Ciel and Gondolas

时间限制：4s

内存限制：512 MB

提交地址：https://www.luogu.com.cn/problem/CF321E

题面翻译

有一只叫 Ciel 的狐狸正在排队去做摩天轮，队列中有 n 个人。

摩天轮上有 k 个吊舱，我们按照如下方式分配吊舱：

1. 第一个吊舱有 q_1 只狐狸，就是第 $1 \sim q_1$ 只狐狸。
2. 第二个吊舱有 q_2 只狐狸，就是第 $q_1+1 \sim q_1+q_2$ 只狐狸。
3. 第二个吊舱有 q_3 只狐狸，就是第 $q_1+q_2+1 \sim q_1+q_2+q_3$ 只狐狸。

以此类推，最后 q_k 只狐狸坐进第 k 个吊舱。

显然，我们需要保证 $\sum_{i=1}^{k} q_i = n$。

每只狐狸都不想和陌生狐坐在一起，所以我们给出矩阵 $u_{i,j}$，表示第 i 只狐狸和第 j 只狐狸的陌生值，保证 $u_{i,j} = u_{j,i}, u_{i,i} = 0$。

我们定义一个吊舱的陌生值为吊舱中每一对人的陌生值之和，总陌生值为每一个吊舱的陌生值之和，输出总陌生值的最小值。

题目描述

Fox Ciel is in the Amusement Park. And now she is in a queue in front of the Ferris wheel. There are n people (or foxes more precisely) in the queue: we use first people to refer one at the head of the queue, and n -th people to refer the last one in the queue.

There will be k gondolas, and the way we allocate gondolas looks like this:

- When the first gondolas come, the q_1 people in head of the queue go into the gondolas.
- Then when the second gondolas come, the q_2 people in head of the remain queue go into the gondolas. ...
- The remain q_k people go into the last (k -th) gondolas.

Note that q_1 , q_2 , ..., q_k must be positive. You can get from the statement that $\sum_{i=1}^{k} q_i = n$ and $q_i > 0$.

You know, people don't want to stay with strangers in the gondolas, so your task is to find an optimal allocation way (that is find an optimal sequence q) to make people happy. For every pair of people i and j , there exists a value u_{ij} denotes a level of unfamiliar. You can assume $u_{ij} = u_{ji}$ for all $i, j \ (1 <= i, j <= n)$ and $u_{ii} = 0$ for all $i \ (1 <= i <= n)$. Then an unfamiliar value of a gondolas is the sum of the levels of unfamiliar between any pair of people that is into the gondolas.

A total unfamiliar value is the sum of unfamiliar values for all gondolas. Help Fox Ciel to find the minimal possible total unfamiliar value for some optimal allocation.

输入格式

The first line contains two integers n and k ($1 <= n <= 4000$ and $1 <= k <= min(n, 800)$) — the number of people in the queue and the number of gondolas. Each of the following n lines contains n integers — matrix u , ($0 <= u_{ij} <= 9$, $u_{ij} = u_{ji}$ and $u_{ii} = 0$).

Please, use fast input methods (for example, please use BufferedReader instead of Scanner for Java).

输出格式

Print an integer — the minimal possible total unfamiliar value.

样例 #1

样例输入 #1

```
5 2
0 0 1 1 1
0 0 1 1 1
1 1 0 0 0
1 1 0 0 0
1 1 0 0 0
```

样例输出 #1

```
0
```

样例 #2

样例输入 #2

```
8 3
0 1 1 1 1 1 1 1
1 0 1 1 1 1 1 1
1 1 0 1 1 1 1 1
1 1 1 0 1 1 1 1
1 1 1 1 0 1 1 1
1 1 1 1 1 0 1 1
1 1 1 1 1 1 0 1
1 1 1 1 1 1 1 0
```

样例输出 #2

```
7
```

样例 #3

样例输入 #3

```
3 2
0 2 0
2 0 3
0 3 0
```

样例输出 #3

```
2
```

提示

In the first example, we can allocate people like this: {1, 2} goes into a gondolas, {3, 4, 5} goes into another gondolas.

In the second example, an optimal solution is : {1, 2, 3} | {4, 5, 6} | {7, 8}.

在第一个样例中，我们可以这样分配：{1, 2}上一个吊舱，{3, 4, 5}上另一个吊舱。

在第二个样例中，一个最佳解是：{1, 2, 3} | {4, 5, 6} | {7, 8}。