--- Day 12: Hill Climbing Algorithm ---

You try contacting the Elves using your handheld device, but the river
you're following must be too low to get a decent signal.

You ask the device for a heightmap of the surrounding area (your puzzle
input). The heightmap shows the local area from above broken into a grid;
the elevation of each square of the grid is given by a single lowercase
letter, where a is the lowest elevation, b is the next-lowest, and so on up
to the highest elevation, z.

Also included on the heightmap are marks for your current position (S) and
the location that should get the best signal (E). Your current position (S)
has elevation a, and the location that should get the best signal (E) has
elevation z.

You'd like to reach E, but to save energy, you should do it in as few steps
as possible. During each step, you can move exactly one square up, down,
left, or right. To avoid needing to get out your climbing gear, the
elevation of the destination square can be at most one higher than the
elevation of your current square; that is, if your current elevation is m,
you could step to elevation n, but not to elevation o. (This also means
that the elevation of the destination square can be much lower than the
elevation of your current square.)

For example:

```
Sabqponm
abcryxxl
accszExk
acctuvwj
abdefghi
```

Here, you start in the top-left corner; your goal is near the middle. You
could start by moving down or right, but eventually you'll need to head
toward the e at the bottom. From there, you can spiral around to the goal:

```
v..v<<<<
>v.vv<<^
.>vv>E^^
..v>>>^^
..>>>>>^
```

In the above diagram, the symbols indicate whether the path exits each
square moving up (^), down (v), left (<), or right (>). The location that
should get the best signal is still E, and . marks unvisited squares.

This path reaches the goal in 31 steps, the fewest possible.

What is the fewest steps required to move from your current position to the
location that should get the best signal?

Your puzzle answer was 468.

--- Part Two ---

As you walk up the hill, you suspect that the Elves will want to turn this
into a hiking trail. The beginning isn't very scenic, though; perhaps you
can find a better starting point.

To maximize exercise while hiking, the trail should start as low as
possible: elevation a. The goal is still the square marked E. However, the
trail should still be direct, taking the fewest steps to reach its goal.
So, you'll need to find the shortest path from any square at elevation a to
the square marked E.

Again consider the example from above:

```
Sabqponm
abcryxxl
accszExk
acctuvwj
abdefghi
```

Now, there are six choices for starting position (five marked a, plus the
square marked S that counts as being at elevation a). If you start at the
bottom-left square, you can reach the goal most quickly:

```
...v<<<<
...vv<<^
...v>E^^
.>v>>>^^
>^>>>>>^
```

This path reaches the goal in only 29 steps, the fewest possible.

What is the fewest steps required to move starting from any square with
elevation a to the location that should get the best signal?

Your puzzle answer was 459.

Both parts of this puzzle are complete! They provide two gold stars: **

At this point, you should return to your Advent calendar and try another puzzle.

If you still want to see it, you can get your puzzle input.

You can also [Share] this puzzle.