1. KFC date

Problem ID: 3586   Required Problem   100pt(s)

Time Limit: 1000ms   Memory Limit: 131072kB

Description

Time Limit: 1s

Memory Limit: 128M

Description:

As the summer holiday draws near, you and your friend plan to eat at KFC. There are many KFC's on the map, so you come up with a way to choose one. You decide to find the distances from each KFC to your house as well as your friend's house, and choose the KFC with the smallest sum of the two distances.

Input:

The first line contains two integers n, m.

The next n lines each contain m characters representing the map. $1 <= n, m <= 200$

'@' is your house

'#' is an obstacle

'.' is a passable space

'F' is a KFC

'&' is your friend's house.

'F', '@' and '&' are all passable as well.

Output

If you can find a feasible path to reach a KFC restaurant, output the minimum total distance chosen by you and your friend. Otherwise, output "Meeting cancelled" if there is no KFC restaurant where the two of you can meet.

Sample Input1

```
4 4
@.#F
....
.#..
F..&
```

Sample Output1

```
6
```

Sample Input2

```
4 4
&.#F
....
.#..
F#.@
```

Sample Output2

```
8
```