

redis in action

redis in action: Unlocking the Power of In-Memory Data Stores

In today's fast-paced digital landscape, the ability to process and retrieve data rapidly is crucial for delivering seamless user experiences, powering real-time analytics, and supporting scalable applications. Redis, an open-source in-memory data structure store, has emerged as a leading solution for developers seeking high performance, versatility, and simplicity. This article explores Redis in action—delving into its core features, practical use cases, and best practices to harness its full potential.

What is Redis?

Redis (Remote Dictionary Server) is an in-memory data structure store that supports a variety of data types such as strings, hashes, lists, sets, sorted sets, streams, and more. Unlike traditional relational databases that rely on disk-based storage, Redis stores data primarily in RAM, enabling lightning-fast read and write operations. It is often used as a database, cache, message broker, and real-time analytics engine.

Core Features of Redis

Redis' popularity stems from its rich feature set, which includes:

1. In-Memory Speed

- Data is stored in RAM, allowing microsecond latency.
- Suitable for latency-sensitive applications like gaming, financial trading, and real-time messaging.

2. Data Structures

- Supports diverse data structures that facilitate complex operations.
- Examples include sorted sets for leaderboards, hashes for user profiles, and streams for event processing.

3. Persistence Options

- Options for snapshots (RDB) and append-only files (AOF) enable durability.
- Ensures data can survive server restarts or crashes.

4. Clustering and Scalability

- Redis supports clustering for horizontal scalability.
- Redis Sentinel provides high availability and automated failover.

5. Rich Ecosystem and Client Libraries

- Compatibility with most programming languages.
- Extensive community and mature tools for monitoring, management, and automation.

Redis in Action: Practical Use Cases

Redis's versatility makes it suitable for a broad array of applications. Let's explore some of the most common scenarios where Redis shines.

1. Caching for Performance Optimization

One of Redis's primary uses is caching frequently accessed data to reduce load on primary databases and accelerate response times.

- **Session Management:** Store user sessions for quick retrieval, reducing overhead on backend databases.
- **Web Page Caching:** Cache rendered pages or API responses to serve users faster.
- **Database Query Caching:** Cache results of expensive queries to improve throughput.

2. Real-Time Analytics and Metrics

Redis is ideal for tracking real-time metrics, such as website visitor counts, stock prices, or gaming leaderboards.

- **Counting and Aggregation:** Use Redis counters and sorted sets to maintain live tallies.
- **Streaming Data:** Process streams of events with Redis Streams for real-time insights.
- **Dashboarding:** Provide live dashboards updated instantly as data flows in.

3. Messaging and Pub/Sub Systems

Redis supports publish/subscribe (pub/sub) messaging patterns, enabling real-time communication between services.

- **Chat Applications:** Facilitate real-time messaging among users.
- **Event Notification:** Notify clients or services about system events or updates.
- **Task Queues:** Manage background job processing with Redis lists and queues.

4. Data Persistence and Leaderboards

Gaming and social platforms leverage Redis for maintaining leaderboards and persistent user data.

- **Leaderboards:** Use sorted sets to rank users or items based on scores.
- **Player Profiles:** Store user data in hashes for quick updates and retrieval.

Implementing Redis in Real-World Applications

To effectively integrate Redis into your applications, understanding best practices and common patterns is essential.

1. Setting Up Redis

- **Installation:** Redis can be installed on various platforms or run as a Docker container.
- **Configuration:** Adjust settings such as memory limits, persistence, and security options to suit your needs.

2. Best Practices for Using Redis

- **Data Modeling:** Choose the right data structures for your use case to optimize performance.

- **Expiration Policies:** Set TTLs (Time To Live) on cache keys to prevent stale data.
- **Persistence Strategy:** Balance durability with performance by selecting appropriate persistence options.
- **Scaling:** Use Redis clustering or sharding for horizontal scalability as your data grows.
- **Security:** Implement proper access controls and encryption, especially in production environments.

3. Integrating Redis with Your Application

Most programming languages have robust Redis clients, making integration straightforward.

