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# Programming and frameworks for ML

NoSQL Additional Resources



# About Me

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Big Data Consultant at Indra / Big Data Lecturer

- More than 20 years of experience in different environments, technologies, customers, countries ...
- Passionate data and technology
- Enthusiastic Big Data world and NoSQL



Daniel Villanueva Jiménez

BigData Developer / Lecturer

INDRA • Universidad Pontificia de Salamanca



# Agenda

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- Infrastructure
- PostgreSQL
- Riak
- Cassandra
- MongoDB
- Neo4j
- Bibliography



# NoSQL Virtual Machine

dvillaj / NoSQL-box

Unwatch

1

Star

0

Fork

0

Code

Issues

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

No description, website, or topics provided.

Manage topics

1 commit

1 branch

0 packages

0 releases

1 contributor

Branch: master

New pull request

Create new file

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dvillaj first commit	Latest commit a613daa 2 days ago
resources	first commit 2 days ago
.gitignore	first commit 2 days ago
README.md	first commit 2 days ago
Vagrantfile	first commit 2 days ago

README.md

## NoSQL Box

Vagrant to create a NoSQL box

- Postgres
- Riak
- Cassandra
- MongoDB
- Neo4j

This box is based in Ubuntu 18.04 and Docker.

# Docker



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# SQL Cheat Sheet

## SQL Facts

- SQL stands for Structured Query Language
- SQL is pronounced "sequel"
- SQL is declarative language
- SQL is used to access & manipulate data in databases
- Top SQL DBs are MS SQL Server, Oracle, DB2, and MySQL

## Database Definitions

- **RDBMS** (Relational Database Management System) – Software that stores and manipulates data arranged in relational database tables.
- **Table** – A set of data arranged in columns and rows. The columns represent characteristics of stored data and the rows represent actual data entries.

## How to select data from a table

```
SELECT <Column List>
FROM <Table Name>
WHERE <Search Condition>
```

### Example:

```
SELECT FirstName, LastName, OrderDate
FROM Orders WHERE OrderDate > '10/10/2010'
```

## SQL Commands Categories

### Data Query Language (DQL)

- SELECT - Retrieve data from table(s)

### Data Manipulation Language (DML)

- INSERT - Insert data into db table
- UPDATE - Update data in db table
- DELETE - Delete data from table

### Data Definition Language (DDL)

- CREATE - Create db object (table, view, etc.)
- ALTER - Modify db object (table, view, etc.)
- DROP - Delete db object (table, view, etc.)

### Data Control Language (DCL)

- GRANT - Assign privilege
- REVOKE - remove privilege


## How to insert data in a table

```
INSERT INTO <Table Name>
(<Column List>) VALUES (<Values>)
```

### Example:


```
INSERT INTO Orders
(FirstName, LastName, OrderDate) VALUES
('John', 'Smith', '10/10/2010')
```

# PostgreSQL tutorial



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## PostgreSQL Tutorial



PostgreSQL

Welcome to the PostgreSQLTutorial.com website! This **PostgreSQL tutorial** helps you understand PostgreSQL quickly. You will learn PostgreSQL fast through many practical examples. We will show you not only problems but also how to solve them creatively in PostgreSQL.

If you are...

- Looking for learning PostgreSQL fast and easily.
- Developing applications using PostgreSQL as the back-end database management system.
- Migrating from other database management systems such as MySQL, Oracle, Microsoft SQL Server to PostgreSQL.


You will find all you need to know to get started with PostgreSQL quickly and effectively here on our website.

We developed the PostgreSQL tutorial to demonstrate the unique features of PostgreSQL that make it the most advanced open-source database management system.

### Basic PostgreSQL Tutorial

First, you will learn how to query data from a single table using basic data selection techniques such as selecting columns, sorting result sets, and filtering rows. Then, you will learn about the advanced queries such as joining multiple tables, using set operations, and constructing the subquery. Finally, you will learn how to manage database tables such as creating new a table or modifying an existing table's structure.

