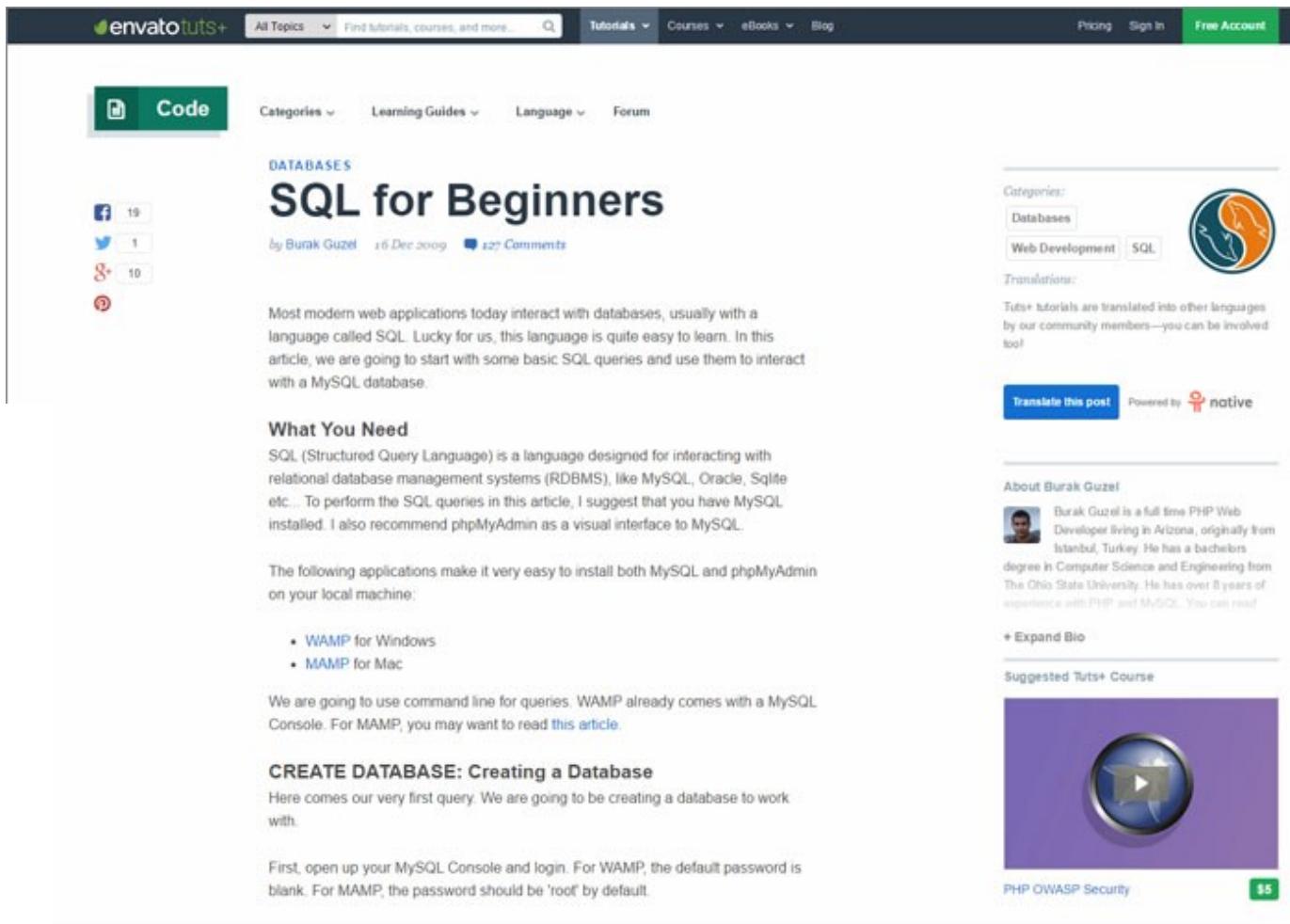
\*\* [Referential integrity: FOREIGN KEY](#) page 3  
\*\*\* [Referential integrity: FOREIGN KEY](#) page 2

Once you get familiar with SQL, you can practice your skills on the sister site **“SQL Exercises”**. Here you can build and test your SQL DML statements: there are exercises for retrieving and modifying data using the SELECT, INSERT, UPDATE, and DELETE statements.

You can read the entire textbook without registration, but if you'd like to write your own queries in the interactive SQL console and execute them against sample databases, you'll need to sign up with your email address.

## 9. Tuts+ – “SQL for Beginners”

Tuts+ offers **video courses** and **written tutorials** that teach a wide range of creative and technical skills, including coding. Unlike video courses, all tutorials and articles are completely free. Based around specific projects, they include step-by-step writing instructions and screenshots to help you practice and master your skills.



The screenshot shows a web page from envatoTuts+. At the top, there's a navigation bar with links for 'All Topics', 'Find tutorials, courses, and more...', 'Tutorials', 'Courses', 'eBooks', 'Blog', 'Pricing', 'Sign In', and 'Free Account'. Below the navigation, there's a 'Code' category tab and a 'Categories' dropdown. The main content area features a large title 'SQL for Beginners' with a subtitle 'by Burak Guzel 16 Dec 2009 127 Comments'. To the left of the title are social sharing icons for Facebook (19), Twitter (1), Google+ (10), and LinkedIn (1). The main text of the article discusses the basics of SQL and how to interact with MySQL databases. It includes a section on 'What You Need' (mentioning WAMP and MAMP), a section on 'CREATE DATABASE: Creating a Database' (mentioning MySQL Console), and a note about command line queries. On the right side, there's a sidebar with 'Categories' (Databases, Web Development, SQL), 'Translations' (a globe icon), a bio for Burak Guzel (a developer from Istanbul, Turkey), a 'Translate this post' button, and a 'Powered by native' logo. Below the bio is a 'Suggested Tuts+ Course' section with a thumbnail for 'PHP OWASP Security'.

Among over 20,000 free tutorials, there's a pretty good one that teaches SQL. In fact, this is more of an article than tutorial. It consists of two parts: **"SQL for Beginners"** and **"SQL for Beginners Part 2."** The first article includes an easy-to-grasp explanation of basic SQL queries, complete with many screenshots. In the second article, users learn about indexes, data types, and some rather more complex query structures.

Both articles are available without registration.

## 10. Essential SQL

**Essential SQL**, authored by **Kris Wenzel (@sqlkris)**, is a great place to learn the fundamentals of SQL and database concepts. The course is based on **Microsoft SQL Server**, which is why the author provides newbie users with a guide on how to get started using this database engine.



The screenshot shows a blog post titled "Getting Started with SQL Server: 1. Simple SELECT Queries" by Kris Wenzel. The post includes a decorative illustration of a plant, a list of learning objectives, and a note about installing tools. It also features a "Click Here to Get Started Learning SQL!" button, a search bar, and a sidebar with a "Are You Ready?" section and a "SQL Interview Questions" section.

In this series of lessons you're going to learn how to query Microsoft SQL Server using the SQL SELECT statement. Once you have read this lesson you'll be able to:

- Identify all the tables in a SQL Server Database Using SSMS (SQL Server Management Studio).
- Understand how to list a table's columns.
- Use the SQL SELECT statement to view columns, create text and mathematical results, and distinct values.
- Learn some techniques to debug your commands and fix mistakes.

**Important!** Please follow along and do the examples in your database. If you haven't already done so, [sign up for my Guide to Getting Started with SQL Server](#). You get instructions on how to install the free tools and sample database.

Are You Ready?

SQL Interview Questions

Click Here To Start!

This tutorial presents free tools to get you started, a guide leading you through the setup process, step-by-step explanations of how to download and activate a sample database, and much more. You'll get to know how to create simple select and sort queries, introduce yourself to SQL Server's built-in function, learn how to normalize your database, and much more.

An especially great thing with Essential SQL is that Kris is personally involved in the teaching process. When there are problems or doubts, he strongly encourages readers to contact him.

A significant drawback of this course is its lack of a structured learning program. It's more an extensive collection of articles covering a wide range of SQL-related topics than a step-by-step tutorial.

Most of the articles are available without registration; however, some content requires users to sign up with an email account.

## 11. Learn SQL The Hard Way

The essence of this course is perfectly described by the following review: "This book will teach you the 80% of SQL you probably need to use it effectively, and will mix concepts in data modeling at the same time."

