LCS-LENGTH(X, Y, m, n)

```
1.  for i ← 1 to m
2.      do c[i, 0] ← 0
3.  for j ← 0 to n
4.      do c[0, j] ← 0
5.  for i ← 1 to m
6.      do for j ← 1 to n
7.             do if x_i = y_j
8.                    then c[i, j] ← c[i - 1, j - 1] + 1
9.                         b[i, j ] ← " ↖ "
10.                   else if c[i - 1, j] ≥ c[i, j - 1]
11.                          then c[i, j] ← c[i - 1, j]
12.                               b[i, j] ← "↑"
13.                          else c[i, j] ← c[i, j - 1]
14.                               b[i, j] ← "←"
15. return c and b
```

The length of the LCS if one of the sequences is empty is zero

Case 1: $x_i = y_j$

Case 2: $x_i \neq y_j$

Running time: $\Theta(mn)$