- Example Workflow:

1. Connect to Redis server using a client library.
2. Perform CRUD operations using Redis commands.
3. Handle connection errors and implement retries if necessary.
4. Monitor Redis performance and health regularly.

Advanced Redis Features and Techniques

Beyond basic use cases, Redis offers advanced capabilities that can unlock even more value.

1. Redis Transactions

Redis supports transactions via MULTI/EXEC commands, allowing multiple commands to execute atomically, ensuring data consistency.

2. Lua Scripting

Embedding Lua scripts enables complex operations to run atomically within Redis, reducing latency and improving performance.

3. Geo-Location Data

Redis provides geospatial indexes, enabling location-based queries such as finding nearby points of interest.

4. Redis Modules

Extensions like RedisGraph, RedisAI, and RediSearch expand Redis's capabilities into graph processing, machine learning, and full-text search.

Monitoring and Optimizing Redis Performance

Maintaining a healthy Redis deployment requires ongoing monitoring and tuning.

- Tools for Monitoring:
 - Redis CLI commands like INFO for server stats.
 - External tools such as RedisInsight, Prometheus, and Grafana.
- Optimization Tips:
 - Use appropriate data structures for your workload.
 - Limit memory usage with maxmemory policies.
 - Regularly analyze slow logs to identify bottlenecks.
 - Enable persistence carefully to avoid impacting latency.

Conclusion: Redis in Action

Redis has established itself as a fundamental component in modern application architectures, powering everything from caching layers and real-time dashboards to messaging systems and gaming leaderboards. Its in-memory design, flexible data structures, and scalability features make it an invaluable tool for developers aiming to build fast, reliable, and scalable applications.

By understanding Redis's core features, exploring its diverse use cases, and following best practices, organizations can harness Redis's full potential to deliver exceptional user experiences and gain competitive advantages in their respective domains. Whether you're optimizing web performance, building real-time analytics platforms, or managing complex data workflows, Redis in action demonstrates its position as a versatile and powerful solution for today's data-driven world.

Frequently Asked Questions

What is Redis and how does it differ from traditional databases?

Redis is an in-memory data structure store used as a database, cache, and message broker. Unlike traditional disk-based databases, Redis offers extremely fast read and write operations by storing data primarily in RAM, making it ideal for real-time applications.

How can Redis be used for caching to improve application performance?

Redis can cache frequently accessed data in memory, reducing database load and latency. By setting appropriate expiration times and using Redis commands like GET and SET, applications can quickly retrieve data, leading to faster response times and improved scalability.

What are some common data structures supported by Redis?

Redis supports various data structures including strings, hashes, lists, sets, sorted sets, bitmaps, hyperloglogs, and geospatial indexes. These structures enable versatile use cases like leaderboards, real-time analytics, and session management.

How does Redis handle persistence and durability?

Redis offers multiple persistence options, such as snapshotting (RDB), append-only files (AOF), or a combination of both. These features allow Redis to recover data after restarts while maintaining high performance, balancing durability with speed.

What are some best practices for scaling Redis in a production environment?

Best practices include implementing Redis clustering or sentinel for high availability, sharding data across multiple nodes, configuring proper memory and eviction policies, and regularly monitoring performance metrics to ensure reliability and scalability.

Can Redis be used as a message broker, and how does it support pub/sub messaging?

Yes, Redis includes built-in publish/subscribe (pub/sub) messaging capabilities. Clients can publish messages to channels and subscribe to channels of interest, enabling real-time messaging patterns suitable for chat applications, notifications, and event-driven architectures.

Additional Resources

Redis in Action: A Comprehensive Deep Dive into the Powerhouse In-Memory Data Store

Redis has become a cornerstone technology in modern software architecture, renowned for its speed, versatility, and robust feature set. In this detailed review, we will explore Redis in depth, examining its core concepts,

architecture, use cases, and practical implementation strategies. Whether you're a developer, system architect, or technology enthusiast, understanding Redis's capabilities can significantly enhance your application's performance and scalability.

What is Redis? An Overview

Redis (REmote DIctionary Server) is an open-source, in-memory data structure store that functions as a database, cache, and message broker. Created by Salvatore Sanfilippo in 2009, Redis is designed to deliver ultra-fast data access by storing data primarily in RAM, making it ideal for real-time applications.