Learn SQL The Hard Way

Python Ruby C Regex

## Exercise 2: Creating A Multi-Table Database

Creating one table isn't too useful. I want you to now make 3 tables that you can store data into:

```
CREATE TABLE person (
    id INTEGER PRIMARY KEY,
    first_name TEXT,
    last_name TEXT,
    age INTEGER
);

CREATE TABLE pet (
    id INTEGER PRIMARY KEY,
    name TEXT,
    breed TEXT,
    age INTEGER,
    dead INTEGER
);

CREATE TABLE person_pet (
    person_id INTEGER,
    pet_id INTEGER
);
```

In this file you are making tables for two types of data, and then "linking" them together with a third table. People call these "linking" tables "relations", but very pedantic people with no lives call all tables "relations" and enjoy confusing people who just want to get their jobs done. In my book, tables that have data are "tables", and tables that link tables together are called "relations".

There isn't anything new here, except when you look at person\_pet you'll see that I've made two columns: person\_id and pet\_id. How you would link two tables together is simply insert a row into person\_pet that had the values of the two row's id columns you wanted to connect. For example, if person contained a row with id=20 and pet had a row with id=98, then to say that person owned that pet, you would insert person\_id=20, pet\_id=98 into the person\_pet relation (table).

We'll get into actually inserting data like this in the next few exercises.



Indeed, the tutorial looks much more like a story, where each chapter has some theoretical content, related questions, and exercises. You can learn the basics of creating and manipulating tables, get familiar with data migration, and start understanding data manipulation and transactions.

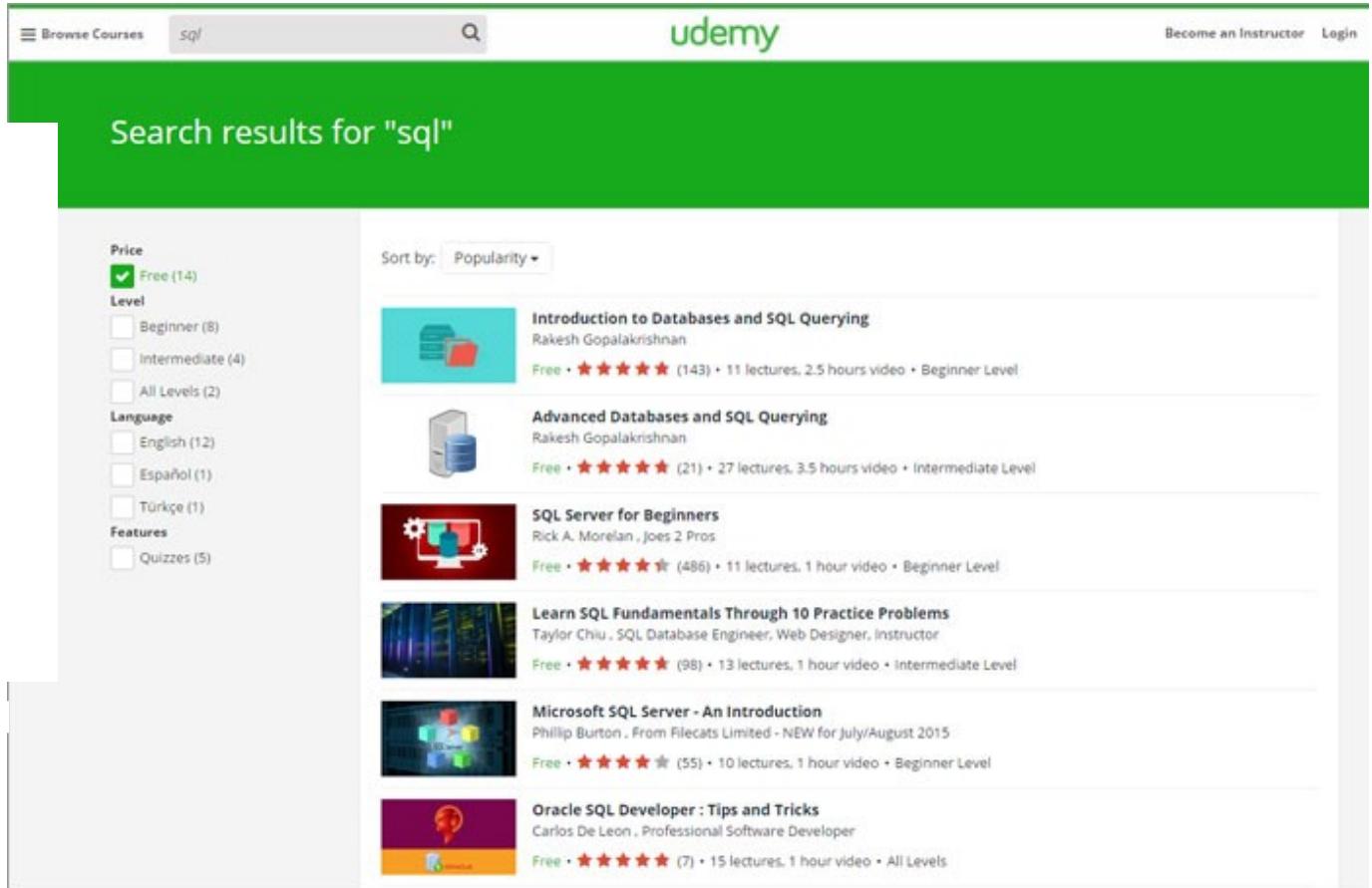
To keep the book simple, the site uses **SQLite3** to teach you how to design data and work with it.

Right now, there's an HTML ALPHA version of the book available, so users will have to wait for the final chapters to be completed.

The entire contents of the website is available without registration.

## 12. Udemy – SQL Tutorials

**Udemy** is a leading global platform where experts create courses and offer them the public, either at no charge or for a tuition fee.



The screenshot shows the Udemy website interface. At the top, there is a navigation bar with 'Browse Courses', a search bar containing 'sql', and the 'udemy' logo. To the right of the logo are links for 'Become an Instructor' and 'Login'. Below the navigation bar, a green header bar displays the text 'Search results for "sql"'. On the left side of the main content area, there are several filter options: 'Price' (with a checked 'Free' checkbox), 'Level' (with filters for 'Beginner', 'Intermediate', and 'All Levels'), 'Language' (with filters for 'English', 'Español', and 'Türkçe'), and 'Features' (with a 'Quizzes' checkbox). The main content area lists six SQL courses, each with a thumbnail image, the course name, the instructor, a 'Free' badge, a star rating, the number of reviews, and a brief description. The courses are sorted by popularity.

Course Title	Instructor	Price	Rating	Reviews	Description
Introduction to Databases and SQL Querying	Rakesh Gopalakrishnan	Free	★★★★★	(143)	11 lectures, 2.5 hours video • Beginner Level
Advanced Databases and SQL Querying	Rakesh Gopalakrishnan	Free	★★★★★	(21)	27 lectures, 3.5 hours video • Intermediate Level
SQL Server for Beginners	Rick A. Morelan, Joes 2 Pros	Free	★★★★★	(486)	11 lectures, 1 hour video • Beginner Level
Learn SQL Fundamentals Through 10 Practice Problems	Taylor Chiu, SQL Database Engineer, Web Designer, Instructor	Free	★★★★★	(98)	13 lectures, 1 hour video • Intermediate Level
Microsoft SQL Server - An Introduction	Philip Burton, From Filecats Limited - NEW for July/August 2015	Free	★★★★★	(55)	10 lectures, 1 hour video • Beginner Level
Oracle SQL Developer : Tips and Tricks	Carlos De Leon, Professional Software Developer	Free	★★★★★	(7)	15 lectures, 1 hour video • All Levels

Udemy provides various database and SQL video courses designed for particular database engines, including **MySQL**, **Oracle**, and **MS SQL Server**. There are several free SQL courses for both beginners and advanced users.

