

Edit distance example

$\text{diff}(i, j)$ is defined to be 0 if $x[i] = y[j]$ and 1 otherwise.

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for i = 0, 1, 2, ..., m:
    E(i, 0) = i
for j = 1, 2, ..., n:
    E(0, j) = j
for i = 1, 2, ..., m:
    for j = 1, 2, ..., n:
        E(i, j) = min{E(i-1, j) + 1, E(i, j-1) + 1, E(i-1, j-1) + diff(i, j)}
return E(m, n)
    
```

	0	1	2	3	4	5	
0		✓	S	N	O	W	Y
1	1	0	1*	2*	3	4	5
1	S	1	0	1*			
2	U	2	1	1*			
3	N	3					
4	N	4					
5	Y	5					

$$E(1, 1) = \min \{ E(0, 1) + 1, E(1, 0) + 1, E(0, 0) + \text{diff} \}$$

$$E(1, 2) = \min \{ E(0, 2) + 1, E(1, 1) + 1, E(0, 1) + \text{diff} \}$$

$$E(2, 1) = \min \{ E(1, 1) + 1, E(2, 0) + 1, E(1, 0) + \text{diff} \}$$

$\begin{matrix} \underbrace{3} & \underbrace{1} & \underbrace{2} \\ \underbrace{1} & \underbrace{3} & \underbrace{2} \end{matrix}$