

# Redis Stack



# What is Covered

Overview of Redis Stack

Installation of Redis Stack

Redis Insight

Full Stack App (Spring Boot + Redis Stack + REST API + Next Js)



## Reach Me



@DailyCodeBuffer



@dailycodebuffer



/in/shabbir-dawoodi/

# What is Redis Stack?

Redis Stack is an extension of Redis that adds modern data models and processing engines to provide a complete developer experience.

- Queryable JSON documents
- Full-text search
- Time series data (ingestion & querying)
- Graph data models with the Cypher query language
- Probabilistic data structures



# Why Redis Stack?

- Developer Focused to create Real -Time Applications
- Sub millisecond Process time
- Modern data models and data processing tools (Document, Graph, Search, and Time Series).
- Several Redis client libraries support Redis Stack.
- Redis Stack also includes RedisInsight, a visualization tool for understanding and optimizing Redis data.

# Components of Redis Stack

- Redisearch
- RedisGraph
- RedisTimeSeries
- RedisBloom
- Redis Insight



# Redisearch

- Redisearch provides **secondary indexing, full-text search, and a query language** for Redis.
- These feature enable **multi-field queries, aggregation, exact phrase matching, and numeric filtering for text queries.**

<https://redis.io/commands/?name=ft.>



# RedisJSON

- Provides JSON support in Redis
- RedisJSON lets your **store, update, and retrieve JSON values** in Redis.
- Works seamlessly with RediSearch to let you index and query your JSON documents.

<https://redis.io/commands/?group=json>





# RedisJSON (Primary Features)

- Full support for the JSON standard
- A JSONPath-like syntax for selecting elements inside documents
- Documents stored as binary data in a tree structure, allowing fast access to sub-elements



## JSON Data

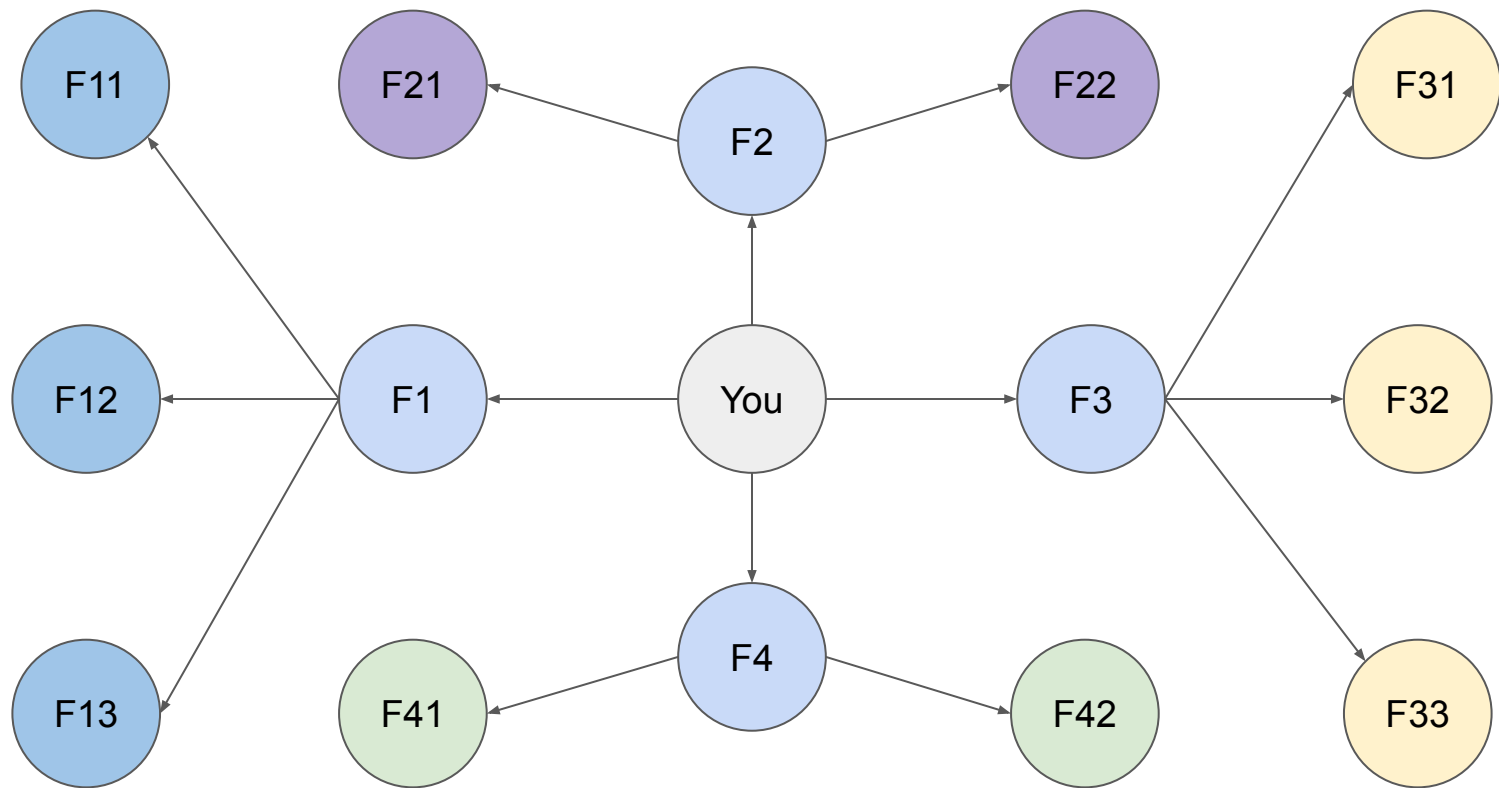
```
1 {
2   "business_id": ObjectId("507f1f77bcf86cd799439011"),
3   "name": "Lorem",
4   "full_address": {
5     "houseNum": "123",
6     "street": "Main Street",
7     "box": "Lorem",
8     "city": "Anytown",
9     "state": "CA",
10    "zip": "12345"
11  },
12  "city": "Lorem",
13  "state": "Lorem",
14  "attributes": {
15    "acceptsCreditCards": true,
16    "acceptsInsurance": true,
17    "alcohol": "Lorem",
18    "ambience": {
19      "casual": true,
20      "classy": true,
21      "divey": true,
22      "hipster": true,
23      "intimate": true,
24      "romantic": true,
25      "touristy": true,
26      "trendy": true,
27      "upscale": true
28    },
```

