

Given  $s1$ ,  $s2$ ,  $s3$ , find whether  $s3$  is formed by the interleaving of  $s1$  and  $s2$ .

**Example 1:**

**Input:**  $s1 = \text{"aabcc"}$ ,  $s2 = \text{"dbbca"}$ ,  $s3 = \text{"aadbcbcbac"}$

**Output:** true

**Example 2:**

**Input:**  $s1 = \text{"aabcc"}$ ,  $s2 = \text{"dbbca"}$ ,  $s3 = \text{"aadbbaacc"}$

**Output:** false

```
class Solution {
    public boolean isInterleave(String s1, String s2, String s3) {
        int len1 = s1.length(), len2 = s2.length(), len3 = s3.length();
        if (len1 + len2 != len3)
            return false;

        boolean[][] res = new boolean[len1+1][len2+1];
        res[0][0] = true;
        // res[i][j] means ---> can s1.substring(0, i+1) and s2.substring(0, j+1) interleave
        // s3.substring(0, i+j+1)

        for (int i = 1; i <= len1; i++){
            res[i][0] = (s1.charAt(i-1) == s3.charAt(i-1)) && res[i-1][0];
        }

        for (int j = 1; j <= len2; j++){
            res[0][j] = (s2.charAt(j-1) == s3.charAt(j-1)) && res[0][j-1];
        }

        for (int i = 1; i <= len1; i++){
            for (int j = 1; j <= len2; j++){
                res[i][j] = (res[i-1][j] && s1.charAt(i-1) == s3.charAt(i+j-1)) ||
                    (res[i][j-1] && s2.charAt(j-1) == s3.charAt(i+j-1));
            }
        }
        return res[len1][len2];
    }
}
```