# LEVEL 4

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.

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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.

Hint: For some of these rules you can use your code from level 3 to check that your route is valid

Level 4

# Input

| Name | Description | Example |
|------|-------------|---------|
| Size of Map | An integer representing the width and height of the map | 11 |
| Map | A paragraph of characters | WWWWWWWWWWW<br>WLWWWWWWWWW<br>WWWWLLLLWWW<br>WWWLLLLLWWW<br>WWWLWWWLLWW<br>WWLLWLWWLWW<br>WWLLWWWWWWW<br>WWWWLWWWLWW<br>WWLWWWLLWWW<br>WLLWWWWWWWW<br>WWWWWWWWWWW |
| N | An integer representing the number of coordinate pairs | 3 |
| Coordinate **Pair** (repeated N times) | A **pair** of coordinates separated by a space | 2,2 3,8<br>9,9 4,6<br>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<br>9,9 8,8 7,7 6,7 5,7 4,6<br>8,3 9,4 9,5 8,6 7,5 6,4 |

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→ This is just an example solution. Any solution satisfying the rules on the previous page is correct.

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