Key Characteristics of Redis:

- In-Memory Storage: Data resides in RAM, enabling microsecond latency.
- Rich Data Structures: Beyond simple key-value pairs, Redis supports hashes, lists, sets, sorted sets, streams, and more.
- Persistence Options: Data can be persisted to disk asynchronously or synchronously, balancing speed and durability.
- High Availability & Scalability: Supports replication, clustering, and partitioning.
- Extensibility: Provides Lua scripting, modules, and custom data types.

Core Data Structures in Redis

Understanding Redis's core data structures is fundamental to leveraging its full potential. Each structure serves specific use cases, offering flexible ways to model complex data.

Strings

- The simplest data type; can store any data, including binary data.
- Operations: GET, SET, INCR, DECR, APPEND, etc.
- Use Cases: Caching, counters, simple key-value storage.

Hashes

- Map fields to values within a key.
- Operations: HSET, HGET, HDEL, HGETALL.
- Use Cases: User profiles, object storage.

Lists

- Ordered collections of strings.
- Operations: LPUSH, RPUSH, LPOP, RPOP, LRange.
- Use Cases: Queues, message lists, activity feeds.

Sets

- Unordered collections of unique strings.
- Operations: SADD, SREM, SMEMBERS, SISMEMBER.
- Use Cases: Tags, unique item collections.

Sorted Sets

- Similar to sets but with a score associated with each member.
- Operations: ZADD, ZRange, ZSCORE.
- Use Cases: Leaderboards, priority queues.

Streams

- Log-like data structures supporting append-only operations.
- Operations: XADD, XREAD, XGROUP.
- Use Cases: Real-time messaging, event sourcing.

Architectural Design & Deployment

Implementing Redis effectively requires understanding its architecture and deployment options.

Single Instance

- Suitable for small-scale applications.
- Simple setup, easy maintenance.
- Limitations: Single point of failure.

Replication

- Redis supports master-slave replication for read scalability and data redundancy.
- Features: Asynchronous replication, read-only replicas.
- Use Cases: Load balancing, backup.

Clustering

- Redis Cluster provides horizontal partitioning (sharding) across multiple nodes.
- Supports automatic data distribution and re-sharding.
- Ensures high availability with Redis Sentinel.

Persistence & Durability

- RDB snapshots: Periodic point-in-time snapshots.
- AOF (Append-Only File): Logs every write operation for durability.
- Hybrid approach: Combining both for optimal performance and recovery.

High Availability & Failover

- Redis Sentinel monitors master and replica health.
- Automatic failover ensures minimal downtime.
- Supports multi-node configurations for resilience.

Common Use Cases and Practical Applications

Redis's versatility makes it applicable across diverse domains.

1. Caching Layer

- Reduce database load by caching frequently accessed data.
- Popular in web applications to speed up page loads.
- Strategies include cache aside, write-through, and write-behind.

2. Session Management

- Store user sessions for rapid access.
- Benefits: Fast read/write, scalability, session expiration.

3. Real-Time Analytics & Leaderboards

- Sorted sets enable real-time ranking.
- Use case: Gaming leaderboards, stock ticker tracking.

4. Messaging & Event Streaming

- Streams facilitate event sourcing and pub/sub messaging patterns.
- Enable decoupled, scalable systems.

5. Distributed Locking & Synchronization

- Use Redis for distributed locks to coordinate access to shared resources.
- Implements algorithms like Redlock for safety.

6. Geospatial Indexing

- Redis supports geospatial indexes, enabling location-based queries.
- Use cases: Ride-sharing apps, proximity searches.

Advanced Features & Techniques

Redis offers numerous advanced functionalities that extend its usefulness.

Lua Scripting

- Execute atomic scripts for complex operations.
- Enhances performance by reducing round-trips.
- Use cases: Batch updates, custom logic.

Modules & Extensibility

- Redis Modules extend core capabilities.
- Examples: RedisGraph (graph database), RedisAI (AI model serving), Redisearch (full-text search).
- Allows tailored solutions for specialized needs.

