

## Stages in NLP .

### # Edit Distance

- Also known as minimum edit distance in dynamic programming.
- Asked in interviews
- 2 strings are given
- By editing them, how much is the minimum distance or how much is the minimum operations required .

Operations to be done can be :-

- 1) insert a char
- 2) delete
- 3) Replace

ram ok ← insert  
↓  
am ok ← delete  
↑

edit distance 3

$S_1$  a b c d e f  
 $S_2$  a k c d g

How value will be 3?

	↓	a	b	c	d	e	f
→ 0	0	1	2	3	4	5	6
→ a	1	0	1	2	3	4	5
k	2	1	1	2	3	4	5
c	3	2	2	1	2	3	4
d	4	3	3	2	1	2	3
g	5	4	4	3	2	2	3

a b  
 a b  
 1+0  
 ↓  
 min of  
 (0, 1, 2)

final ans.

∴ Dynamic Programming,

Base ~~aa~~ ab  
 ↓ ↓  
 1 2

a b c  
 ↓ ↓ ↓  
 1 2 3

a → 0 ops, prev

a b  
 a k  
 min of (0, 1, 1) = 0 + 1  
 = 1  
 a  
 a k  
 = min of (0, 1, 2)  
 = 0 + 1

a b  
 a 1 + 0 = 1

a b c  
 a 2 = 2

Min of (1, 2, 3)  
 = 1 + 1  
 = 2

a b c d  
 a 3 + 1 = 3

min of  
(2, 3, 4)



Diagonal  $\Rightarrow$  then no operation  
value  
taken performed.

$\rightarrow$  min value of  $\uparrow$  or  $\leftarrow$  is taken (to replace)

$\rightarrow$  diagonal is a match