* 1043 : Logic Simplⁿ & Boyfun

→ ~~Dof~~

→ The code works in rev traversal.

→ Defn of dp[i] :-
max req value of subarr[i:] after the partitioning

→ Eg: 1 4 1 5 7 3 6 1 8 9 3 || K=4
0 1 2 3 4 5 6 7 8 9 10

n = len = 11

initialised dp (len=12) : 0 1 2 3 4 5 6 7 8 9 10 11
0 0 0 0 0 ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ ~~0~~ 0

- st = 10 ⇒ end = 11

∴ for arr[10:11] = {3}

partition possible = 3 ⇒ ans = 3

- st = 9 ⇒ end = 11

for arr[9:11] = {3,9}

~~ans~~ partition = {9,3} ⇒ ans = 9×2
= 18

- st = 8 ⇒ end = 11
for arr[8:11) ⇒ {8,9,3}

partition = {8,9,9} ⇒ ans = 9×3 = 27

7 8 9 10

- st = 7 ⇒ end = 11

arr [7:11) = {1, 8, 9, 3}
partition = {1, 8, 9, 3} ⇒ ans = 9 × 4 = 36

- st = 6 ⇒ end = 10

arr [6:11) = {6, 1, 8, 9, 3}

partition (initial) = {6} + {1, 8, 9, 3} ⇒ 6 + 9 × 4 = 42
(new addition) (expanded) dp[i+1]

{6, 1} + {8, 9, 3} ⇒ 8 × 2 + 9 × 3 = 39

{6, 1, 8} + {9, 3} ⇒ 8 × 3 + 9 × 2 = 42

{6, 1, 8, 9} + {3} ⇒ 9 × 4 + 3 = 39
as k = 4 can't expand LHS partition ans

⇒ max ans possible = 42

- st = 5 ⇒ end = 4
arr = [5:) = {9, 6, 1, 8, 9, 3}

partition (initial) = {3} + {6} + {1, 8, 9, 3} = 9 + 6 × 1 + 9 × 4 = 45
new addition dp[i+1]

* actually any of the combination with ans 42 is valid.
* DP stores max val so partition is unique unless for any such

35 $\frac{18}{27}$ $\frac{24}{12}$ $\frac{2}{36}$

$= \{3, 6\} + \{1, 8, 9, 3\} = 6 \times 2 + 9 \times 4 = \underline{48}$

$= \{3, 6, 1\} + \{8, 9, 3\} = 6 \times 3 + 9 \times 3 = 45$

$= \{3, 6, 1, 8\} + \{9, 3\} = 8 \times 4 + 9 \times 2 = \underline{50}$

ans final = 50

→ Sim entire set is dry run to get the ans at dp [0] dry dif^n of dp [i].