# Algorithms Fundamentals with C#: Exam

Please submit your solutions (source code) to all the below-described problems in [Judge](https://judge.softuni.org/Contests/4005/Algorithms-Fundamentals-with-CSharp-Exam-08-July-2023).

## 3. Contaminated Path

You are a botanist studying the growth of plants in a field. The field is represented as a **square grid of cells**, where each cell represents a plot of land and contains a value representing the fertility of the soil in that plot.

Your goal is to find the optimal path that **maximizes the total fertility** of the soil while moving only in a **downward** or **rightward** direction through the field.

However, there is a catch: some cells in the field are contaminated and **must be avoided**. You cannot include any contaminated cells in your path.

### Input

* On the first line, you will receive an integer - **n** - size of the grid.
* On the next **n** lines, you will receive grid elements in the following format: **"{cell1} {cell2} … {cellN}"**.
* On the last line, you will receive a list of contaminated cells in the following format: **"{cell1Row},{cell1Col} {cell2Row},{cell2Col} … {cellNRow},{cellNCol}"**.

### Output

* On the first line, print the **total fertility** in the following format: **"Max total fertility: {maxFertility}"**.
* On the second line, print the best path in the following format: **"[({cell1Row}, {cell1Col}) … ({cellNRow}, {cellNCol})]"**.

### Constraints

* n will be an integer in the range **[1… 20]**.
* Cell values will be integers in the range **[1… 100]**.
* Contaminated cells will be a list of valid cells.
* There will be only one path with maximized total fertility.
* Cell (0, 0) will never be contaminated.

### Examples

|  |  |
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| **Input** | **Output** |
| 4  1 2 3 4  5 6 7 8  9 10 11 12  13 14 15 16  1,2 2,1 | Max total fertility: 73  [(0, 0) (1, 0) (2, 0) (3, 0) (3, 1) (3, 2) (3, 3)] |
| 2  1 2  3 4  0,1 | Max total fertility: 8  [(0, 0) (1, 0) (1, 1)] |