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#### POSTGRESQL QUICK START

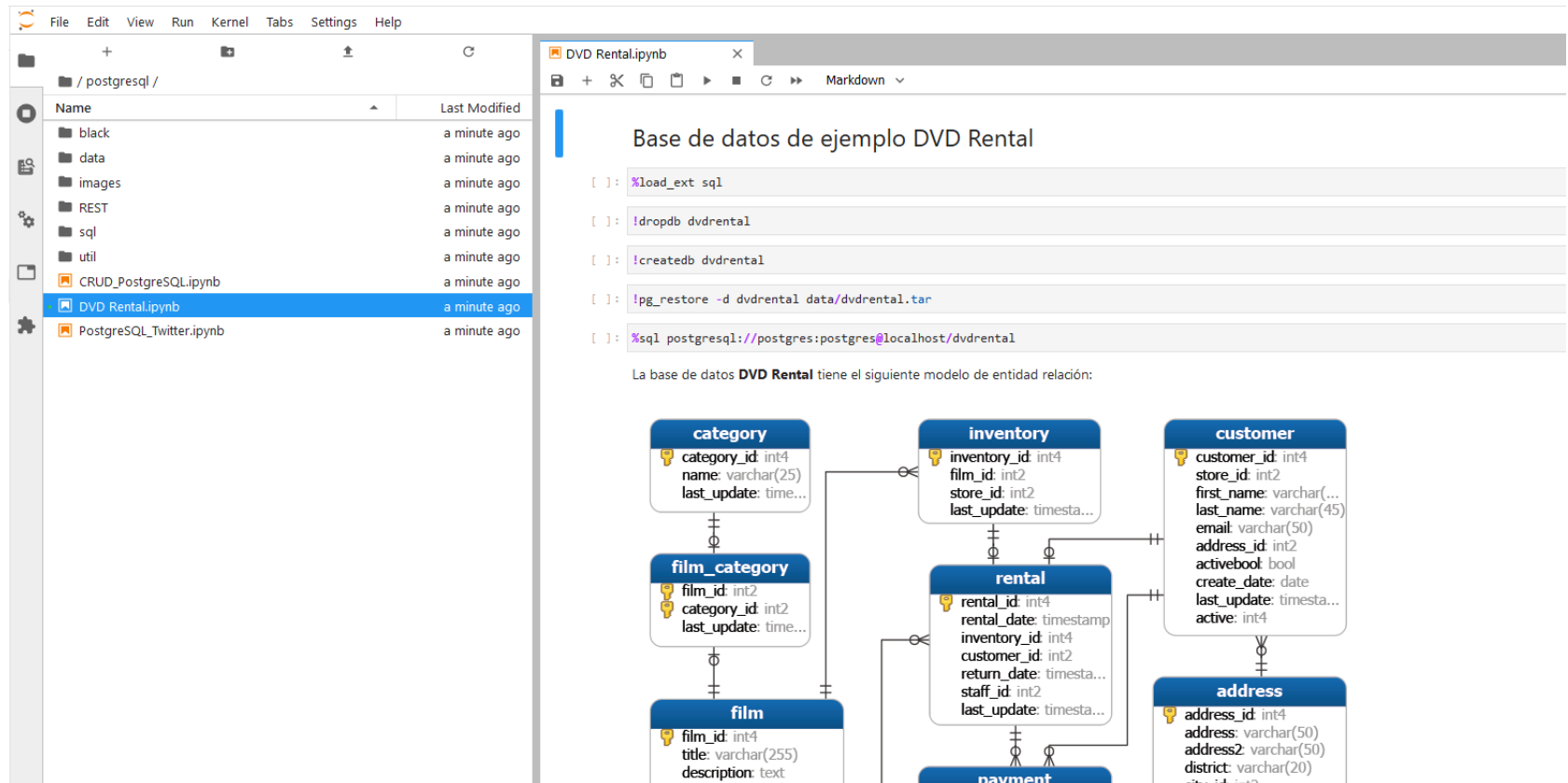
- [What is PostgreSQL?](#)
- [Install PostgreSQL](#)
- [Connect to Database](#)
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#### POSTGRESQL FUNDAMENTALS






# PostgreSQL tutorial Sample Database









# Data Modeling Techniques


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## 3 Basic Data Modeling Techniques - ERD, UML and Data Dictionary

 Piotr Kononow
  2019-11-13
  Data Dictionary · Data Model · ERD



In this article I will give you a brief overview of 3 basic data modeling techniques - ER Diagrams, UML Class Diagrams and a Data Dictionary.

