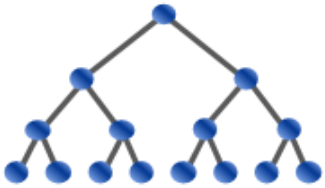

USACO 2019 December Contest, Gold
Problem 3. Moortal Cowmbat

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English (en)

Bessie has been playing the popular fighting game Moortal Cowmbat for a long time now. However, the game developers have recently rolled out an update that is forcing Bessie to change her play style.

The game uses M buttons labeled by the first M lowercase letters ($1 \leq M \leq 26$). Bessie's favorite combo of moves in the game is a length-N string S of button presses ($1 \leq N \leq 10^5$). However, due to the most recent update, every combo must now be made from a series of "streaks", where a streak is defined as a series of the same button pressed at least K times in a row ($1 \leq K \leq N$). Bessie wants to modify her favorite combo to produce a new combo of the same length N, but made from streaks of button presses to satisfy the change in rules.

It takes a_{ij} days for Bessie to train herself to press button j instead of button i at any specific location in her combo (i.e. it costs a_{ij} to change a single specific letter in S from i to j). Note that it might take less time to switch from using button i to an intermediate button k and then from button k to button j rather than from i to j directly (or more generally, there may be a path of changes starting with i and ending with j that gives the best overall cost for switching from button i ultimately to button j).

Help Bessie determine the smallest possible number of days she needs to create a combo that supports the new requirements.

SCORING:

- Test cases 2-4 satisfy $N \leq 1000, K \leq 50$.
- Test cases 5-8 satisfy $N \leq 30,000, K \leq 50$.

INPUT FORMAT (file cowmbat.in):

The first line of input contains N, M, and K. The second line contains S, and the final M lines contain an $M \times M$ matrix of values a_{ij}, where a_{ij} is an integer in the range $0 \ldots 1000$ and $a_{ii} = 0$ for all i.

OUTPUT FORMAT (file cowmbat.out):

Output a single number, representing the minimum number of days Bessie needs to change her combo into one that satisfies the new requirements.

SAMPLE INPUT:

```
5 5 2
abcde
0 1 4 4 4
2 0 4 4 4
6 5 0 3 2
5 5 5 0 4
3 7 0 5 0
```

SAMPLE OUTPUT:

```
5
```

The optimal solution in this example is to change the a into b, change the d into e, and then change both e's into c's. This will take $1 + 4 + 0 + 0 = 5$ days, and the final combo string will be bbccc.

Problem credits: Eric Wei

Contest has ended. No further submissions allowed.

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