(1) 19DCS048

WALES

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* Longest Common Subsequence :-

=> The longest common subsequence is defined as the longest subsequence that is common to all the given subsequences, provided that the elements of subsequence are not contiguous.

=> Given two strings :->

X = abbacdcba

Y = bcdbbcaac

=> we need to find longest common subsequence using dynamic programming

=> Firstly, determine length of both strings.

length of X = 9

length of Y = 9

=>

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

⇒ From the table;

Rule:1 ⇒ If the entry of any row and column matches;
⇒ then, value that cell will be value of left diagonal cell + 1.

⇒ value of (3, 6) = (2+1) = 3

Rule:2 ⇒ If Rule 1 is not not applicable then; derive value from previous row or column.

(3)

⇒ Here, 0th row and 0th column will be having values 0 as these are no previous values to compare/ derive.

⇒ The longest common subsequence using DP

⇒ "bcdba"

⇒ length = 5

* Rabin-Karp matcher encounter :-

=> Given; P = 26 and q = 11.

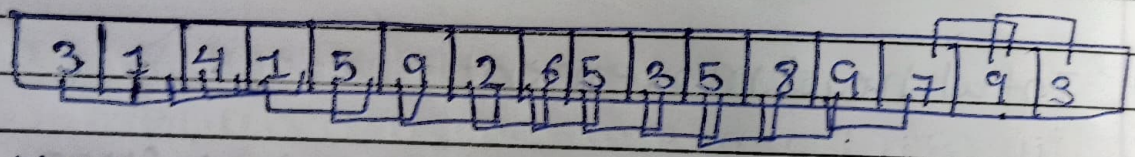
=> Firstly, we ~~dite~~ divide P by q.

∴ 26 / 11.

=> Remainder of P/q = 4

=> length of p = m = 2

T



=> Here, we made pair of 2.

=> Now, we will divide 31 by 11.

=> Remainder of 31 / 11 is 9

=> The step will be continued till last pair where 93 will be divided by 11.

=> Remainder of 93 divided by 11 = 5.

=> So, basically we will divide each pair of adjacent numbers by 11.

=> All the remainder values will be stored in a table.

=> The Remainder values are:-

9	3	8	4	4	4	4	10	9	2	3	1	9	2	5

=> Now, our task is to find a valid matching $\therefore p = 26$ from the text T.

=>

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

→ valid matching

9	3	8	4	4	4	4	10	9	2	3	1	9	2	5

spurious hit

=> The total number of spurious hits = 3