Hill Descent

Problem ID: src

John is an Olympic Skier. He is currently preparing for a competition at a skiing resort and wants to maximize his efficiency of training. He gets his hands on a an altitude mapping of the local mountains represented as a grid of altitudes. Given this mapping, he wants to know what is the longest descent of negative slope that he could achieve. Since these paths are not official slopes, John would like a set of directions that would allow him to find his way along the longest path of descent. John also loves admiring the views from high altitudes, so if more than one longest descent exists, he would like to choose one that starts at the highest point possible.

Input

On the first line are specified the values $n, m (1 \leq n, m \leq 1000)$, the dimensions of the grid. Each of the next n lines has m integers describing the altitudes $a_{ij} (1 \leq a_{ij} \leq 1000000)$ in one row of the grid.

Output

On the first line output the starting position of the descent. Output the row followed by the collumn at which the starting position is located. If there are multiple starting coordinates for the path of maximal length, choose the one that starts at the highest point. If multiple such highest points exist, choose the one that is more to the North. If there are still multiple starting positions after this, choose the one that is most to the East. On the second line output a sequence of letters that describe the direction John should take to go from the starting position to the ending position of the path. For each direction output N, E, W, S for North, East, West and South respectively (North is up and East is left in the grid). If there are multiple paths of maximal length from the highest point found, output the directions that would yield the lowest lexicographical ordering. If no descent exists in the grid output "no descent".

Sample Input 1

```
2 4
1 2 3 4
1 1 1 8
```

Sample Output 1

```
2 4
NWWS
```

Sample Input 2

```
2 2
0 3
4 0
```

Sample Output 2

```
2 1
E
```

Sample Input 3

```
9 1
1
2
3
4
5
4
3
2
1
```

Sample Output 3

```
5 1
NNNN
```