Here are some free courses worth checking into:

Introduction to Databases and SQL Querying

MySQL Database For Beginners

SQL Server For Beginners

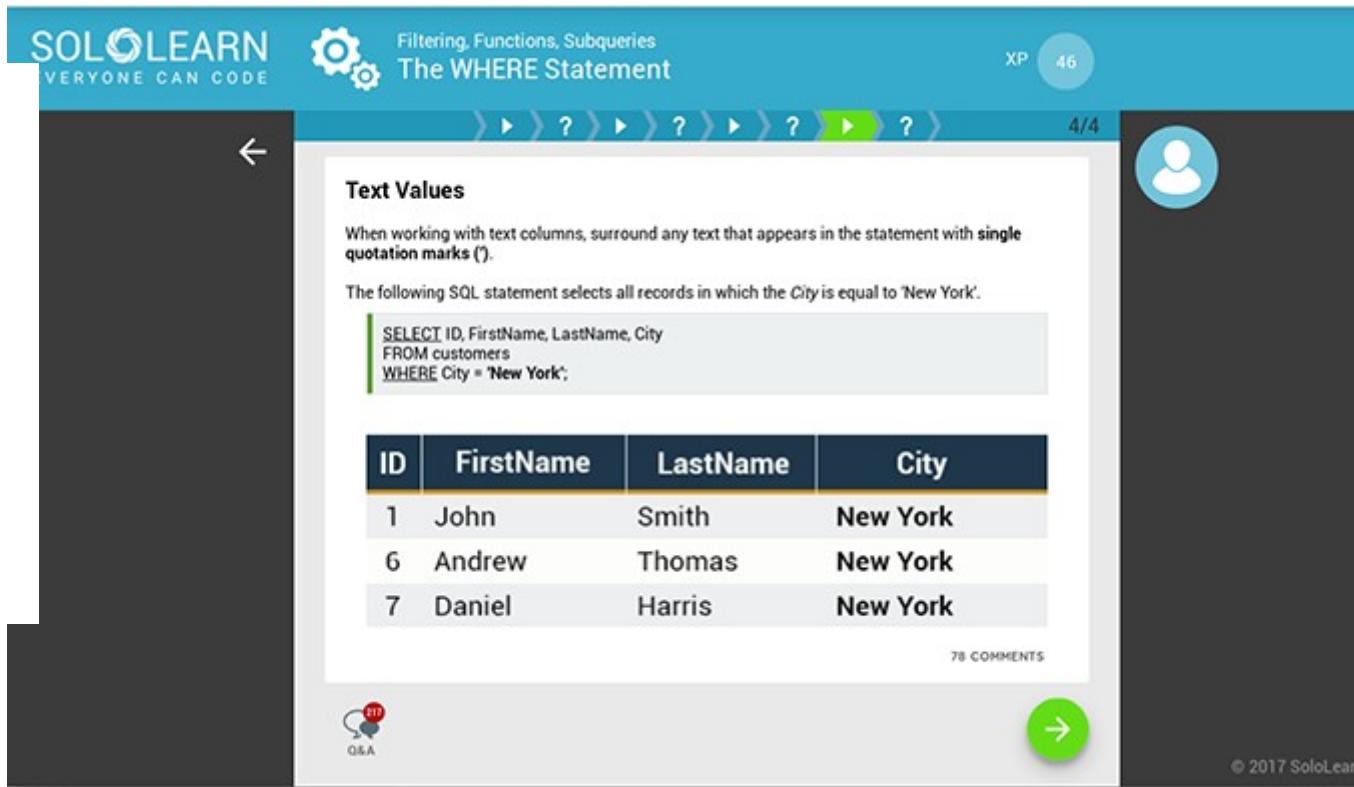
HANDS-ON SQL For Beginners (SELECT, FROM, & WHERE)

Sachin quickly learns SQL

To start learning, you must register with your email address.

## 13. SoloLearn

SoloLearn is an online learning platform that offers a variety of free courses on programming languages. One of their courses is [SQL Fundamentals](#) — a great resource for fast, effective, and fun SQL tutorials.



SOOLEARN  
EVERYONE CAN CODE

Filtering, Functions, Subqueries  
The WHERE Statement

XP 46 4/4

**Text Values**

When working with text columns, surround any text that appears in the statement with single quotation marks (').

The following SQL statement selects all records in which the City is equal to 'New York'.

```
SELECT ID, FirstName, LastName, City
FROM customers
WHERE City = 'New York';
```

ID	FirstName	LastName	City
1	John	Smith	New York
6	Andrew	Thomas	New York
7	Daniel	Harris	New York

78 COMMENTS

Q&A

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The course consists of 27 lessons split among the following four modules:

Basic Concepts

Filtering, Functions, Subqueries

JOIN, Table Operations

Challenges

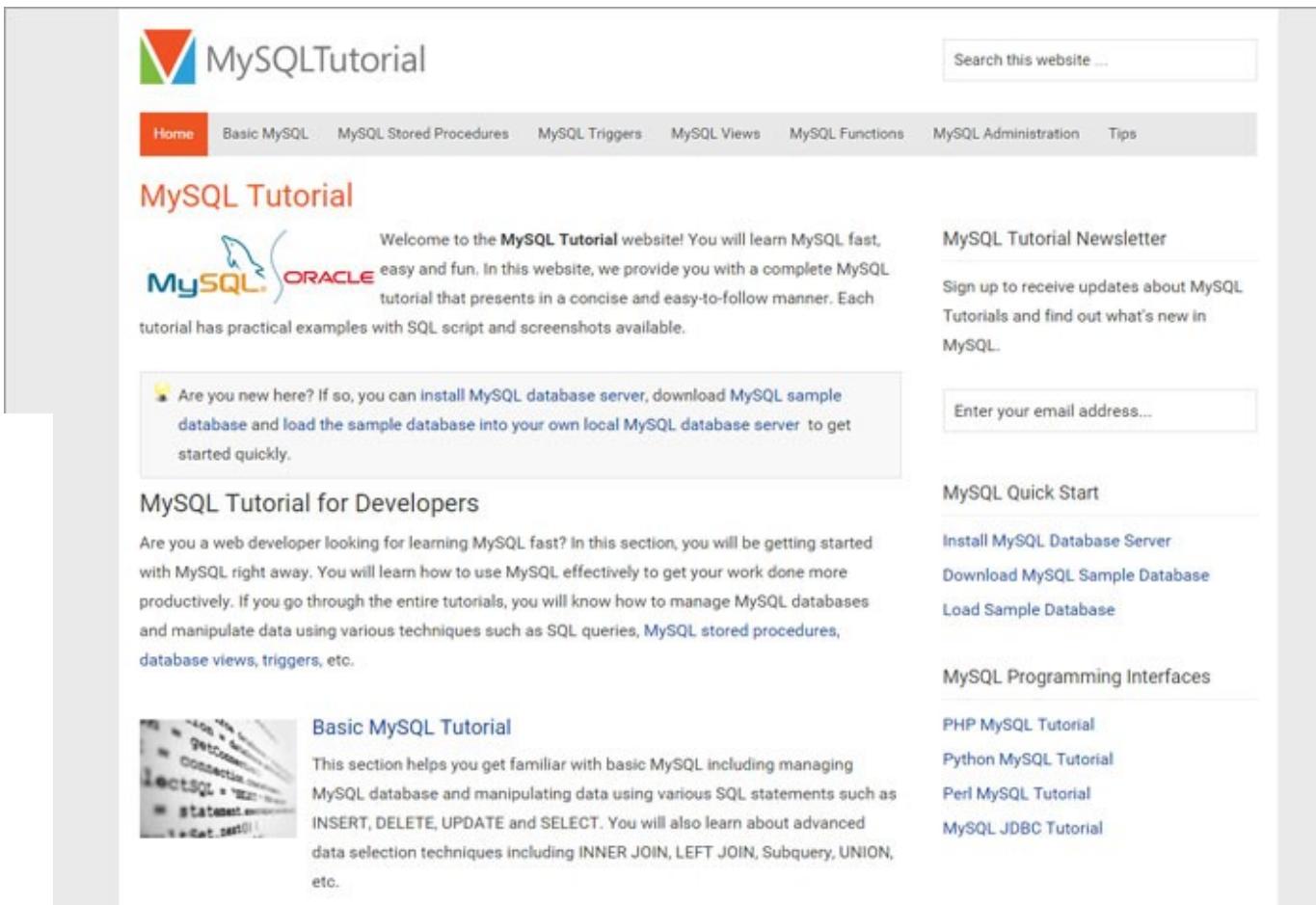
Based on the MySQL database, the [SQL Fundamentals](#) course covers the basics of database fundamentals such as query syntax, filtering records, aggregate functions and joining tables, even teaching more advanced concepts like subqueries, set operations, and views. The course not only covers the basic `SELECT` statement but also the `UPDATE`, `DELETE`, `INSERT`, and `ALTER` statements.

The lessons are short but focused, allowing you to stay on target to finish the course in a relatively short period of time. Each module is followed by an interactive quiz, and the last module presents a summary with two challenges. You don't have to install any database server on your own machine to answer the questions or work through the interactive problems.

Delivered through a convenient and user-friendly platform, the [SQL Fundamentals](#) course allows you to learn at your own pace and from any device, such as your PC, laptop, or smartphone. While the course is free, it does require registration, though the process is very simple. Once you complete the course, you'll even get a free certificate to showcase your achievement!

## I. MySQL Tutorial

This website provides users with a set of tutorials on managing MySQL databases and manipulate data. With various techniques – such as SQL queries, MySQL stored procedures, database views, triggers, and more – the tutorials shows how to deal with common tasks in MySQL.