# RedisGraph

- RedisGraph is a graph database built on Redis
- Graphs represented as **sparse adjacency matrices**
- **Cypher** as the query language

<https://redis.io/commands/?group=graph>



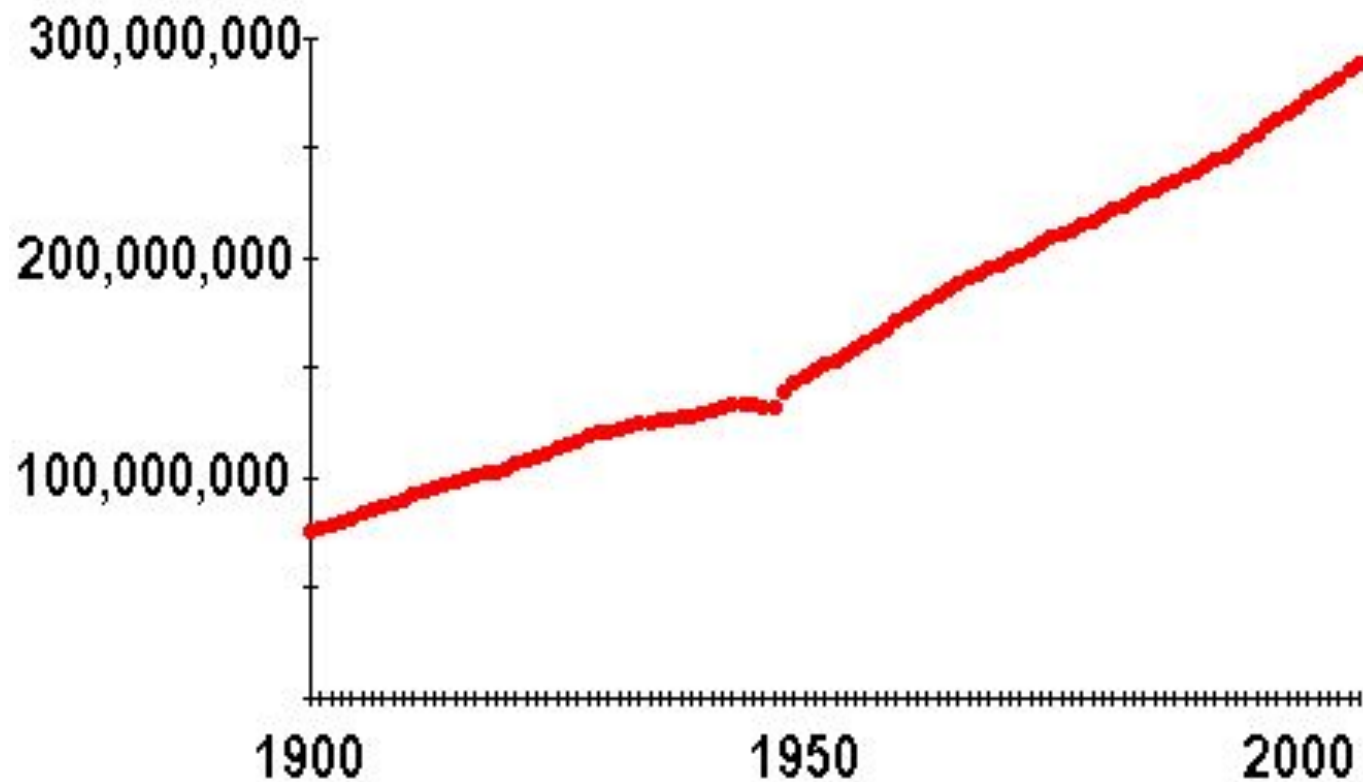


# RedisTimeSeries

- It adds a **time series** data structure to Redis.
- High volume inserts, low latency reads
- Query by start time and end-time
- Aggregated queries
- Downsampling / compaction for automatically updated aggregate time series
- Each time series has labels (field value pairs) which will allows to query by labels

<https://redis.io/commands/?group=timeseries>

# RedisTimeSeries



# RedisBloom

- Bloom filters and other probabilistic data structures for Redis
- a scalable **Bloom filter, a cuckoo filter, a count-min sketch, and a top-k.**
- **Bloom and cuckoo filters** are used to determine, with a high degree of certainty, whether an element is a member of a set.
- A **count-min sketch** is generally used to determine the frequency of events in a stream.
- A **top-k** maintains a list of k most frequently seen items.
- Each time series has labels (field value pairs) which will allows to query by labels

<https://redis.io/docs/stack/bloom/commands/>

# RedisInsight

- A powerful tool for visualizing and optimizing data in Redis or Redis Stack
- making real-time application development easier
- RedisInsight lets you do both GUI- and CLI-based interactions in a fully-featured desktop GUI client.