## 1. Entity Relationship Diagrams


Also referred to as **ER diagrams** or **ERDs**. Entity-Relationship modeling is a default technique for modeling and the design of relational (traditional) databases. In this notation architect identifies:

1. **Entities** representing objects (or tables in relational database),
2. **Attributes** of entities including **data type**,
3. **Relationships** between entities/objects (or foreign keys in a database).

ERDs work well if you want to design a relational (classic) database, Excel databases or CSV files. Basically, any kind of tabular data. They work well for visualization of database schemas and communication of top-level view of data.

### Table of Contents:

1. Entity Relationship Diagrams
2. UML Class Diagrams
3. Data Dictionary



**Generate database docs**

Generate convenient documentation of your databases in minutes and share it with your team.

[See live sample](#)



# Data Modeling



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## Introduction to Data Modeling

Go from conceptual to practical, as you build your data modeling foundation, explore data and data design concepts -- before you begin sourcing, preparing, and manipulating data.



Archived: Future Dates To Be Announced

Learn for free

☐ I would like to receive email from Microsoft and learn about other offerings related to Introduction to Data Modeling.

## About this course

The role of the data modeler has become even more critical to the ongoing lifecycle of development and maintenance, especially in this age of digital transformation. Analysts, developers, DBAs, and BI professionals need to develop their skills in analyzing and modeling data. Whether working with new or legacy data, you must define rules for quality, retention, and protection. And you need a good foundation of

[More about this course](#)

## What you'll learn

- Fundamentals of normalization and why it's important to transactional databases
- How to develop logical and physical data models
- How to model data security, privacy and protection requirements
- When and where to model database-specific performance requirements

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🕒 Length:	4 Weeks
🕒 Effort:	2–4 hours per week
💰 Price:	FREE Add a Verified Certificate for \$99 USD
🏛️ Institution:	Microsoft
📖 Subject:	Computer Science
⚙️ Level:	Intermediate
🗣️ Language:	English
📺 Video Transcript:	English

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- Infrastructure
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# Little Riak a Book

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A Little Riak Book

177 commits 3 branches 0 packages 0 releases 8 contributors View license

Branch: master New pull request Create new file Upload files Find file Clone or download

File	Commit	Time
assets	fixed #45	6 years ago
en	fixed #45	6 years ago
pt	update developers	6 years ago
rendered	fixed #45	6 years ago
.gitignore	attempt at better pdf generation	8 years ago
Gemfile	init	8 years ago
Gemfile.lock	init	8 years ago
LICENSE	init	8 years ago
README.md	Updates from upstream source, plus chapter 2 is now translated in PT.	7 years ago
README_PT.md	Updated readme and formatted hard wrap line to 80 in chapter 3.	7 years ago
bookgen.rb	fixed #45	6 years ago
template.tex	seperate author page	6 years ago
tex.yml	Add security section	6 years ago

README.md

## A Little Riak Book

You can download different formats from [rendered](#).

You must have `ruby` installed, tested mostly on 1.9.2+

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- Infrastructure
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- **Cassandra**
- MongoDB
- Neo4j
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# Cassandra Academy



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Our role-based learning paths give you a clear track to success.  
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## Announcing... DataStax Luna

Subscription-based support for open source Apache Cassandra™. Develop and deploy applications with confidence.

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"DataStax Academy is the first place I tell developers to go when they want to learn Apache Cassandra™"

**Walmart** Andrew Weaver,  
Sr. Technical Expert

# Agenda

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- Infrastructure
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- Cassandra
- **MongoDB**
- Neo4j
- Bibliography





# MongoDB University

## Welcome to MongoDB University

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**MongoDB Basics**

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Learn the fundamentals of MongoDB. Register Now!



