1370. Increasing Decreasing String

Description

You are given a string `s`. Reorder the string using the following algorithm:

1. Pick the **smallest** character from `s` and **append** it to the result.
2. Pick the **smallest** character from `s` which is greater than the last appended character to the result and **append** it.
3. Repeat step 2 until you cannot pick more characters.
4. Pick the **largest** character from `s` and **append** it to the result.
5. Pick the **largest** character from `s` which is smaller than the last appended character to the result and **append** it.
6. Repeat step 5 until you cannot pick more characters.
7. Repeat the steps from 1 to 6 until you pick all characters from `s`.

In each step, If the smallest or the largest character appears more than once you can choose any occurrence and append it to the result.

Return *the result string after sorting* `s` *with this algorithm*.

Example 1:

```
Input: s = "aaaabbbbcccc"
Output: "abccbaabccba"
Explanation: After steps 1, 2 and 3 of the first iteration, result = "abc"
After steps 4, 5 and 6 of the first iteration, result = "abccba"
First iteration is done. Now s = "aabbcc" and we go back to step 1
After steps 1, 2 and 3 of the second iteration, result = "abccbaabc"
After steps 4, 5 and 6 of the second iteration, result = "abccbaabccba"
```

Example 2:

```
Input: s = "rat"
Output: "art"
Explanation: The word "rat" becomes "art" after re-ordering it with the mentioned algorithm.
```

Constraints:

- `1 <= s.length <= 500`
- `s` consists of only lowercase English letters.