The screenshot shows the MySQLTutorial website. The header includes the MySQL logo and the text "MySQLTutorial". The navigation bar has links for Home, Basic MySQL, MySQL Stored Procedures, MySQL Triggers, MySQL Views, MySQL Functions, MySQL Administration, and Tips. The main content area features a "MySQL Tutorial" section with a welcome message, a "MySQL Tutorial for Developers" section with a description of what developers can learn, and a "Basic MySQL Tutorial" section with a description of what basic MySQL users can learn. To the right, there are sections for the MySQL Tutorial Newsletter (with a sign-up form), MySQL Quick Start (with links to install, download, and load sample databases), and MySQL Programming Interfaces (with links to PHP, Python, Perl, and JDBC MySQL tutorials).

The **Basic MySQL tutorial** helps you get familiar with the fundamentals, including managing databases, creating tables, querying and modifying data using various MySQL statements and other constructs.

In the **MySQL Tips** section, users are provided with advanced techniques and tips help them solve the most difficult challenges in MySQL effectively.

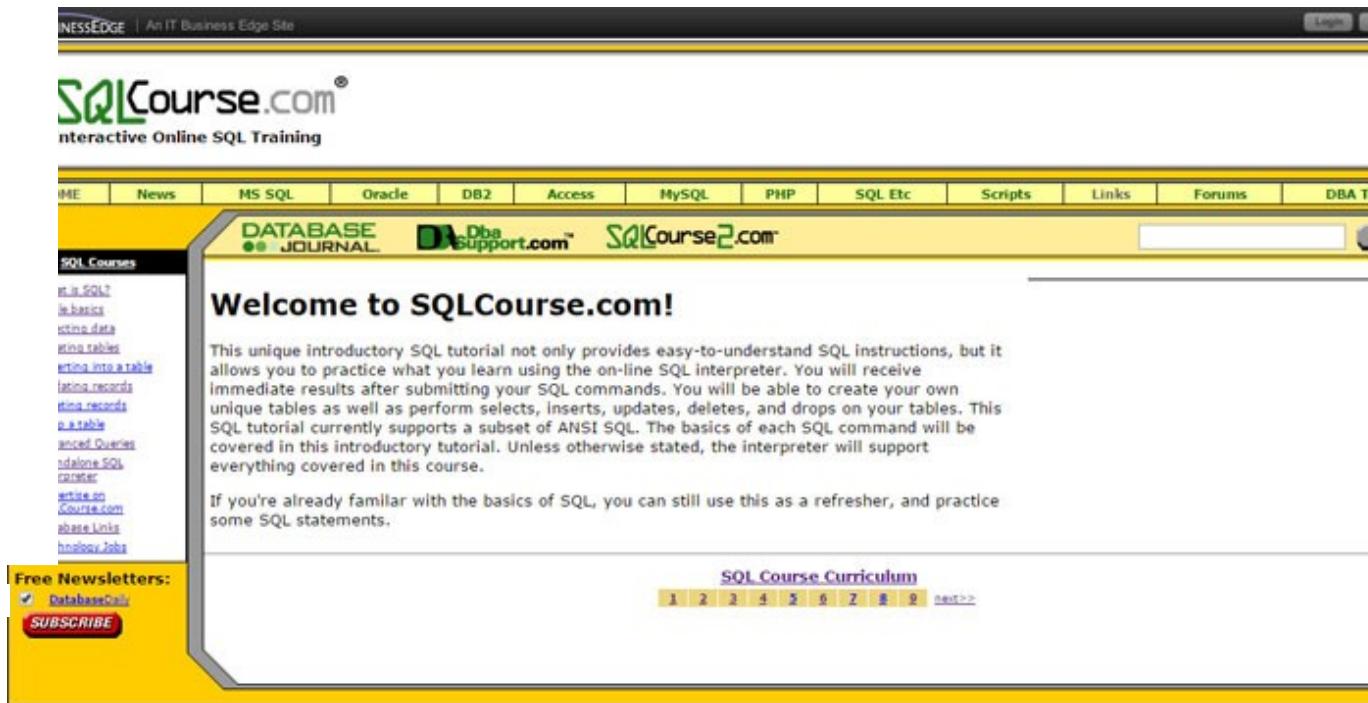
Other tutorials give in-depth background information on:

**MySQL stored procedure,**  
**MySQL triggers,**  
**MySQL views,**  
**MySQL full-text search,**  
**MySQL functions,**  
**MySQL administration.**

All tutorials are available without registration.

## 15. SQLCourse

**SQLCourse** provides easy-to-understand SQL instructions and allows you to practice what you learn with an **on-line interpreter**. With these tools, you can create your own unique tables and perform selects, inserts, updates, deletes, and drops – in other words, you'll learn the basics of SQL by doing it yourself.



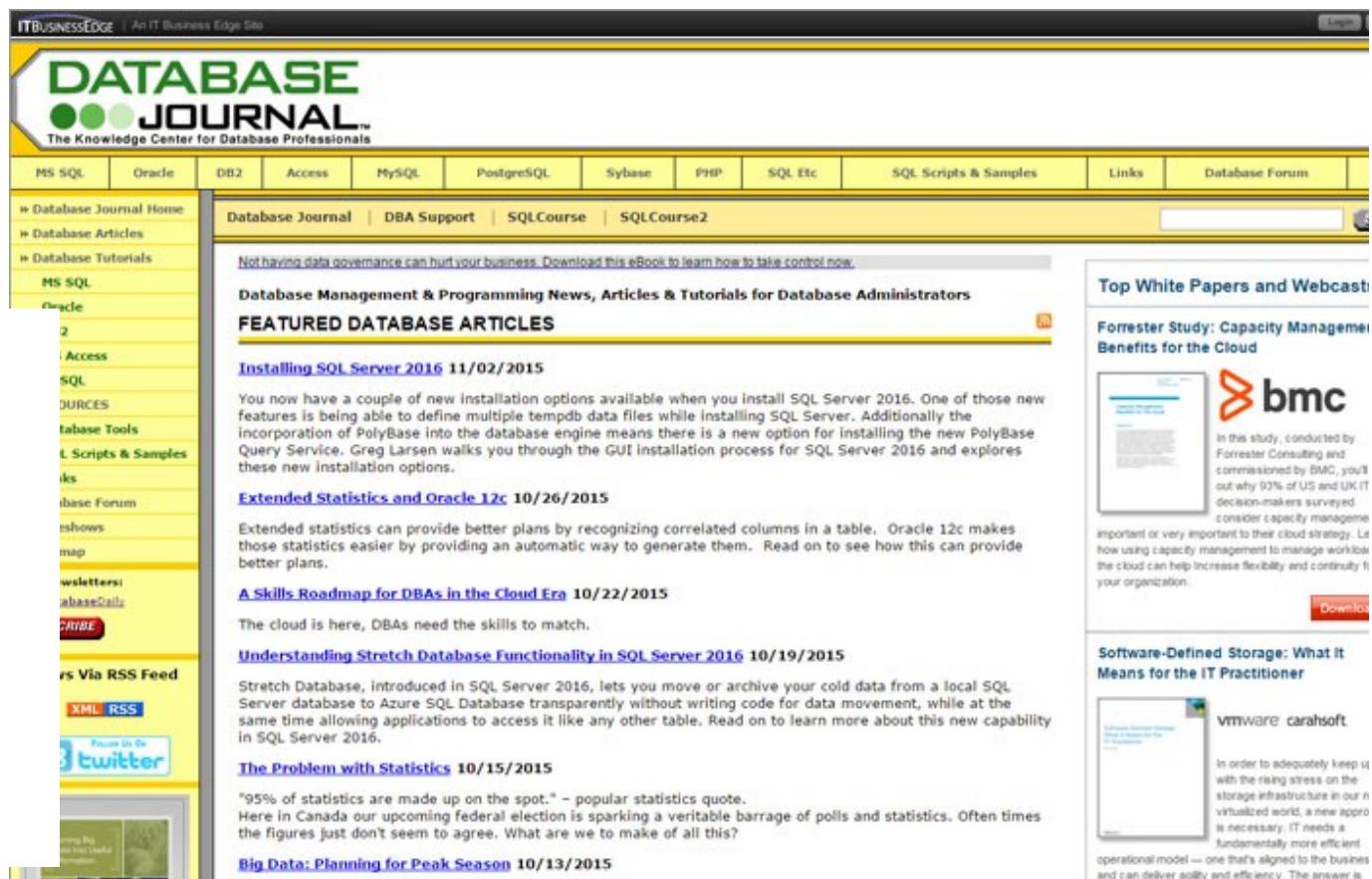
When you complete the basic training, you can continue developing your SQL skill with **SQLCourse2**. This course gives you an introduction to important advanced features and clauses of the SELECT statement that weren't supported in the previous part.