**Course:**  
M103: Basic Cluster Administration  
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**New Course:**  
M042: New Features & Tools in v4.2  
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**New Course:**  
M320: MongoDB Data Modeling  
Register Now


## How Do MongoDB University Tutorials Work?



1. Take **free** courses



2. Study for your certification with **exam prep materials**



3. Take the **MongoDB Developer Exam** or the **MongoDB DBA Exam**

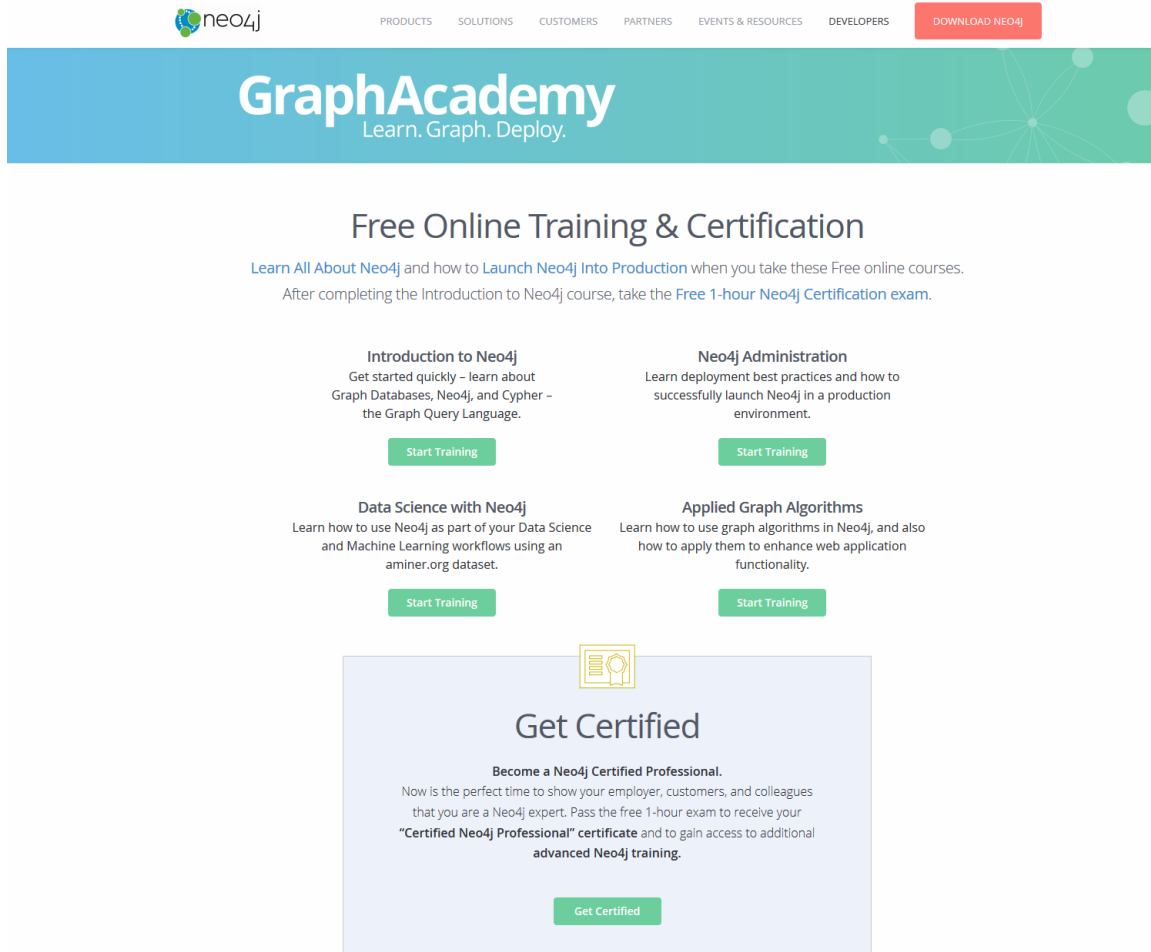
# Agenda

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# Neo4j Graph Academy



The screenshot shows the Neo4j Graph Academy website. At the top, there's a navigation bar with links for PRODUCTS, SOLUTIONS, CUSTOMERS, PARTNERS, EVENTS & RESOURCES, and DEVELOPERS, along with a red button to DOWNLOAD NEO4J. Below this is a large blue and green banner with the text 'GraphAcademy Learn. Graph. Deploy.' and a network diagram. The main section is titled 'Free Online Training & Certification' and includes a paragraph about learning to launch Neo4j into production. It then lists four courses: 'Introduction to Neo4j', 'Neo4j Administration', 'Data Science with Neo4j', and 'Applied Graph Algorithms', each with a 'Start Training' button. At the bottom, there's a 'Get Certified' section with a 'Get Certified' button.

neo4j

PRODUCTS SOLUTIONS CUSTOMERS PARTNERS EVENTS & RESOURCES DEVELOPERS DOWNLOAD NEO4J

## GraphAcademy

Learn. Graph. Deploy.

### Free Online Training & Certification

Learn All About Neo4j and how to Launch Neo4j Into Production when you take these Free online courses.

After completing the Introduction to Neo4j course, take the Free 1-hour Neo4j Certification exam.

#### Introduction to Neo4j

Get started quickly – learn about Graph Databases, Neo4j, and Cypher – the Graph Query Language.

