
Worst path

P10051_en

Dotzè Concurs de Programació de la UPC - Final (2014-10-01)

Given a directed and complete graph with n vertices, and an initial vertex x , compute the maximum cost of all the paths without repeated vertices that begin at x . The given graph is represented by an $n \times n$ matrix M , where for every pair (i, j) with $i \neq j$, m_{ij} is the (perhaps negative) cost of the arc from i to j .

For instance, the maximum cost of the first test is 80, corresponding to the path $1 \rightarrow 0 \rightarrow 3$, with cost $-10 + 90 = 80$.

Input

Input consists of several cases, each one with the number of vertices n , followed by the matrix M (n lines, each one with n integer numbers), followed by the initial vertex x . Vertices are numbered from 0 to $n - 1$. You can assume $1 \leq n \leq 18$, $0 \leq x < n$, that the diagonal has only zeros, and that the rest of numbers are between -10^6 and 10^6 .

Output

For every case, print the cost of the worst path without repeated vertices that begins at x .

Sample input

```
4
 0 -10 30 90
-10  0 50 -12
-60 35  0 15
 14 -70 -11  0
1
1
0
0
3
 0 6 8
-4 0 3
-7 -2 0
2
```

Sample output

```
80
0
0
```

Problem information

Author : Salvador Roura

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