Transactions & Pipelines

- Transactions: MULTI/EXEC commands for atomic execution.
- Pipelines: Batch multiple commands to reduce latency.

Geo-Features

- Store and query geospatial data.
- Supports radius queries, distance calculations.

Security & Access Control

- Authentication via passwords.
- Role-based access control introduced in Redis 6.
- Best practices: TLS encryption, network security.

Performance Optimization & Best Practices

Achieving optimal Redis performance involves several strategies.

Memory Management

- Use appropriate data structures to minimize memory footprint.
- Regularly monitor and optimize eviction policies.

Eviction Policies

- Configurable options: noeviction, allkeys-lru, volatile-lru, etc.
- Choose based on workload to prevent memory exhaustion.

Scaling Strategies

- Vertical scaling: Increase server resources.
- Horizontal scaling: Use clustering and replication.
- Load balancing reads across replicas.

Monitoring & Metrics

- Use Redis's built-in INFO command.
- Integrate with monitoring tools like RedisInsight, Prometheus, Grafana.

Command Optimization

- Avoid long-running operations.
- Use pipelining for batch commands.
- Minimize key scans and large data fetches.

Security Considerations

While Redis is fast and flexible, security is paramount for production deployments.

- Enforce strong passwords and role-based access.
- Enable TLS encryption for data-in-transit security.
- Limit network access via firewalls.
- Regularly update Redis versions to patch vulnerabilities.
- Use Redis ACLs (Access Control Lists) introduced in Redis 6 to restrict command access.

Challenges & Limitations

Despite its strengths, Redis is not without limitations:

- Data Persistence Risks: As an in-memory store, data can be lost during crashes unless properly persisted.
- Memory Intensive: Large datasets require significant RAM.
- Horizontal Scaling Complexity: While clustering helps, managing sharding and rebalancing can be complex.
- Lack of Multi-Document ACID Transactions: Limited transaction capabilities compared to traditional RDBMS.

Future Trends & Developments

Redis continues evolving with a vibrant community and ongoing development.

- Enhanced Modules: Expanding ecosystem for specialized data types.
- Improved Clustering: Simplified deployment and rebalancing.
- Security Enhancements: Better access controls and encryption.
- Integration with Cloud Platforms: Managed Redis services like Redis Enterprise, Amazon ElastiCache, Azure Cache for Redis.

Conclusion: Why Redis in Action Matters

Redis's role as an in-memory data structure store has revolutionized how

developers approach real-time data processing, caching, and message brokering. Its simplicity, combined with powerful features and scalability options, makes it a go-to solution for high-performance applications.

In practice, mastering Redis involves understanding its data structures, deployment strategies, and optimization techniques. When used effectively, Redis can dramatically improve application responsiveness, scalability, and resilience, making it an indispensable component in the modern tech stack.

Whether you're building a social media platform, a gaming leaderboard, or a real-time analytics dashboard, Redis offers the speed and flexibility to meet demanding requirements. As the ecosystem grows and new features emerge, Redis remains a dynamic and essential tool in the software engineer's arsenal.

In Summary:

- Redis is a versatile, in-memory data store supporting complex data structures.
- It excels in caching, real-time analytics, messaging, and session management.
- Proper deployment, scaling, and security practices are vital for production environments.
- Its extensibility via modules and scripting opens doors to innovative applications.
- Staying updated with Redis's evolving features ensures leveraging its full potential.

Embracing Redis in action means harnessing one of the most

Redis In Action

redis in action: Redis in Action Josiah Carlson, 2013-06-17 Summary Redis in Action introduces Redis and walks you through examples that demonstrate how to use it effectively. You'll begin by getting Redis set up properly and then exploring the key-value model. Then, you'll dive into real use cases including simple caching, distributed ad targeting, and more. You'll learn how to scale Redis from small jobs to massive datasets. Experienced developers will appreciate chapters on clustering and internal scripting to make Redis easier to use. About the Technology When you need near-real-time access to a fast-moving data stream, key-value stores like Redis are the way to go. Redis expands on the key-value pattern by accepting a wide variety of data types, including hashes, strings, lists, and other structures. It provides lightning-fast operations on in-memory datasets, and also makes it easy to persist to disk on the fly. Plus, it's free and open source. About this book Redis in Action introduces Redis and the key-value model. You'll quickly dive into real use cases including simple caching, distributed ad targeting, and more. You'll learn how to scale Redis from small jobs to massive datasets and discover how to integrate with traditional RDBMS or other NoSQL stores. Experienced developers will appreciate the in-depth chapters on clustering and internal scripting. Written for developers familiar with database concepts. No prior exposure to NoSQL database concepts nor to Redis itself is required. Appropriate for systems administrators comfortable with