Start Training

#### Neo4j Administration

Learn deployment best practices and how to successfully launch Neo4j in a production environment.

Start Training

#### Data Science with Neo4j

Learn how to use Neo4j as part of your Data Science and Machine Learning workflows using an aminer.org dataset.

Start Training

#### Applied Graph Algorithms

Learn how to use graph algorithms in Neo4j, and also how to apply them to enhance web application functionality.

Start Training

### Get Certified

**Become a Neo4j Certified Professional.**

Now is the perfect time to show your employer, customers, and colleagues that you are a Neo4j expert. Pass the free 1-hour exam to receive your “Certified Neo4j Professional” certificate and to gain access to additional advanced Neo4j training.

Get Certified

# Neo4j Meetup



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## Neo4j España

Madrid, España  
645 miembros · Grupo público  
Organizado por Neo4j y otras 3 personas

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### Lo que hacemos

Desarrolladores y consultores interesados en aprender acerca de y trabajar con bases de datos de grafos para redes sociales, clientes, bioinformática, datos espaciales y otros datos altamente conectados. Con presentaciones técnicas, sesiones prácticas de laboratorio, revisiones tecnológicas, y lecturas recomendadas. ¿Tienes curiosidad por los grafos, quieres extender tus conocimientos en NoSQL? ¡Únete a nosotros!

Graph Everywhere, solution partner de Neo4j, coordina las actividades del...

[Más información](#)

### Próximos eventos (5)

[Ver todo](#)

mié., 6 may., 10:00 CEST

#### Neo4j y Recomendaciones

☐ Evento en línea



Presentación de Neo4j para casos de uso de recomendaciones. La presentación

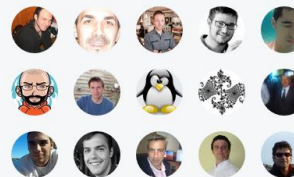
### Organizadores



Neo4j y otras 3 personas  
[Mensaje](#)