The resources of both websites, **SQLCourse** and **SQLCourse2**, are available without registration, however, you can sign up with your email to get free access to newsletters, whitepapers, and other premium contents.

## 16. Database Journal

The site related to **SQLCourse** and **SQLCourse2**. Although it looks old-fashioned, **Database Journal** is a great comprehensive source of knowledge. There are lots of database articles, news pieces, and tutorials regarding **MS SQL**, **Oracle**, **DB2**, **MS Access**, and **MySQL**.

## Access, and MySQL database management systems.



The screenshot shows the homepage of Database Journal. The header includes the site's logo, navigation links for MS SQL, Oracle, DB2, Access, MySQL, PostgreSQL, Sybase, PHP, SQL Etc, SQL Scripts & Samples, Links, and Database Forum. The main content area features a banner for 'Database Management & Programming News, Articles & Tutorials for Database Administrators'. Below this is a section for 'FEATURED DATABASE ARTICLES' with links to 'Installing SQL Server 2016 11/02/2015', 'Extended Statistics and Oracle 12c 10/26/2015', 'A Skills Roadmap for DBAs in the Cloud Era 10/22/2015', 'Understanding Stretch Database Functionality in SQL Server 2016 10/19/2015', 'The Problem with Statistics 10/15/2015', and 'Big Data: Planning for Peak Season 10/13/2015'. To the right, there are two sidebar sections: 'Top White Papers and Webcast' featuring a Forrester study on capacity management for the cloud, and 'Software-Defined Storage: What It Means for the IT Practitioner' featuring a VMware whitepaper.

You don't have to register to take advantages of this website, but you can sign up your email to get free access to newsletters, whitepapers, and other premium contents.

## 17. Guru99

Guru99 has a wealth of tutorials on a wide variety of subjects. Some of the tutorials are written, while others are video-based.



Home Testing SAP Web Must Learn! Big Data Live Projects Blog Q

### MySQL WHERE Clause with Examples - AND, OR, IN, NOT IN

#### What is the WHERE Clause?

We looked at how to query data from a database using the SELECT statement in the previous tutorial. The SELECT statement returned all the results from the queried database table.

They are however, times when we want to restrict the query results to a specified condition. The SQL WHERE clause comes in handy in such situations.

SQL Tutorials



### WHERE clause Syntax

The basic syntax for the WHERE clause when used in a SELECT statement is as follows.

```
SELECT * FROM tableName WHERE condition;
```

HERE

- "SELECT \* FROM tableName" is the standard SELECT statement

- 1) Introduction
- 2) MySQL Workbench
- 3) Database Designing
- 4) Normalization
- 5) ER Modeling
- 6) Creating a Database
- 7) SELECT Statement
- 8) WHERE Clause
- 9) INSERT INTO
- 10) DELETE & UPDATE
- 11) ORDER BY, ASC, DESC
- 12) GROUP BY
- 13) Wildcards
- 14) Regular Expressions

far as SQL, the **Guru99** website offers "**SQL Tutorial for Beginners Learn in 7 days**", which teaches SQL from the basics, such as the fundamentals of the SQL language, to more advanced techniques like joining tables, set operations, and queries. It is not an interactive course (it has no SQL Console), but it is an interesting **resource** for learning SQL.

This SQL Tutorial is based on the MySQL database server. On the tutorial's main website you'll find the table of contents. The topics in respective sections are explained clearly and precisely. In addition to the section text, diagrams and funny pictures help to explain the material in an easy and accessible manner.

In each section you'll also find query syntax and examples. Sections conclude with short summary, and you can also take an **SQL Quiz** to test your acquired knowledge.

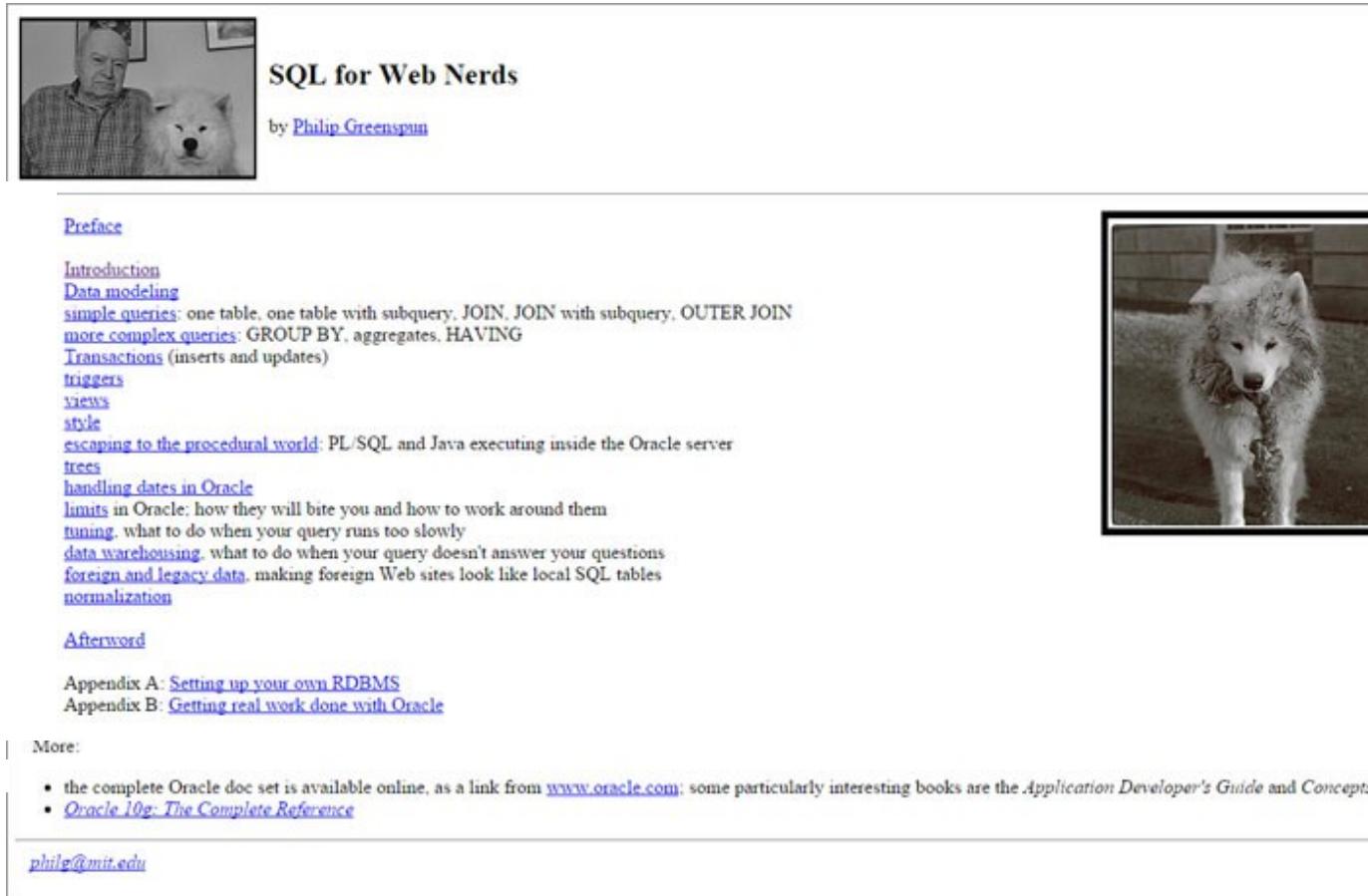
All of Guru99's educational tutorials are free, and they don't even require registration.

\* \* \* \*

**The following resources cover database fundamentals and usage.**

## 18. SQL for Web Nerds

**“SQL for Web Nerds”** is a free online book written and distributed by MIT professor [Philip Greenspun](#). Some of you may be familiar with this book, since it’s required reading for many university database classes.



The screenshot shows the homepage of the [SQL for Web Nerds](#) website. At the top left is a small photo of Philip Greenspun and his dog. The title "SQL for Web Nerds" is centered above the author's name, "by Philip Greenspun". Below the title is a table of contents with links to "Preface", "Introduction", "Data modeling", "simple queries", "more complex queries", "Transactions", "triggers", "views", "style", "escaping to the procedural world", "trees", "handling dates in Oracle", "limits in Oracle", "tuning", "data warehousing", "foreign and legacy data", and "normalization". Further down are links to "Afterword", "Appendix A: Setting up your own RDBMS", and "Appendix B: Getting real work done with Oracle". A "More:" section lists links to the Oracle documentation and the Oracle 10g: The Complete Reference. At the bottom left is an email address: [philip@mit.edu](mailto:philip@mit.edu). On the right side of the page is a large photo of a white dog.