programming. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. What's Inside Redis from the ground up Preprocessing real-time data Managing in-memory datasets Pub/sub and configuration Persisting to disk About the Author Dr. Josiah L. Carlson is a seasoned database professional and an active contributor to the Redis community. Table of Contents PART 1 GETTING STARTED Getting to know Redis Anatomy of a Redis web application PART 2 CORE CONCEPTS Commands in Redis Keeping data safe and ensuring performance Using Redis for application support Application components in Redis Search-based applications Building a simple social network PART 3 NEXT STEPS Reducing memory use Scaling Redis Scripting Redis with Lua

redis in action: Spring Microservices in Action, Second Edition John Carnell, Illary Huaylupo Sánchez, 2021-06-29 Spring Microservices in Action, Second Edition teaches you to build microservice-based applications using Java and Spring. Summary By dividing large applications into separate self-contained units, Microservices are a great step toward reducing complexity and increasing flexibility. Spring Microservices in Action, Second Edition teaches you how to build microservice-based applications using Java and the Spring platform. This second edition is fully updated for the latest version of Spring, with expanded coverage of API routing with Spring Cloud Gateway, logging with the ELK stack, metrics with Prometheus and Grafana, security with the Hashicorp Vault, and modern deployment practices with Kubernetes and Istio. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Building and deploying microservices can be easy in Spring! Libraries like Spring Boot, Spring Cloud, and Spring Cloud Gateway reduce the boilerplate code in REST-based services. They provide an effective toolbox to get your microservices up and running on both public and private clouds. About the book Spring Microservices in Action, Second Edition teaches you to build microservice-based applications using Java and Spring. You'll start by creating basic services, then move to efficient logging and monitoring. Learn to refactor Java applications with Spring's intuitive tooling, and master API management with Spring Cloud Gateway. You'll even deploy Spring Cloud applications with AWS and Kubernetes. What's inside Microservice design principles and best practices Configuration with Spring Cloud Config and Hashicorp Vault Client-side resiliency with Resilience4j, and Spring Cloud Load Balancer Metrics monitoring with Prometheus and Grafana Distributed tracing with Spring Cloud Sleuth, Zipkin, and ELK Stack About the reader For experienced Java and Spring developers. About the author John Carnell is a senior cloud engineer with 20 years of Java experience. Illary Huaylupo Sánchez is a software engineer with over 13 years of experience. Table of Contents 1 Welcome to the cloud, Spring 2 Exploring the microservices world with Spring Cloud 3 Building microservices with Spring Boot 4 Welcome to Docker 5 Controlling your configuration with the Spring Cloud Configuration Server 6 On service discovery 7 When bad things happen: Resiliency patterns with Spring Cloud and Resilience4j 8 Service routing with Spring Cloud Gateway 9 Securing your microservices 10 Event-driven architecture with Spring Cloud Stream 11 Distributed tracing with Spring Cloud Sleuth and Zipkin 12 Deploying your microservices

redis in action: Spring Microservices in Action John Carnell, Kalpit Patel, 2017-06-11 Summary Spring Microservices in Action teaches you how to build microservice-based applications using Java and the Spring platform. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Microservices break up your code into small, distributed, and independent services that require careful forethought and design. Fortunately, Spring Boot and Spring Cloud simplify your microservice applications, just as the Spring Framework simplifies enterprise Java development. Spring Boot removes the boilerplate code involved with writing a REST-based service. Spring Cloud provides a suite of tools for the discovery, routing, and deployment of microservices to the enterprise and the cloud. About the Book Spring Microservices in Action teaches you how to build microservice-based applications using Java and the Spring platform. You'll learn to do microservice design as you build and deploy your first Spring Cloud application. Throughout the book, carefully selected real-life examples expose microservice-based patterns for configuring, routing, scaling, and deploying your services. You'll see

