

Sorted Set

SILICON VALLEY ENGINEER

- Sorted Set is a data structure that provides an **ordered collection of unique elements**, called **members**
- Each member is associated with a **score**, which is used to **determine the position of the member** in the sorted set
- The **ordering is based on the scores**, allowing **fast retrieval of members** based on their scores and enabling a range of powerful operations
- Key points
 - **Ordered Collection**: if the score is same, alphabetical order
 - **Fast Access**
 - $O(\log N)$: adding, removing, and updating elements
 - **Unique Members**
 - **Range Queries**

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- **ZADD**: Adds one or more members with their scores to the sorted set.
- **ZREM**: Removes one or more members from the sorted set.
- **ZSCORE**: Retrieves the score of a member in the sorted set.
- **ZCARD**: Get the total number of members
- **ZCOUNT**: Counts the number of members within a specified range of scores.
- **ZRANGE**: Retrieves a range of members from the sorted set by their ranks.
- **ZINCRBY**: Increments the score of a member in the sorted set.
- **ZPOPMIN**: Remove and retrieve the member with the lowest score from the sorted set
- **ZPOPMAX**: Remove and retrieve the member with the highest score from the sorted set