Meow Flower

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Meow arrives at the Garden of UM. This field has N rows and M columns cells, with each cell is either a flower (represented by '1') or an empty cell (represented by '0'). Meow aims to gather as many flowers as possible in a square grid. Meow could only replant at most K flowers on empty cells, which means Meow will dig out the flower and replant it on an empty cell. Output the largest possible area of the square grid which is full of flowers after replanting at most K flowers.

Input

The first line of input contains three space-separated integers, N, M, K ($1 \leq N, M \leq 2000$; $0 \leq K \leq N \times M$) — the number of rows & the number of columns at the Garden of UM, and the number of flowers that Meow at most could replant respectively.

The following N lines each contain a string of M characters, denoting what is on the cell, each flower is represented by '1' and an empty cell by '0'.

Output

Output the largest possible area of the square grid which is full of flowers after replanting at most K flowers.

Examples

standard input	standard output
3 4 1 1101 1001 0000	4
3 4 2 1111 1001 1110	9

Note

Explanation of Sample Input 1:

Meow could only replant only 1 flower, hence, the largest possible area is 4. An example is to replant on the empty cell on 2^{nd} row, 2^{nd} column with the flower on 1^{st} row, 4^{nd} column.

1100
1101
0000

Explanation of Sample Input 2:

Meow could replant the empty cells on 2^{nd} row, 2^{nd} column and 2^{nd} row, 3^{rd} column with flowers on the 4^{th} column. The largest possible area is 9.

1110
1110
1110