AlgoExpert Quad Layout JavaScript 12px Sublime Monokai 00:00:00

Prompt Scratchpad Our Solution(s) Video Explanation Run Code

Solution 1 Solution 2 Solution 3 Solution 4

```javascript
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// O(nm) time | O(nm) space
function longestCommonSubsequence(str1, str2) {
  const lengths = [];
  for (let i = 0; i < str2.length + 1; i++) {
    lengths.push(new Array(str1.length + 1).fill(0));
  }
  for (let i = 1; i < str2.length + 1; i++) {
    for (let j = 1; j < str1.length + 1; j++) {
      if (str2[i - 1] === str1[j - 1]) {
        lengths[i][j] = lengths[i - 1][j - 1] + 1;
      } else {
        lengths[i][j] = Math.max(lengths[i - 1][j], lengths[i][j - 1]);
      }
    }
  }
  return buildSequence(lengths, str1);
}

function buildSequence(lengths, string) {
  const sequence = [];
  let i = lengths.length - 1;
  let j = lengths[0].length - 1;
  while (i !== 0 && j !== 0) {
    if (lengths[i][j] === lengths[i - 1][j]) {
      i--;
    } else if (lengths[i][j] === lengths[i][j - 1]) {
      j--;
    } else {
      sequence.unshift(string[j - 1]);
      i--;
      j--;
    }
  }
  return sequence;
}

exports.longestCommonSubsequence = longestCommonSubsequence;
```