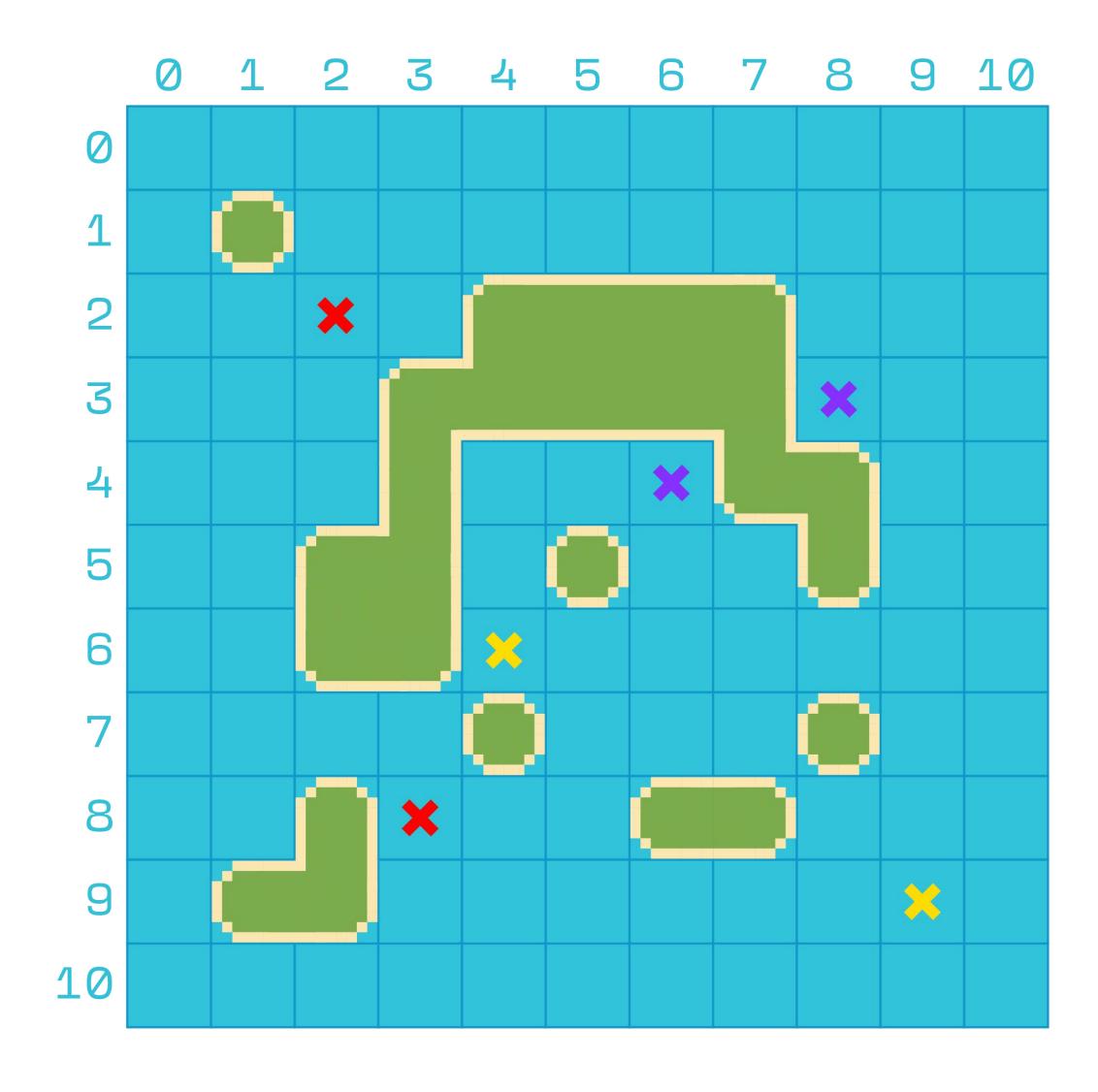






We got a couple trips coming up. I'm busy tearing strips off the crew, so you'll do the route planning.

- Given a map and a list of coordinate pairs, for each pair, find a valid sea route from point A to point B.
- Islands don't connect diagonally, so the ship can go through diagonally.
- The edge of the map will always be water.
- For each route, there are multiple correct solutions. Your route does not have to be the shortest.



## Checklist for routes:

- Must not visit any tile that is land.
- Must not have gaps.
- Must not visit the same tile twice.
- Must not have two diagonal steps crossing each other.
- Must not be longer than twice the width of the map.





## Input

Name	Description	Example
Size of Map	An integer representing the width and height of the map	
Map	A paragraph of characters	WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
N	An integer representing the number of coordinate pairs	3 2 2 2 8
Coordinate <b>Pair</b> (repeated N times)	A <b>pair</b> of coordinates separated by a space	2,2 3,8 9,9 4,6 8,3 6,4

## Output

Name	Description	Example
Path (repeated N times)	A list of coordinates separated by a space	2,2 2,3 2,4 1,5 1,6 2,7 3,8 9,9 8,8 7,7 6,7 5,7 4,6 8,3 9,4 9,5 8,6 7,5 6,4