### Miembros

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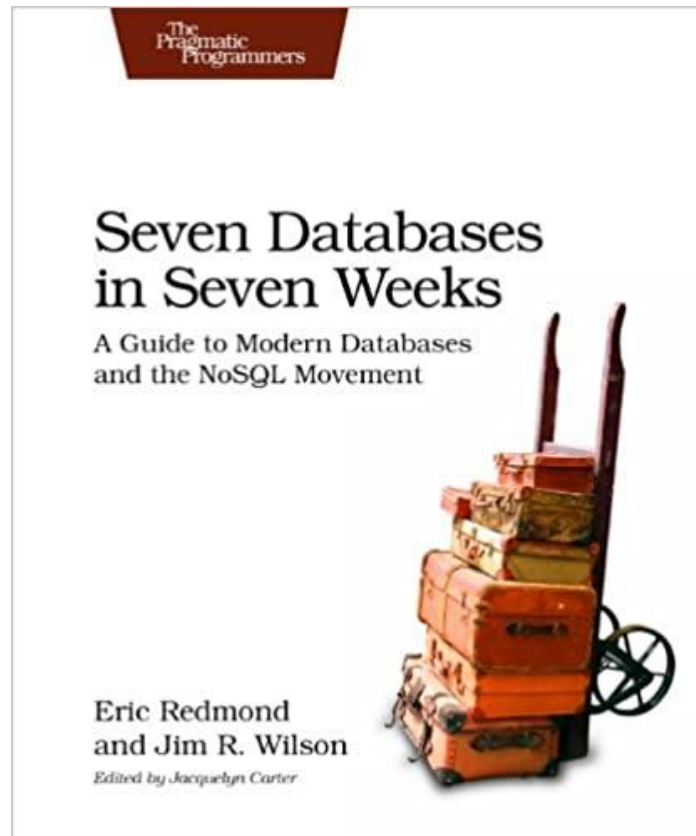
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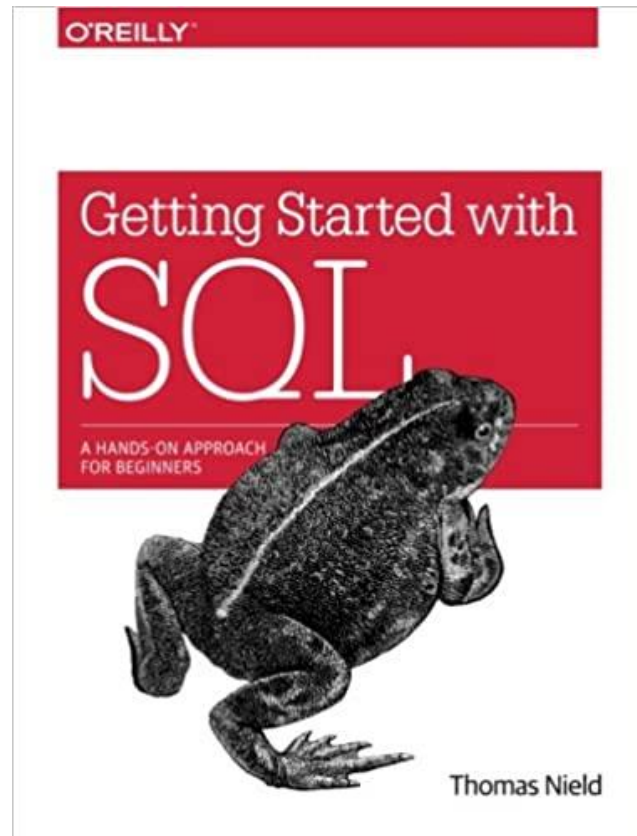
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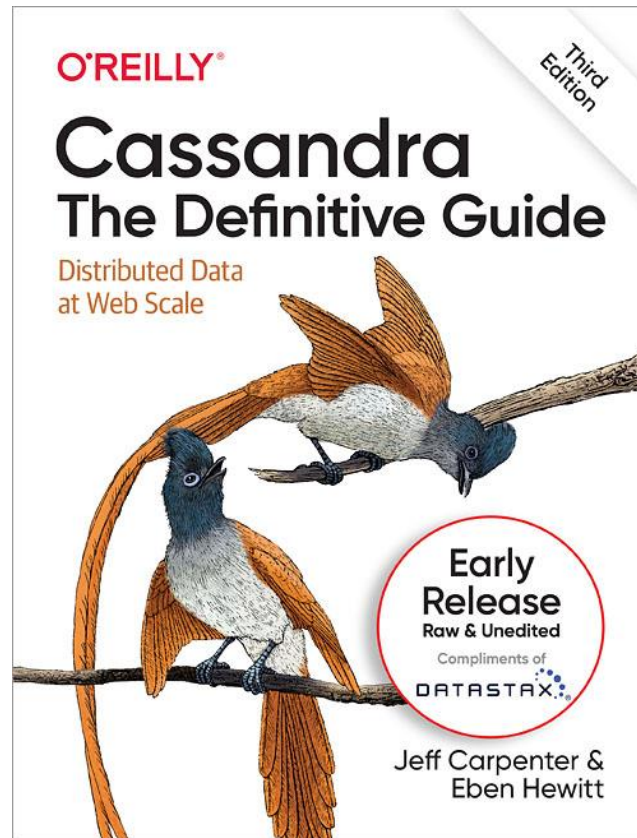
