

19DCFE09'6

Ans-1) How LCS algorithm works in Dynamic approach

1) We will solve by Tabulation Method

2) ~~When~~ ~~we~~ In 0^{th} column & 0^{th} row value will be 0, because ~~there will not be any~~ 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 ~~It is~~ 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	0
(b)	1	0	10	↖1	↖1	↖1	↖1	↖1	↖1	↖1	↖1
(c)		0	10	↑1	↑1	↑1	↖2	↖2	↖2	↖2	↖2
(d)		0	10	↑1	↑1	↑1	↑2	↖3	↖3	↖3	↖3
b		0	10	↖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
(d)		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~~ Algorithm

Multiple are possible

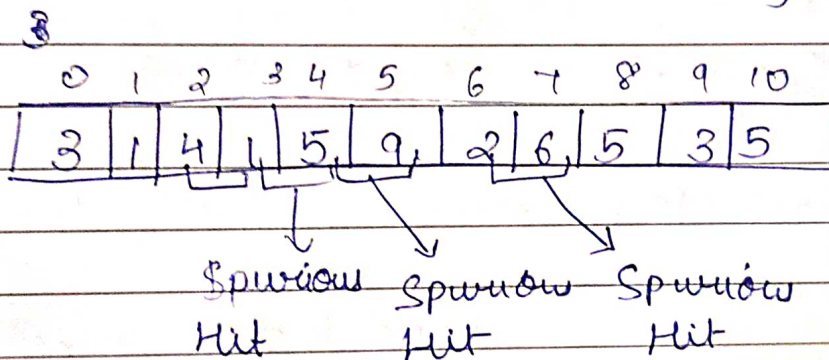
Ans 2)

Rabin Karp

Text = 31415926535

 $P = 26$, Working modulo $q = 11$ Now we divide 26 by 11, remainder is 4 & $m = 2$
 $m = \text{length of } P$

- 1) We divide 31 by 11, remainder = 9, miss Hit
- 2) Now we shift for one posⁿ, i.e. 14 divide by 11 remainder = 3, miss Hit
- 3) Like this we need to continuously follow step 2



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

And pattern found at index 6