19DCE096

Ans-1) How LCS algorith works in Dynamic approach

1) We will solve by Tabulation Method

2) In 0^{th} column & 0^{th} row value will be 0, because you can't make a subsequence when length of string is 0.

3) Here we keep string X in row & Y in column

4) The Value $L[m][n]$ contains length of LCS create a character array $LCS[]$ of length equal to length of LCS plus 1

If character (in X & Y) corresponding to $L[i][j]$ are same, then include this character as part of LCS

Else compare values of $L[i-1][j]$ & $L[i][j-1]$ & go in direction of greater value

5) Now implement this algo

Ans-1

X = a b b a c d c b a

Y = b c d b b e a a c

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

Longest common Subseq is of length 5

Subseq = b c d b a

~~How Algo~~

Multiple ans are possible

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Ans 2) Rabin Karp

Text = 3 1 4 1 5 9 2 6 5 3 5

P = 26 , Working modulo q = 11

Now we divide 26 by 11, remainder is 4 & m = 2
m = length of P

1) We divide 31 by 11, remainder = 9 , miss Hit

2) Now we shift for one pos^n, ie 14 divide by 11 remainder = 3 , miss Hit

3) Like this we need to continously follow step 2

0	1	2	3	4	5	6	7	8	9	10
3	1	4	1	5	9	2	6	5	3	5

Spurious Hit, Spurious Hit, Spurious Hit

So 59 %. 11 = 4
15 %. 11 = 4
26 %. 11 = 4
} — 3 Spurious Hit

And pattern found at index 6