Problem: CBUS

Description

There are n passengers 1, 2, ..., n. The passenger i want to travel from point i to point i + n (i = 1,2,...,n). There is a bus located at point 0 and has k places for transporting the passengers (it means at any time, there are at most k passengers on the bus). You are given the distance matrix c in which c(i,j) is the traveling distance from point i to point j (i, j = 0,1,..., 2n). Compute the shortest route for the bus, serving n passengers and coming back to point 0.

Input

- Line 1 contains n and k ($1 \le n \le 11, 1 \le k \le 10$)
- Line i+1 (i=1,2,...,2n+1) contains the $(i-1)^{th}$ line of the matrix c (rows and columns are indexed from 0,1,2,..,2n).

Output

- Unique line contains the length of the shortest route.

Example

Input

```
3  2
0  8  5  1  10  5  9
9  0  5  6  6  2  8
2  2  0  3  8  7  2
5  3  4  0  3  2  7
9  6  8  7  0  9  10
3  8  10  6  5  0  2
3  4  4  5  2  2  0
```

Output

```
25
```