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1  #include <bits/stdc++.h>
2  using namespace std;
3  #define ll long long
4
5  Longest common subsequence  $O(2^{(x+y)})$ :
6  int lcSubSequence(string X , string Y , int xSize , int ySize){
7      // subsequence: ahmad → amd
8      if(xSize==0 || ySize==0)
9          return 0;
10     if(X[xSize-1]==Y[ySize-1])
11         return 1 + lcSubSequence(X , Y , xSize-1 , ySize-1);
12     else
13         return max(lcSubSequence(X , Y , xSize , ySize-1) , lcSubSequence(X , Y ,
14 xSize-1 , ySize));
15 }
16
17 Longest common substring  $O(n*n)$ :
18 int lcSubString(string X , string Y){
19     int xSize = X.size() , ySize = Y.size();
20     int lc[xSize+1][ySize+1];
21     int result = 0;
22
23     for(int i=0; i<=xSize; i++){
24         for(int j=0; j<=ySize; j++){
25             if(i==0 || j==0)
26                 lc[i][j] = 0;
27             else if(X[i-1]==Y[j-1]){
28                 lc[i][j] = 1 + lc[i-1][j-1];
29                 result = max(result , lc[i][j]);
30             }
31             else
32                 lc[i][j] = 0;
33         }
34     }
35     return result;
36 }

```