Q7 // Learning To Drive With Zhehai Zhang

Zhehai is just learning to drive and has only driven through stop signs a few dozen times (and ran over Anish). For the safety of the rest of the citizens in Windsor, we need to tell Zhehai the SAFEST and FASTEST way to get from his location to the school.

Thankfully, Mr. McKenzie has given you a map of the city with an arrangement of symbols indicating the safe ways that Zhehai can move around the city. Specifically, there are 4 different symbols on the map:

- The symbol `+` indicates we can move in any direction (north/south/east/west) from this location.
- The symbol `-` indicates we can move only east or west from this location.
- The symbol `|` indicates we can move only north or south from this location.
- The symbol `*` indicates we cannot occupy this location.

Your job is to output the shortest distance of the path Zhehai takes followed by the specific directions (U, D, L, or R) to get to school. Zhehai starts at the top left corner of the map while the school is located at the bottom right corner of the map. If there are multiple shortest paths, print out the one that would be first if sorted by alphabetical order (A to Z).

Input Specification:
The input begins with numbers, R and C, separated by a space. The next R lines contain C characters, where each character is one of +, -, |, and *. You may assume the top left corner of the city (Zhehai's starting location) can be occupied and will not have a *.

Output Specification:
The output will consist of one line containing an integer N and a string S. N indicates the length of the shortest path that Zhehai will take to get from his location to the school. S indicates the string of moves consisting of U, D, L, or R to get Zhehai to his destination. If there is no way to get from the north-west corner to the south-east corner, output `-1` for that test case. Remember that if there are multiple shortests paths, take the first one when the solutions are sorted alphabetically.

Sample Input 1:

```
3 5
+||*+
+++|+
**--+
```

Sample Output 1:

```
6 DRRDRR
```

Sample Input 2:

```
2 3
+*+
+*+
```

Sample Output 2:

```
-1
```