



REDIS

RINGS . HASHES . SORTED SETS
CACHING . QUEUES . PUB/SUB
PERSISTENCE . CLUSTER . EVICTION

DURATION	LEVEL	MODULES	MODE
25 Hours	Intermediate	8	Classroom · Online · Hybrid

01 COURSE OVERVIEW

A Redis course covering data structures, caching patterns and cluster operations. Redis is taught by use case: caching, session storage, rate limiting, leaderboards, queues and pub/sub, each mapped to the right data structure. Persistence, memory management, eviction and clustering follow.

Learners implement a cache-aside layer, a rate limiter and a work queue.

WHO IT IS FOR

Backend developers
Platform and DevOps engineers
Architects designing caching layers
Engineers with latency problems

PREREQUISITES

Backend development experience and basic Linux knowledge.

02 LEARNING OUTCOMES

01 Choose the right Redis data structure per use case.

03 Build rate limiters and leaderboards.

05 Configure persistence with RDB and AOF.

07 Deploy Sentinel or Cluster for availability.

02 Implement cache-aside with correct invalidation.

04 Use streams and lists for queues.

06 Set memory limits and eviction policies.

08 Monitor latency, keyspace and memory.

01 REDIS FOUNDATIONS

In-memory model

redis-cli

TTL and expiry

Installation

Keyspace

Configuration

02 CORE DATA STRUCTURES

Strings

Hashes

Sorted sets

HyperLogLog

Lists

Sets

Bitmaps

LAB

STRUCTURE EXERCISES

03 CACHING PATTERNS

Cache-aside

Write-behind

Stampede protection

Read-through

Invalidation strategies

Key naming

LAB

CACHE LAYER

04 RATE LIMITING AND COUNTERS

Fixed and sliding windows

Atomic increments

Idempotency keys

Token bucket

Lua scripting

LAB

RATE LIMITER

05 QUEUES AND STREAMS

Lists as queues

Streams and consumer groups

Dead letters

Reliable queue patterns

Acknowledgement

LAB

WORK QUEUE

06 PUB/SUB AND NOTIFICATIONS

Publish and subscribe

Fan-out patterns

Keyspace notifications

Limitations vs streams

07 PERSISTENCE AND MEMORY

RDB snapshots

Hybrid

Eviction policies

Big key detection

AOF

maxmemory

Memory fragmentation

08 HIGH AVAILABILITY

Replication

Cluster and hash slots

Client-side considerations

Sentinel

Failover

Monitoring

PROJECT

CACHED, RATE-LIMITED SERVICE LAYER

04 ASSESSMENT & CERTIFICATION

Module assignments and labs

25%

Mini projects

20%

Internal assessments

15%

Final project and review

40%

CERTIFICATION

Learners who complete all modules, submit the final project and clear the review receive a course completion certificate from Kaizen Infinities Private Limited. Project work is documented for the learner's portfolio, and interview preparation is included in the closing sessions.

05 CAREER OUTCOMES

ROLES THIS PROGRAMME PREPARES FOR

BACKEND DEVELOPER

PLATFORM ENGINEER

DEVOPS ENGINEER

PERFORMANCE ENGINEER

SOLUTIONS ARCHITECT

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