how Spring's intuitive tooling can help augment and refactor existing applications with micro services. What's Inside Core microservice design principles Managing configuration with Spring Cloud Config Client-side resiliency with Spring, Hystrix, and Ribbon Intelligent routing using Netflix Zuul Deploying Spring Cloud applications About the Reader This book is written for developers with Java and Spring experience. About the Author John Carnell is a senior cloud engineer with twenty years of experience in Java. Table of contents Welcome to the cloud, Spring Building microservices with Spring Boot Controlling your configuration with Spring Cloud configuration server On service discovery When bad things happen: client resiliency patterns with Spring Cloud and Netflix Hystrix Service routing with Spring Cloud and Zuul Securing your microservices Event-driven architecture with Spring Cloud Stream Distributed tracing with Spring Cloud Sleuth and Zipkin Deploying your microservices

redis in action: Generative AI in Action Amit Bahree, 2024-10-29 From the back cover: Generative AI in Action presents concrete examples, insights, and techniques for using LLMs and other modern AI technologies successfully and safely. In it, you'll find practical approaches for incorporating AI into marketing, software development, business report generation, data storytelling, and other typically-human tasks. You'll explore the emerging patterns for GenAI apps, master best practices for prompt engineering, and learn how to address hallucination, high operating costs, the rapid pace of change and other common problems. About the reader: For enterprise architects, developers, and data scientists interested in upgrading their architectures with generative AI.

redis in action: Logs and Telemetry Phil Wilkins, 2025-01-07 Build cloud native observability pipelines with minimal footprints and high-performance throughput—all with Fluent Bit, Kubernetes, and your favorite visualization and analytics tools. Logs and Telemetry is an all-practical guide to monitoring both cloud-native and traditional environments with the Fluent Bit observability tool. It takes you from the basics of collecting app logs, all the way to filtering, routing, enriching and transforming logs, metrics, and traces. Inside Logs and Telemetry you'll learn how to:

- Deploy Fluent Bit for telemetry (log, metric, and trace) collection
- Configure pipelines to filter, route, and transform data
- Integrate Fluent Bit with containers and Kubernetes
- Configure Fluent Bit to work with OpenTelemetry, Prometheus, and other open source tech
- Monitor applications at scale with minimal footprint
- Address challenges in Kubernetes-based ecosystems using Fluent Bit
- Utilize Fluent Bit for real-time event analytics to derive new metrics and insights
- Develop custom filters, inputs, and outputs for unique or reusable use cases

Logs and Telemetry draws on both the input and support of key committers and founders of Fluent Bit, and author Phil Wilkins' years of experience in DevOps. Inside, you'll see how you can integrate Fluent Bit with Prometheus, OpenTelemetry, FluentD deployments, and more. Learn how Fluent Bit can not only meet all the demands of cloud-native use cases, but also more traditional deployments as well. About the technology Fluent Bit is a super-fast lightweight observability tool that's perfect for Kubernetes and containers, as well as traditional IT environments. Fluent Bit makes it a snap to extract meaning from the logs, traces, and other performance metrics generated by your applications and infrastructure. It's also a great way to route telemetry to analysis tools like Prometheus and Grafana. About the book Logs and Telemetry shows you how to turn systems data into actionable insights using Fluent Bit. You'll start by learning the pre-built plugins for common use cases and progress to integration with powerful tools like OpenTelemetry and real-time analytical event processing. You'll use plugins to configure routing, filtering and processing, automate your observability with Lua scripts, and configure Fluent Bit to meet the demands of highly scalable environments. What's inside

- Deploy Fluent Bit for telemetry collection
- Configure pipelines to filter, route, and transform data
- Integrate Fluent Bit with containers and Kubernetes
- Monitor applications at scale