[Preface](#)

[Introduction](#)  
[Data modeling](#)  
[simple queries](#): one table, one table with subquery, JOIN, JOIN with subquery, OUTER JOIN  
[more complex queries](#): GROUP BY, aggregates, HAVING  
[Transactions](#) (inserts and updates)  
[triggers](#)  
[views](#)  
[style](#)  
[escaping to the procedural world](#): PL/SQL and Java executing inside the Oracle server  
[trees](#)  
[handling dates in Oracle](#)  
[limits in Oracle](#): how they will bite you and how to work around them  
[tuning](#), what to do when your query runs too slowly  
[data warehousing](#), what to do when your query doesn't answer your questions  
[foreign and legacy data](#), making foreign Web sites look like local SQL tables  
[normalization](#)

[Afterword](#)

Appendix A: [Setting up your own RDBMS](#)  
Appendix B: [Getting real work done with Oracle](#)

More:

- the complete Oracle doc set is available online, as a link from [www.oracle.com](#); some particularly interesting books are the *Application Developer's Guide* and *Concept*:  
[Oracle 10g: The Complete Reference](#)

[philip@mit.edu](mailto:philip@mit.edu)

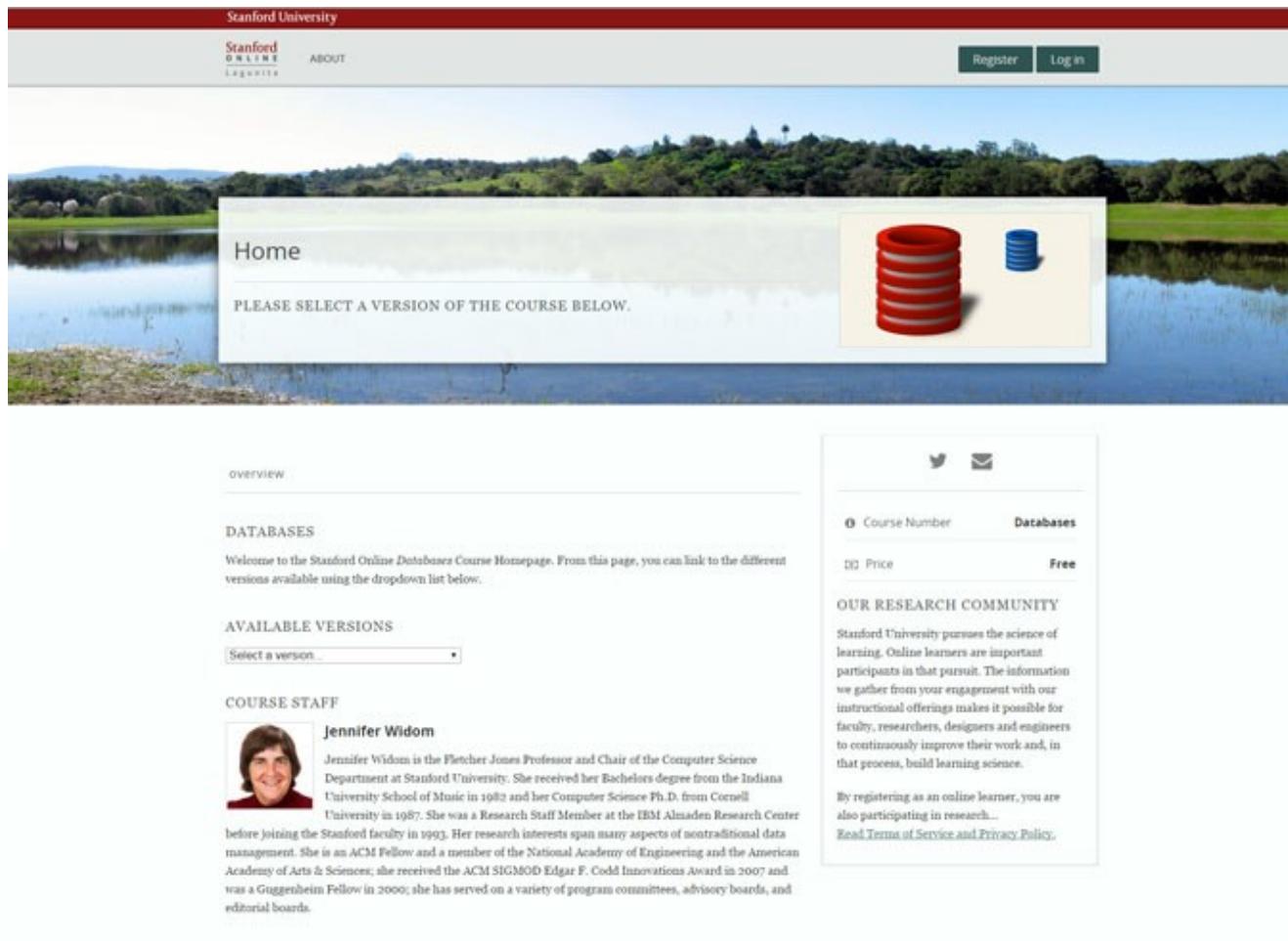
**“SQL for Web Nerds”** teaches relational database management systems from the perspective of a web application developer rather than from a theoretical point of view. It covers basic database concepts such as ACID and how RDBMS work; provides examples of simple and complex queries, transactions, triggers, and views; and tackles issues like having Java executing inside an Oracle Server, handling foreign data, legacy data, and normalization. Note: The SQL examples given in the book are for Oracle database.

All of this is presented in a light way, with well-thought-out examples. Photographs illustrating the author's concepts enrich the tutorial.

The entire website is available without registration.

## 19. Stanford Database Course

This course covers database design and the use of database management system for applications. It's where you can find **self-paced mini-courses** or one collective **"Introduction to Databases"** course that contains all mini-courses and a no-SQL review.



OVERVIEW

**DATABASES**

Welcome to the Stanford Online Databases Course Homepage. From this page, you can link to the different versions available using the dropdown list below.

AVAILABLE VERSIONS

Select a version:

COURSE STAFF

 **Jennifer Widom**  
Jennifer Widom is the Fletcher Jones Professor and Chair of the Computer Science Department at Stanford University. She received her Bachelor's degree from the Indiana University School of Music in 1982 and her Computer Science Ph.D. from Cornell University in 1987. She was a Research Staff Member at the IBM Almaden Research Center before joining the Stanford faculty in 1993. Her research interests span many aspects of nontraditional data management. She is an ACM Fellow and a member of the National Academy of Engineering and the American Academy of Arts & Sciences; she received the ACM SIGMOD Edgar F. Codd Innovations Award in 2007 and was a Guggenheim Fellow in 2000; she has served on a variety of program committees, advisory boards, and editorial boards.

Course Number: Databases  
Price: Free

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Courses are taught by Professor **Jennifer Widom**, co-author of four academic books covering beginning and advanced introductions to database systems.

In brief, these courses cover: Introduction to relational databases, Querying Relational Databases and XML Databases; Database Design; and SQL Advanced Features.

The **Stanford Database Course** has four major elements: **Courseware**, **Readings**, **Discussion Forum**, and **Wiki**. The main materials are found under **Courseware**: surveys, video lectures with transcripts, quizzes, and exercises. Suggested

supplementary readings and other pointers are found under **Readings**.

If you want to enroll the course, you must register for an account in the Stanford online learning system.

\* \* \* \*

The following resources focus on learning through fun.

## I. Schemaverse

Who said that the learning process has to be completely based on tutorials? It could be fun! So if you are keen on computer games and want to learn SQL, this one is definitely for you.



