Longest Common Subsequence

1) Make $c[i][0] = 0$ and $c[0][j] = 0$

2) if $x_i = y_j$ then

   $c[i, j] = c[i-1, j-1] + 1$ & "↖"

3) else if $c[i-1, j] \geq c[i, j-1]$ then
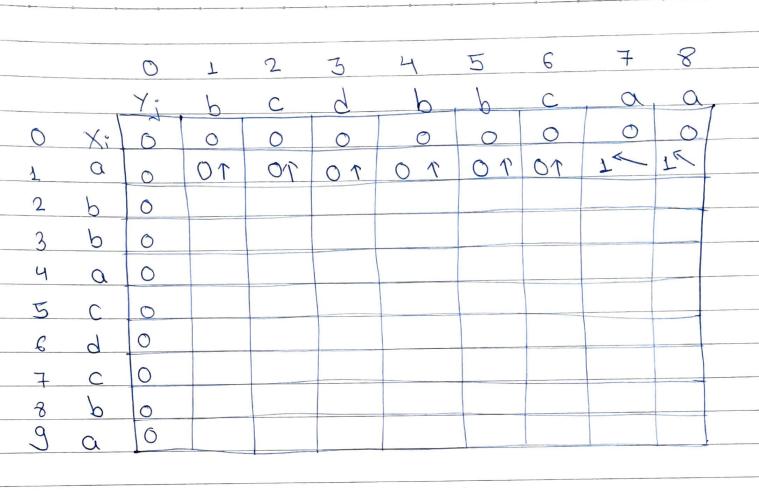
   $c[i, j] = c[i-1, j]$ & "↑"

4) else $c[i, j] = c[i, j-1]$ & "←"

Example :-

$S_1 = abbacdcba$

$S_2 = bcdbbcaa$

		0	1	2	3	4	5	6	7	8
			Y_j	b	c	d	b	b	c	a	a
0	X_i	0	0	0	0	0	0	0	0	0
1	a	0	0↑	0↑	0↑	0↑	0↑	0↑	1←	1↖
2	b	0								
3	b	0								
4	a	0								
5	c	0								
6	d	0								
7	c	0								
8	b	0								
9	a	0								

$$c[1,1] = c[i-1, j]$$
$$= c[0,1]$$
$$= 0 \text{ "↑"}$$

$$c[1,2] = c[i-1, j]$$
$$= c[0,2]$$
$$= 0 \text{ "↑"}$$

$$c[1,3] = c[i-1, j]$$
$$= c[0,3]$$
$$= 0 \text{ "↑"}$$

$$c[1,4] = c[i-1, j]$$
$$= c[0,4]$$
$$= 0 \text{ "↑"}$$

$$c[1,5] = c[i-1, j]$$
$$= c[0,4]$$
$$= 0 \text{ "} \uparrow \text{"}$$

$$c[1,6] = c[i-1, j]$$
$$= c[0,5]$$
$$= 0 \text{ "} \uparrow \text{"}$$

$$c[1,7] = c[i-1, j-1] + 1$$
$$= c[0,6] + 1$$
$$= 0 + 1$$
$$= 1 \text{ "} \nwarrow \text{"}$$

$$c[1,8] = c[i-1, j-1] + 1$$
$$= c[0,7] + 1$$
$$= 0 + 1$$
$$= 1 \text{ "} \nwarrow \text{"}$$

$$c[2,1] = c[i-1, j-1] + 1$$
$$= c[1,0] + 1$$
$$= 0 + 1$$
$$= 1 \text{ "} \nwarrow \text{"}$$

$$c[2,2] = c[i, j-1]$$
$$= c[2,1]$$
$$= 1 \text{ "} \leftarrow \text{"}$$

	Yj	b	c	d	b	b	c	a	a
0	Xi	0	0	0	0	0	0	0	0
1	a	0	0↑	0↑	0↑	0↑	0↑	0↑	↖1	↖1
2	b	0	↖1	1←	1←	↖1	↖1	1←	1↑	1↑
3	b	0	↖1	1↑	1↑	↖2	↖2	2←	1←	1←
4	a	0	1↑	1↑	1↑	2↑	2↑	2↑	↖3	↖2
5	c	0	1↑	↖2	2←	2↑	2↑	↖3	3↑	3←
6	d	0	1↑	2↑	↖3	3←	3←	3↑	3↑	3↑
7	c	0	1↑	↖2	3↑	3↑	3↑	↖4	4←	4←
8	b	0	↖1	2↑	3↑	↖4	↖4	4↑	4↑	4↑
9	a	0	1↑	2↑	3↑	4↑	4↑	4↑	↖5	↖5

	Xi	0	0	0	0	0	0	0	0	0
0	Xi	0	0	0	0	0	0	0	0	0
1	a	0	0↑	0↑	0↑	0↑	0↑	0↑	↖1	↖1
2	b	0	↖1	1←	1←	↖1	↖1	1←	1↑	1↑
3	b	0	↖1	1↑	1↑	↖2	↖2	2←	1←	1←
4	a	0	1↑	1↑	1↑	2↑	2↑	2↑	↖3	↖2
5	c	0	1↑	↖2	2←	2↑	2↑	↖3	3↑	3←
6	d	0	1↑	2↑	↖3	3←	3←	3↑	3↑	3↑
7	c	0	1↑	↖2	3↑	3↑	3↑	↖4	4←	4←
8	b	0	↖1	2↑	3↑	↖4	↖4	4↑	4↑	4↑
9	a	0	1↑	2↑	3↑	4↑	4↑	4↑	↖5	↖5

b   c   d   c   a