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Mastering the Snowflake SQL API with Laravel 10

A Comprehensive Guide to Data Cloud Integrated Development

Ronald Steelman

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This book, my first book of what I hope to be many more to come, was truly an enjoyable endeavor with new challenges that were both unexpected and exciting to overcome. I would like to dedicate this book to my loving mother, Sheree Burkhart, for always believing in me and always driving me to be my best self; my amazing partner, Rudy Gomez, for his support and encouragement; my niece and nephew, Zeke and Hanna, for giving me some good laughs on the phone when I needed a break; and to the rest of my family for the "home team support" they have shown me.

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Finally, I'd like to thank all of you, my readers, who took a chance at this publication. I hope it gives you the knowledge you need to succeed.

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About the Author

Ronny Steelman, a dynamic author in the field of data, analytics, and programming, brings over 15 years of invaluable expertise to his work. Residing in Dallas, Texas, Ronny's passion for data-driven insights ignited during his time at the University of Oklahoma, where he honed his analytical skills and set the foundation for his illustrious career.

With a visionary spirit and a knack for leading data teams, Ronny has spearheaded transformative projects across various industries. His journey through the ever-evolving landscape of data technology, including starting his own data consulting company, QuadraByte, has not only established him as a thought leader but also fueled his commitment to sharing knowledge. *Mastering the Snowflake SQL API with Laravel 10* is a testament to Ronny's dedication to empowering others with the skills and wisdom gained from his remarkable journey in the world of data. At the age of 35, Ronny's story exemplifies how passion and expertise can converge to shape the future of data analytics.

About the Technical Reviewer

Dmitry Anoshin is a data engineering leader with 15 years of experience working in business intelligence, data warehouse and data integration, big data, cloud, and ML space across North America and Europe. He is currently focusing on raising the bar of data engineering and analytics skills globally with Surfalytics.com.

He leads data engineering initiatives, working on a petabyte-size data platform built using cloud and big data technologies for supporting machine learning experiments, data science models, business intelligence reporting, and data exchange with internal and external partners. He handles privacy compliance and security-critical datasets.

Apart from work, Dmitry teaches a cloud computing course at the University of Victoria, mentors high-school students at the CS faculty, and volunteers his time to coaching people with analytics engineering skills in the CIS region. Moreover, he is an author of analytics books and a speaker at data-related conferences and user groups.

CHAPTER 1

Snowflake

Why Snowflake?

The three founders of Snowflake started the company in July 2012 in San Mateo, California. Within a few years, the company became the leader in cloud data, or "data-as-a-service," as its customer base and investment capital continued to grow at an exponential rate. By 2023, the company's revenue was 2.067 billion US dollars. Although many reasons exist for choosing Snowflake over other cloud data providers, the company leans into its value proposition of increasing customer ROI by 612%, its ability to run over 2.6 billion queries per day, and a rich partner ecosystem of over 1,300 partners. Add to this the platform's growing database driver solution, robust API, unparalleled infrastructure for computing and data, and a growing roadmap of new features, including native support for AI and ML, and it is easy to see the attraction to the platform.

Companies that adopt Snowflake do so because they do not want to take on the overhead and management of database infrastructure and networking uptime, instead choosing to rely heavily on Snowflake's rapid data access, on-demand warehouse initialization, and its tried-and-tested backend infrastructure. Leveraging Snowflake allows companies to do away with most of the DBA overhead required in traditional database solutions by utilizing Snowflake's data warehousing as a service and instead allows companies to focus time, resources, and money on data warehousing, data analysis, and AI and ML initiatives.

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As Snowflake has continued to grow, they have adopted the mantra of "one platform with near-unlimited potential." This includes the ability to execute workloads under optimal performance; fully automate the security, governance, and availability; and collaborate securely on a global scale using their data marketplace. Snowflake's unique architectural designs allow businesses to connect globally across clouds in order to mobilize their data and to break down data silos.

What Is the Snowflake API?

The Snowflake SQL API is a RESTful API that anyone can use to access and update data in a Snowflake instance. The API supports the ability to perform query operations, provision users and roles, create tables, and manage many other aspects of your Snowflake deployment. By leveraging API development best practices, Snowflake has enabled users with the capabilities of submitting SQL statements for execution, including most DDL and DML statements, checking the status of any statement execution, canceling a statement execution on-demand, and providing the ability to fetch query results concurrently.

API stands for Application Programming Interface, which is a software intermediary provided by an application to other applications and allows two applications to talk to each other. The RESTful standard stands for REpresentational State Transfer, which is an architectural style. REST defines a set of principles and standard protocols through which APIs can be built around. REST is the widely accepted architectural style of building APIs.

Snowflake employs data partition architecture in its SQL API to help users fetch query results while, under the hood, determining the number of partitions returned and the size of each partition. For added security, the SQL API can be protected by leveraging Snowflake network policies that restrict access to the account where the API is enabled. While