97: Interleaving string

See the four codes - (accepted)

(1) 3 state variables (Memorization)

(2) 2 state variables
→ above solution can be converted into 2 state variables.

(3) Conversion to Tabulation.
(Taken help from Internet)

(4) Own Tabulation conversion.

Compare the solution (3) and (4). There is a minute difference,

In (4)

```
if pos1+pos2 != m+n :
    dp[pos1][pos2] = A or B
```

This condition is very important, otherwise it may overwrite the value of dp[m][n] to False.

Compare the conversion from (2) → (4).
See the minute details that was required for the conversion.

Important Lesson

- Check important details in the memorization solution, they make a big difference.
- Also try to see what is happening in the tabulation solution. Try to understand what is the significance of the values stored.

For example Here dp 2D matrix would look like this:

		d	e	f
a	0	T	F	F	F
b	1	T	F	F	F
c	2	T	T	T	T
	3	F	F	F	T

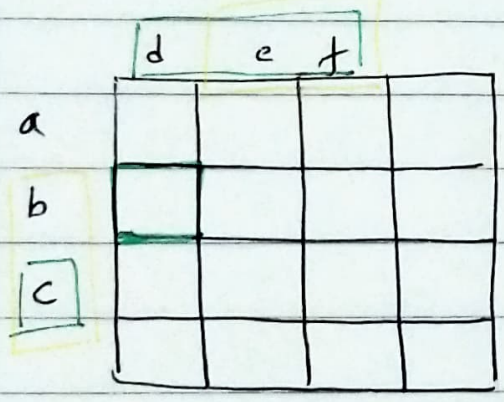
→ dp[m][n] = True

s1 = abc
s2 = def
s3 = abdefc

If we do the direct conversion all the elements in dp matrix are False except dp[m][n], which is the base condition.

But what does the value stored dp[2][2] mean?

It would be True if s3 contains 'cf' or 'fc' at the end



dp[1][0]

if s3[1+0] == s1[1]

Keeping b are we able to form a string with 'c' and 'def'

if s3[1+0] == s2[0] (not continuous)

Keeping d vice-versa.

∴ Knowing what is happening in the 2D array is important.