

# Redis

**1** in-memory database

## In-memory Database

용어

2.

Redis

in-memory database

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2.

Redis

# in-memory database

## In-memory Database

### 주요 특징

2.

Redis

1. Millisecond response ( $1\text{ms} = 0.001\text{s}$ )
2. Volatility of RAM
3. Data types

## In-memory Database

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## In-memory Database

### 주요 특징

CPU

Memory

Disk

2.

Redis

## Memory read/write 100만번 테스트

```
class MemoryReadWriter {  
    public static void main(String[] args) {  
        String sample = "This is sample string";  
        List arrayList = new ArrayList();  
  
        long start = System.currentTimeMillis();  
        for (int i = 0; i < 1_000_000; i++) {  
            arrayList.add(sample);  
        }  
  
        arrayList.stream().collect(Collectors.toList());  
  
        long end = System.currentTimeMillis();  
        System.out.println("Execution time: " + (end-start) + " ms");  
    }  
}
```



## Disk read/write 100만번 테스트

```
class FileReaderWriter {
    public static void main(String[] args) {
        final var filename = "clip01.txt";
        final var sample = "this is sample string";
        File file = new File(filename);

        long start = System.currentTimeMillis();

        try {
            OutputStream os = new FileOutputStream(file);
            PrintWriter writer = new PrintWriter(os);

            for (int i = 0; i < 1_000_000; i++) {
                writer.println(sample);
            }

            writer.close();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

## In-memory Database

### Memory vs Disk

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Memory, Disk read/write 100만번 테스트

Memory	Disk
1회차 17 ms	1회차 407 ms
2회차 17ms	2회차 420 ms
3회차 29 ms	3회차 370 ms

## In-memory Database

오픈소스

2.

Redis

- **Memcached**
  - Cache
- Redis

## In-memory Database

### 오픈소스 인메모리 데이터베이스

2.

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- Memcached
- **Redis**
  - Cache
  - Session Store
  - Pub/Sub
  - Leader board
  - Geospatial

## In-memory Database

### 마무리

2.

Redis

1. 메인 메모리
2. 빠른 응답속도, 높은 처리량
3. memcached, redis