

# COCI '06 Contest 1 #5 Bond

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Everyone knows of the secret agent double-oh-seven, the popular Bond (James Bond). A lesser known fact is that he actually did not perform most of his missions by himself; they were instead done by his cousins, Jimmy Bonds. Bond (James Bond) has grown weary of having to distribute assign missions to Jimmy Bonds every time he gets new missions so he has asked you to help him out.

Every month Bond (James Bond) receives a list of missions. Using his detailed intelligence from past missions, for every mission and for every Jimmy Bond he calculates the probability of that particular mission being successfully completed by that particular Jimmy Bond. Your program should process that data and find the arrangement that will result in the *greatest* probability that *all* missions are completed successfully.

**Note:** the probability of all missions being completed successfully is equal to the product of the probabilities of the single missions being completed successfully.

## Input Specification

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The first line will contain an integer  $N$ , the number of Jimmy Bonds and missions ( $1 \leq N \leq 20$ ). The following  $N$  lines will contain  $N$  integers between 0 and 100, inclusive. The  $j^{th}$  integer on the  $i^{th}$  line is the probability that Jimmy Bond  $i$  would successfully complete mission  $j$ , given as a percentage.

## Output Specification

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Output the maximum probability of Jimmy Bonds successfully completing all the missions, as a percentage.

**Note:** Outputs within  $\pm 0.000001$  of the official solution will be accepted.

## Sample Input 1

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2
100 100
50 50
```

## Sample Output 1

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```
50.000000
```

## Sample Input 2

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```
2
0 50
50 0
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## Sample Output 2

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```
25.00000
```

## Sample Input 3

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```
3
25 60 100
13 0 50
12 70 90
```

## Sample Output 3

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```
9.10000
```

## Explanation for Sample Output 3

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If Jimmy Bond 1 is assigned the 3<sup>rd</sup> mission, Jimmy Bond 2 the 1<sup>st</sup> mission and Jimmy Bond 3 the 2<sup>nd</sup> mission the probability is:  $1.0 \times 0.13 \times 0.7 = 0.091 = 9.1\%$ . All other arrangements give a smaller probability of success.