Briefly, **Schemaverse** is a space-based strategy game implemented entirely within the **PostgreSQL** database. Players start on their home planets, where they can build and upgrade their spaceships and mine resources that can be used to create or upgrade additional

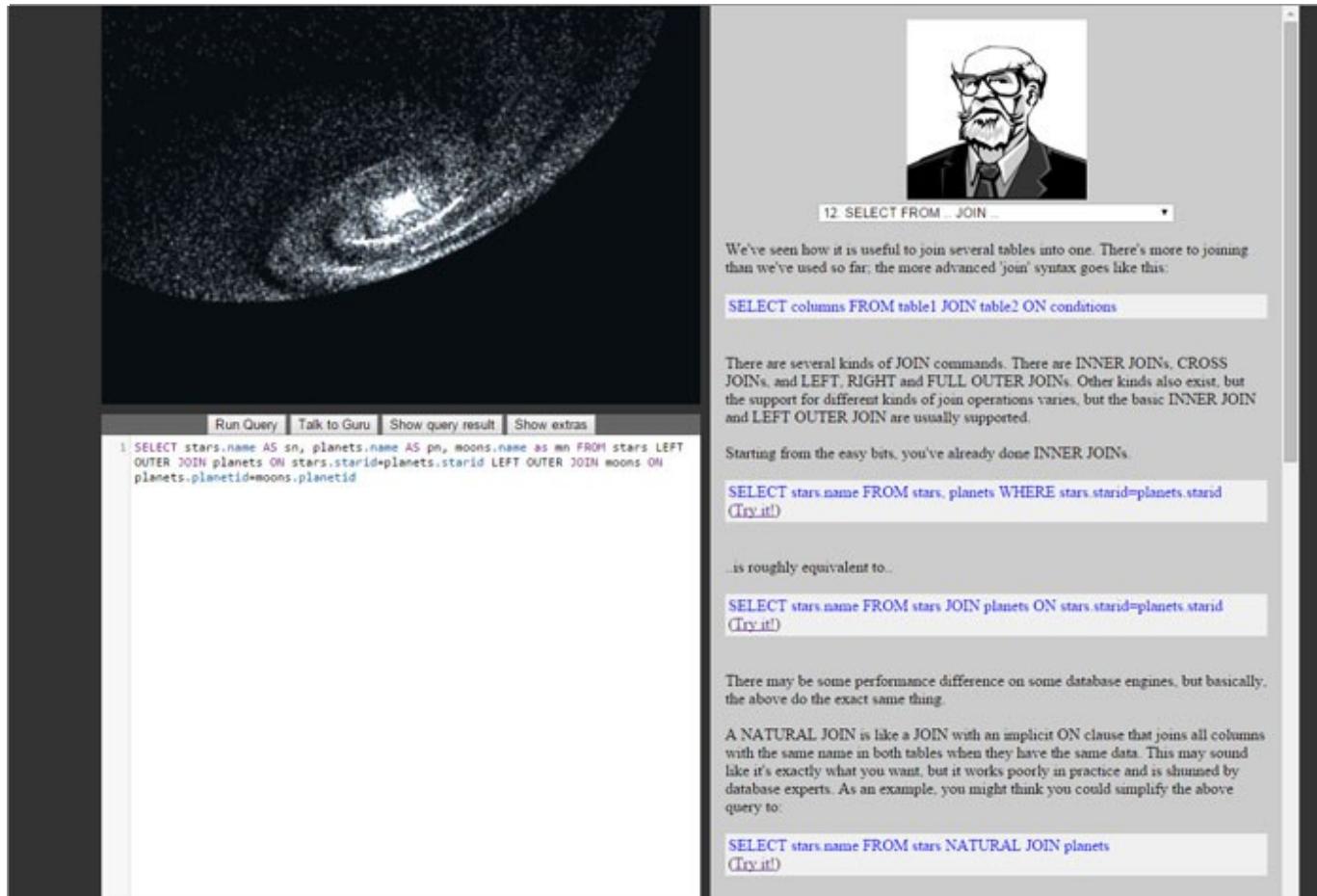
spaceships. After completing their own fleet, they can expand across the universe conquer planets belonging to other players. To command their fleet and compete against others, the gamers must use raw SQL statements.

It's not only beginners who can find something here. Indeed, some more advance PostgreSQL will definitely enjoy playing Schemaverse. As a result, the gamer will not only be fluent in basic SQL, but they'll also get acquainted with PL/pgSQL.

participate in the game, you must sign up with your email.

## . **GalaXQL 3.0**

Ready for another fun approach to learning? This one is a galaxy manipulation application, where you can run queries against galaxy database model created in **Lite**. The course provides a virtual teacher, Professor Alfred T. Guru, who introduces you to basic SQL syntax.



The screenshot shows the GalaXQL 3.0 application interface. On the left, there is a large, dark background image of a galaxy with stars and a bright central region. On the right, there is a user interface with the following components:

- A portrait of a man with glasses and a beard, identified as Professor Alfred T. Guru.
- A title bar with the text "12. SELECT FROM ... JOIN ...".
- A text area containing the following text:

We've seen how it is useful to join several tables into one. There's more to joining than we've used so far: the more advanced 'join' syntax goes like this:

```
SELECT columns FROM table1 JOIN table2 ON conditions
```

There are several kinds of JOIN commands. There are INNER JOINS, CROSS JOINS, and LEFT, RIGHT and FULL OUTER JOINS. Other kinds also exist, but the support for different kinds of join operations varies, but the basic INNER JOIN and LEFT OUTER JOIN are usually supported.

Starting from the easy bits, you've already done INNER JOINS.

```
SELECT stars.name FROM stars, planets WHERE stars.starid=planets.starid  
(Try it!)
```

...is roughly equivalent to...

```
SELECT stars.name FROM stars JOIN planets ON stars.starid=planets.starid  
(Try it!)
```

There may be some performance difference on some database engines, but basically, the above do the exact same thing.

A NATURAL JOIN is like a JOIN with an implicit ON clause that joins all columns with the same name in both tables when they have the same data. This may sound like it's exactly what you want, but it works poorly in practice and is shunned by database experts. As an example, you might think you could simplify the above query to:

```
SELECT stars.name FROM stars NATURAL JOIN planets  
(Try it!)
```
- Buttons at the bottom of the interface: "Run Query", "Talk to Guru", "Show query result", and "Show extras".
- A text input field containing the following SQL query:

```
1 SELECT stars.name AS sn, planets.name AS pn, moons.name AS mn FROM stars LEFT OUTER JOIN planets ON stars.starid=planets.starid LEFT OUTER JOIN moons ON planets.planetid=moons.planetid
```

The course starts with an explanation of SELECT statement, goes on through transactions, and ends with indexes. Each chapter, along with a detailed explanation, contains an exercise that puts the theory into practice. Basically, the exercise relies on writing an SQL query in the editor below the galaxy map. After completing the task, the user gets the query results or, in case of errors, receives helpful, human-readable error messages.

In addition to online course, there are downloadable desktop versions available for Windows, OS X, and Linux.

This tutorial is available without registration.

\* \* \* \* \*

## II. SQL References

**Following are links to online documentation for some databases.**

Although SQL statements typically aren't much different between SQL dialects when writing simple queries, it's important to be aware of the documentation for your dialect of SQL and use it often. Here are the common dialects' references:

MySQL documentation

PostgreSQL documentation

DB2 SQL reference

Oracle Database SQL reference

SQLite – SQL Syntax

\* \* \* \* \*

## Online tools to practise and improve SQL skills

## 23. SQL Fiddle

The screenshot shows the SQL Fiddle interface. On the left, the schema is defined with three tables: client, product, and product\_category. The client table has columns id, full\_name, email, and a primary key constraint. The product table has columns id, product\_category\_id, sku, name, price, description, image, and a primary key constraint. The product\_category table has columns id and name. On the right, a query is run: `SELECT * FROM client WHERE id=7;`. The results show one record: James Bond with email james.bond@mi5.gov.uk. Below the results, a message asks if the query solved the problem and encourages a donation.

```
1 -- tables
2 -- Table client
3 CREATE TABLE client (
4     id int NOT NULL,
5     full_name varchar(255) NOT NULL,
6     email varchar(255) NOT NULL,
7     CONSTRAINT client_pk PRIMARY KEY (id)
8 );
9
10 -- Table product
11 -- CREATE TABLE product (
12     id int NOT NULL,
13     product_category_id int NOT NULL,
14     sku char(10) NOT NULL,
15     name varchar(255) NOT NULL,
16     price decimal(12,2) NOT NULL,
17     description varchar(1800) NOT NULL,
18     image blob NOT NULL,
19     CONSTRAINT product_pk PRIMARY KEY (id)
20 );
21
22 -- Table product_category
23 CREATE TABLE product_category (
24     id int NOT NULL,
25     name varchar(255) NOT NULL
26 );
```