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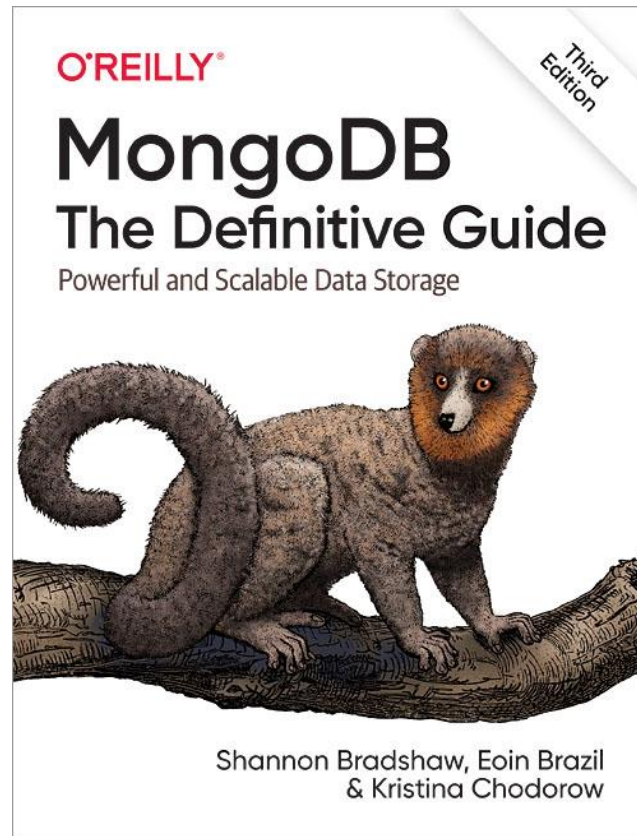
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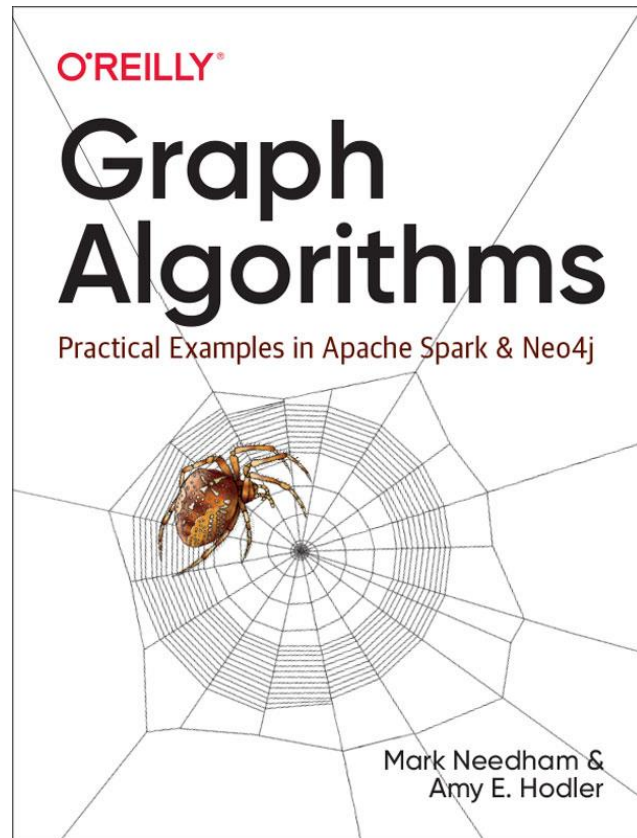
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