basics of string in java, and its functions / methods which can be useful to solve simple leetcodes.

Below is a **clean, LeetCode-oriented guide to Java Strings** — only what you actually need to solve **easy & medium problems** efficiently.

1️⃣ What is a String in Java? (LeetCode POV)

```java
String s = "leetcode";
```

Copy code

- `String` is **immutable** (cannot be changed)
- Any operation creates a **new string**
- Stored as a **character array internally**

👉 Because of immutability:

- Use `StringBuilder` when modifying strings in loops

2️⃣ Most Important String Basics

Length of string

```java
int n = s.length();
```

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Access characters

```java
char ch = s.charAt(0);
```

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Convert to char array (VERY IMPORTANT)

```java
char[] arr = s.toCharArray();
```

Used in:

- Reverse string
- Palindrome
- Frequency count

3️⃣ String Comparison (VERY IMPORTANT)

❌ Wrong

```java
s1 == s2   // compares reference
```

✅ Correct

```java
s1.equals(s2)
```

Case-insensitive

```java
s1.equalsIgnoreCase(s2)
```

4️⃣ Useful String Methods (LeetCode Must-Know)

🔹 `substring()`

```java
```

```
s.substring(1);     // from index 1 to end
s.substring(1, 4);  // [1, 4)
```

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📌 Used in:

- Remove prefix/suffix
- Sliding window problems

🔹 `indexOf()` / `lastIndexOf()`

```java
s.indexOf('e');
s.indexOf("code");
s.lastIndexOf('e');
```

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📌 Used in:

- First unique character
- Find pattern

🔹 `contains()`

```java
s.contains("leet");
```

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🔹 `startsWith()` / `endsWith()`

```java
s.startsWith("pre");
s.endsWith("ing");
```

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📌 Used in:

- Prefix problems

- File extension checks

🔹 `toLowerCase()` / `toUpperCase()`

```java
s = s.toLowerCase();
```

Copy code

📌 Used in:

- Case-insensitive comparison

🔹 `trim()`

```java
s.trim();
```

Copy code

Removes leading & trailing spaces.

🔹 `replace()`

```java
s.replace('a', 'b');
s.replace("ab", "cd");
```

Copy code

🔹 `split()` (VERY IMPORTANT)

```java
String[] words = s.split(" ");
```

Copy code

📌 Used in:

- Count words

- Reverse words
- String parsing

5️⃣ StringBuilder (MOST IMPORTANT FOR LEETCODE)

Why?

- `String` is immutable
- `StringBuilder` is **mutable & fast**

Create

```java
StringBuilder sb = new StringBuilder();
```

Copy code

Common methods

```java
sb.append('a');
sb.append("leet");
sb.deleteCharAt(0);
sb.reverse();
sb.setCharAt(0, 'z');
```

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Convert back to string

```java
String result = sb.toString();
```

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📌 Used in:

- Reverse string
- Build output string
- Remove characters

6️⃣ Character Checking (VERY COMMON)

```java
Character.isLetter(ch)
Character.isDigit(ch)
Character.isLowerCase(ch)
Character.isUpperCase(ch)
```

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📌 Used in:

- Valid palindrome
- Clean string problems

7️⃣ ASCII Tricks (IMPORTANT)

```java
int index = ch - 'a';  // 0–25
```

Copy code

Used in:

- Frequency array
- Anagram problems

```java
int[] freq = new int[26];
freq[ch - 'a']++;
```

Copy code

8️⃣ Convert Between Types

String → int

```java
int x = Integer.parseInt("123");
```

Copy code

int → String

```java
String s = String.valueOf(123);
```

Copy code

9️⃣ Classic String Patterns in LeetCode

🔹 Reverse String

```java
char[] arr = s.toCharArray();
int l = 0, r = arr.length - 1;
while (l < r) {
    char temp = arr[l];
    arr[l] = arr[r];
    arr[r] = temp;
    l++; r--;
}
```

Copy code

🔹 Palindrome Check

```java
int l = 0, r = s.length() - 1;
while (l < r) {
    if (s.charAt(l) != s.charAt(r)) return false;
    l++; r--;
}
return true;
```

Copy code

🔹 Frequency Count

```java
```

```java
int[] freq = new int[26];
for (char ch : s.toCharArray()) {
    freq[ch - 'a']++;
}
```

Copy code

🔟 Simple LeetCode Problems to Practice

Problem	LeetCode No
Reverse String	344
Valid Palindrome	125
First Unique Character	387
Valid Anagram	242
Longest Common Prefix	14
Implement strStr()	28
Length of Last Word	58
Reverse Words in String	151

🧠 How to Think in String Problems

1. **Can I use char array?**
2. **Two pointers?**
3. **Frequency array or HashMap?**
4. **Need StringBuilder?**
5. **ASCII trick?**

🚀 Next Step (Recommended)

If you want, I can give:

- **String Patterns Sheet**
- **Two Pointer + String combo**
- **Daily 5 String LeetCode plan**
- **String → Sliding Window roadmap**

Just tell me 👍