About the reader For developers, DevOps engineers, and SREs working with observability. About the author Phil Wilkins has spent over 25 years in the software industry from multinationals to software startups. He is the author of Logging in Action. The technical editor on this book was Karthik Gaekwad. Table of Contents Part 1 1 Introduction to Fluent Bit 2 From zero to "Hello, World" Part 2

3 Capturing inputs 4 Getting inputs from containers and Kubernetes 5 Outputting events 6 Parsing to extract more meaning 7 Filtering and transforming events Part 3 8 Stream processors for time series calculations and filtering 9 Building processors and Fluent Bit extension options 10 Building plugins 11 Putting Fluent Bit into action: An enterprise use case Appendix A Installations Appendix B Useful resources Appendix C Comparing Fluent Bit and Fluentd

redis in action: *Practical Web Development with Haskell* Ecky Putrady, 2018-11-12 Learn how to advance your skill level of Haskell, and use this language for practical web development. This book uses a direct, no nonsense approach, so you no longer need to spend extra time reading the documentation, blog posts, and forums to understand how to use Haskell – all that knowledge is provided in one coherent resource. You'll start by reviewing how multiple facets of web development are done in Haskell, such as routing, building HTMLs, interacting with databases, caches, and queues, etc. You'll then move on to using notable libraries, such as scotty for routings, digestive-functor for input validation, and postgresql-simple for interacting with databases. In the later chapters, you'll learn how all of these libraries can be used together by working on a fully functioning project deployed on Heroku. What You'll Learn Set up a productive Haskell development environment Review basic tasks that are encountered when building web applications. Explore how to interact with external systems, such as databases, queues, and RESTful APIs. Build a RESTful API, website, building views and form validation. Who This Book Is For Software developers familiar Haskell and would like to apply the knowledge on real world applications and software developers new to Haskell.

redis in action: Proceedings of Ninth International Congress on Information and Communication Technology Xin-She Yang, Simon Sherratt, Nilanjan Dey, Amit Joshi, 2024-08-09 This book gathers selected high-quality research papers presented at the Ninth International Congress on Information and Communication Technology, held in London, on February 19-22, 2024. It discusses emerging topics pertaining to information and communication technology (ICT) for managerial applications, e-governance, e-agriculture, e-education and computing technologies, the Internet of Things (IoT), and e-mining. Written by respected experts and researchers working on ICT, the book offers an asset for young researchers involved in advanced studies. The work is presented in ten volumes.

redis in action: *Securing Microsoft Azure OpenAI* Karl Ots, 2025-03-11 Securely harness the full potential of OpenAI's artificial intelligence tools in Azure Securing Microsoft Azure OpenAI is an accessible guide to leveraging the comprehensive AI capabilities of Microsoft Azure while ensuring the utmost data security. This book introduces you to the collaborative powerhouse of Microsoft Azure and OpenAI, providing easy access to cutting-edge language models like GPT-4o, GPT-3.5-Turbo, and DALL-E. Designed for seamless integration, the Azure OpenAI Service revolutionizes applications from dynamic content generation to sophisticated natural language translation, all hosted securely within Microsoft Azure's environment. Securing Microsoft Azure OpenAI demonstrates responsible AI deployment, with a focus on identifying potential harm and implementing effective mitigation strategies. The book provides guidance on navigating risks and establishing best practices for securely and responsibly building applications using Azure OpenAI. By the end of this book, you'll be equipped with the best practices for securely and responsibly harnessing the power of Azure OpenAI, making intelligent decisions that respect user privacy and maintain data integrity.

redis in action: Amazon Web Services in Action, Third Edition Andreas Wittig, 2023-05-30 Master essential best practices for deploying and managing applications on Amazon Web Services. This revised bestseller is packed with techniques for building highly available and scalable architectures and automating deployment with Infrastructure as Code. Leverage globally distributed data centers to launch virtual machines with EC2 Store and archive large volumes of data with EBS, S3, and EFS Persist and query data with highly available and scalable database systems with RDS and DynamoDB Enhance performance with caching data in-memory with ElastiCache and MemoryDB Use Infrastructure as Code to automate your cloud infrastructure Secure workloads

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