

Java ?? ????: StringBuilder ?? ??

1. ? `StringBuilder`? ???

?? ???? ???? ?? ?? `String`?? `StringBuilder`?? `StringBuffer`?? ???? ?? ??
??? ???? ?? .

1.1 `String`? ?? (immutable)

- `String str = "a"; str += "b";` ?? ???? ?? ???? ???? ???? .
- ?? ?? ? ?? ???? $\rightarrow O(n^2)$???? ?? ??

1.2 `StringBuilder`? ?? (mutable)

- ?? `char[]` ???? ?? ??
- ???? `append`?? ?? **1**?? ?? \rightarrow ?? ??

?? ?? : `StringBuilder`?? `synchronized`?? ?? ?? ???? . ???? ???? `StringBuffer`??
??? ???? .

2. ?? ??? ? ? ?

2.1 ??? ??? (?? ??: ????? ??, ?? ??)

```
String str = "hello";
String reversed = new StringBuilder(str).reverse().toString();
System.out.println(reversed); // ???: "olleh"
```

- ???? ???? ???? ?? ???? ??
- ???? ???? `str.equals(reversed)`?? ??

2.2 2.2.2.2.2 (2.2.2.2.2, 2.2.2.2.2)

```
StringBuilder sb = new StringBuilder();
for (char c : arr) {
    sb.append(Character.toUpperCase(c)).append(", ");
}
String result = sb.toString();
```

- `[] [] [] []` `[] []` `+` `[] append()` `[]`
- `String[] [] [] []` `[] [] [] []` `→` `[] []`

2.3 如何设计数据库 (如何设计: 数据库, 如何设计)

```
StringBuilder sb = new StringBuilder();
for (int i = 1; i <= 5; i++) {
    sb.append("[").append(i).append("]");
    if (i < 5) sb.append("-");
}
System.out.println(sb.toString()); // []: [1]-[2]-[3]-[4]-[5]
```

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-  ,  ,     

2.4 2.4 2.4 (2.4 2.4: 2.4 2.4 2.4, 2.4 2.4)

```
StringBuilder sb = new StringBuilder("abcdef");
sb.delete(2, 4); // 2~3 文字 → "abef"
System.out.println(sb);
```

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- □□□ □□□□□□ □□□ □ □□

3. ?? ??? ?

<code>String</code> <code>int</code> <code>/</code> <code></code>	<code>StringBuilder</code>	<code>String</code> <code>,</code> <code></code>

StringBuilder 的 reverse() 方法	StringBuilder.reverse()	将字符串反转
StringBuilder 的构造方法	StringBuilder	构造一个空的字符串缓冲区

StringBuilder : 字符串缓冲区
StringBuffer : 线程安全的字符串缓冲区
OK, StringBuffer 是线程安全的

??????

- String += "..." 字符串拼接
 - StringBuilder 的构造方法
 - .append(), .delete(), .insert(), .reverse() 等方法
- “StringBuilder 是线程不安全的”