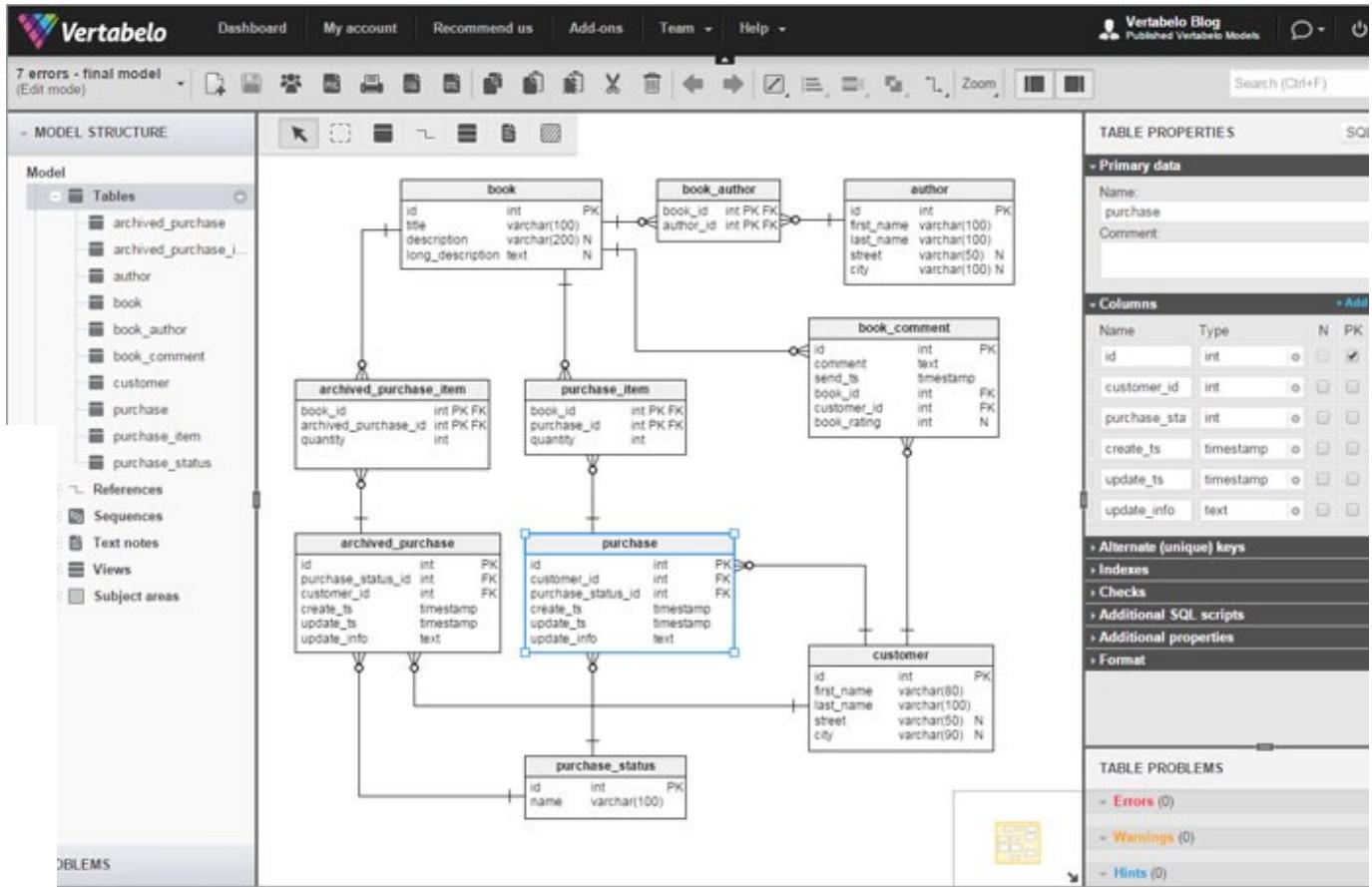
full_name	email
James Bond	james.bond@mi5.gov.uk

Record Count: 1, Execution Time: 1ms [View Execution Plan](#) [link](#)

Did this query solve the problem? If so, consider donating \$5 to help make sure SQL Fiddle will be here next time you need help with a database problem. Thank!

**SQLfiddle** is the perfect tool to test queries, compare and contrast SQL statements across different database back-ends, or when you don't have a particular database platform readily available but would like to see what a given query would look like in that environment.

## Vertabelo

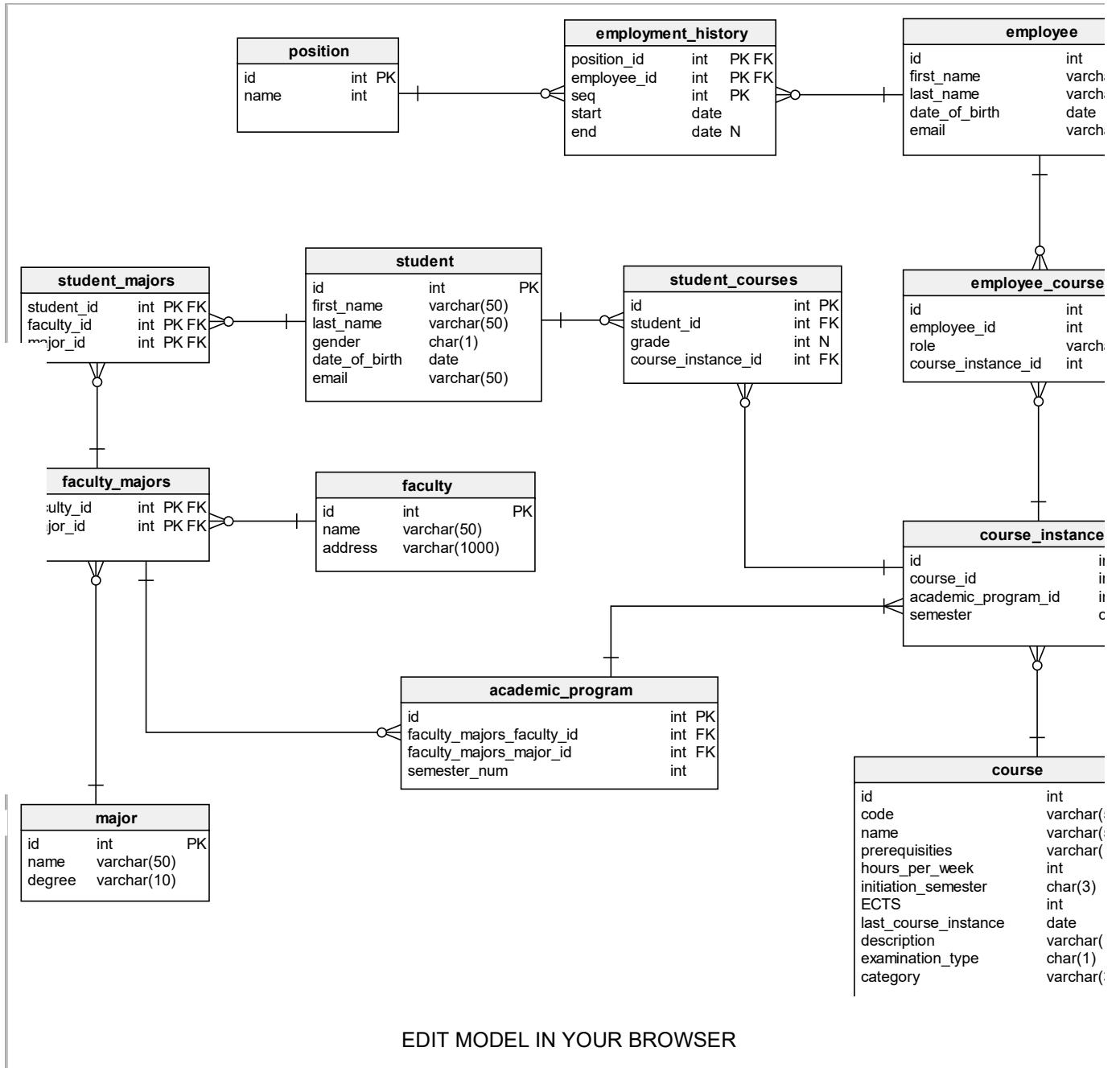


**Vertabelo** allows you to design your database structure for most popular database engines, including **PostgreSQL**, **MySQL**, **Oracle**, **SQL Server**, **SQLite**, and **IBM DB2**. Here, you can put into practise what you learned about database modeling concepts. At any time you can generate an SQL script that creates/removes all elements in your database or removes the selected elements/constraints.

Vertabelo checks your model before SQL script generation and notifies you of any errors or warnings. You can run the script in a particular database or in [SQLfiddle](#) and play with it there.

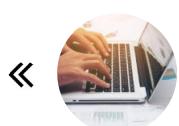
Note that Vertabelo offers free **academic accounts** for students and lecturers learning or teaching database design. To register such an account, you must provide your academic email address, i.e., the address with your educational institution's domain. [Click here](#) to sign up for an academic account.

Here you have a sample interactive database model created in Vertabelo. If you'd like to try out how it is to model a database online, just click the "Edit model" button. It's free and no registration is required.



Patrycja Dybka

Junior Java Developer @ e-point



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Vertabelo Academy courses will give you all the sufficient and detailed information and material to practise, but it will be great if you tried all the resources. The more you practice the better. After getting some fluency in SQL you can move to Stanford Database Course which consists of more advanced details connected to databases and more.

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