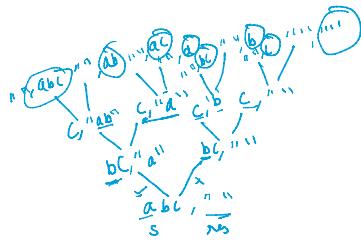


LCS: Longest Common Subsequence

<https://leetcode.com/problems/longest-common-subsequence/>

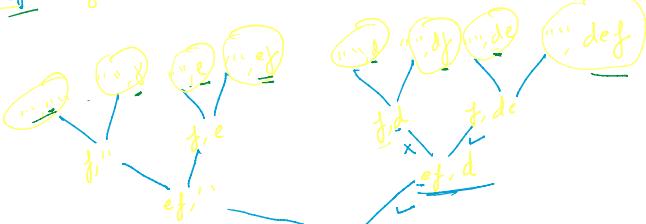
"abc"
- "
- ab
- abc
- ac
- b
- bc
- c



$$\text{H.W} \quad T.C = 2^n \quad |n = \text{length of given string}$$

"def"

8



$\frac{s_1}{abc} \cdot n^2 / 2^n$

$\frac{s_2}{adbc} \cdot n^2 / 2^n$

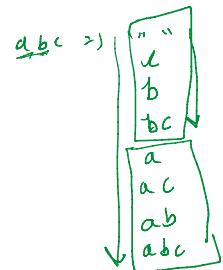
= 2

$abcd\overline{efghijkc}$

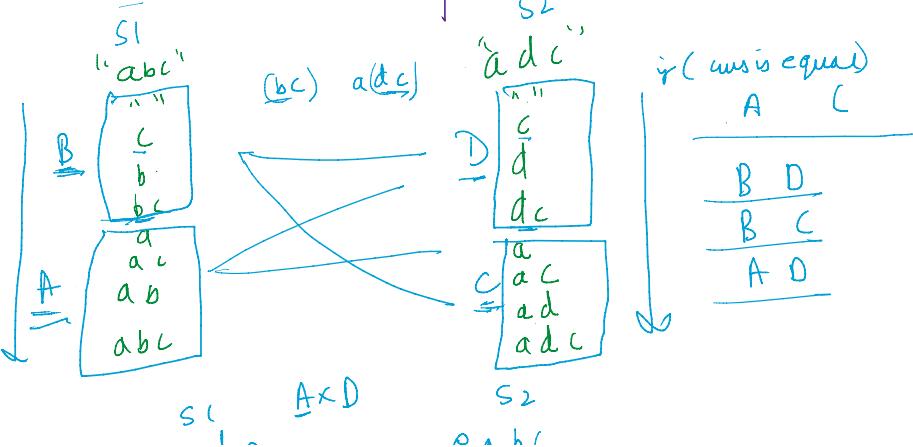
$abcde\overline{fghijk}$

$$\begin{aligned} \underline{\text{ss}}("abc") &= (\underline{a}) (\underline{\text{ss}(bc)}) - A \\ &+ (\underline{bc}) (\underline{\text{ss}(a)}) - B \\ \underline{\text{ss}}("adbc") &= (\underline{a}) (\underline{\text{ss}(dc)}) - C \\ &+ (\underline{dc}) (\underline{\text{ss}(a)}) - D \end{aligned}$$

$$\begin{aligned} A &= (\underline{\text{cws}}) (\underline{\text{ss}(S1 \text{ rem})}) \\ B &= (\underline{\text{m}}) (\underline{\text{ss}(S1 \text{ rem})}) \\ C &= (\underline{\text{cws}}) (\underline{\text{ss}(S2 \text{ rem})}) \\ D &= (\underline{\text{m}}) (\underline{\text{ss}(S2 \text{ rem})}) \end{aligned}$$



$$\begin{aligned} A &= (\underline{\text{cws}}) (\underline{\text{ss}(S1 \text{ rem})}) \\ B &= (\underline{\text{m}}) (\underline{\text{ss}(S1 \text{ rem})}) \end{aligned} \quad \left| \begin{array}{l} C = (\underline{\text{cws}}) (\underline{\text{ss}(S2 \text{ rem})}) \\ D = (\underline{\text{m}}) (\underline{\text{ss}(S2 \text{ rem})}) \end{array} \right.$$



$\underline{S_1}$ $\underline{A \times D}$
~~adc~~
 $\underline{S_2}$
~~eabc~~

$S_1 \quad B \times C$

~~eabc~~

$$S_2 \quad \begin{aligned} A &= (\underline{\text{curs}}) (\underline{\text{ss}}(\underline{S_1 \text{rem}})) \\ B &= (\underline{\text{...}}) (\underline{\text{ss}}(\underline{S_1 \text{rem}})) \end{aligned}$$

$$\begin{aligned} C &= (\underline{\text{curs}}) (\underline{\text{ss}}(\underline{S_2 \text{rem}})) \\ D &= (\underline{\text{...}}) (\underline{\text{ss}}(\underline{S_2 \text{rem}})) \end{aligned}$$

	0	1	2	3	4
0	a	e	d	d	..
1	e	3	3	2	1
2	c	2	2	2	1
3	f	2	2	2	1
4	d	1	1	1	0
5	"	0	0	0	0

fd fd d fd ()

$$B = (\underline{\text{..}}) \underline{\text{ss}}(\underline{S_1 \text{rem}}) = \underline{\text{..}}$$

$$C = (\underline{\text{curs}}) \underline{\text{ss}}(\underline{S_2 \text{rem}})$$

fd efd
d fd
fd fd

d efd
B X C
A X D

b(a) d(a)

B a X d a

b a X A D

.. ..
.. fd
.. fd

.. d

fd

d
(d) (..)

d
(d) (..)

d fd
.. fd
d d

Coin Change :-

ans[2, 1, 3], +ar = 5

5
| 2, 2, 1
| 2, 3
| 1, 1, 1, 1, 1
| 1, 1, 1, 2
| 1, 1, 3