Let's say you hopped on a flight to the Kitzbühel ski resort in Austria. Being a software engineer you can't help but value efficiency, so naturally you want to ski as long as possible and as fast as possible without having to ride back up on the ski lift. So you take a look at the map of the mountain and try to find the longest ski run down.

In digital form the map looks like the number grid below.

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

The first line (4 4) indicates that this is a 4x4 map. Each number represents the elevation of that area of the mountain. From each area (i.e. box) in the grid you can go north, south, east, west - but only if the elevation of the area you are going into is less than the one you are in. I.e. you can only ski downhill. You can start anywhere on the map and you are looking for a starting point with the longest possible path down as measured by the number of boxes you visit. And if there are several paths down of the same length, you want to take the one with the steepest vertical drop, i.e. the largest difference between your starting elevation and your ending elevation.

On this particular map, the longest path down is of length=5 and it's highlighted in bold below: 9-5-3-2-1.

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

There is another path that is also length five: 8-5-3-2-1. However, the tie is broken by the first path being steeper, dropping from 9 to 1, a drop of 8, rather than just 8 to 1, a drop of 7.

Your challenge is to write a program to find the longest (and then steepest) path on the specified map in the format above. It's 1000x1000 in size, and all the numbers on it are between 0 and 1500.

Upload your code to a public GIT repository (e.g. GitHub or Bitbucket) and send the following information to challenge@easesolutions.com:

- Your name
- Link to the repository
- Length of calculated path (e.g. 5 for the example)
- Drop of calculated path (e.g. 8 for the example)
- Calculated path (e.g. 8-5-3-2-1 for the example)

Good luck and have fun!

Rules

- Use the programming language for the job that you're applying for
- Use GIT to track the coding progress and upload the whole history to the public repository
- You can ask other people for help, but you have to do the coding. We'll find it out sooner or later, if you let someone else do it 😊