GENESIS

ZAFT is about to fire its superweapon GENESIS and destroy the Earth! It's up to Athrun to stop them from activating the GENESIS. In order to activate the GENESIS, a ship must send a signal to GENESIS telling it to activate, but sometimes the ship's range isn't far enough and cannot reach the GENESIS. To reach GENESIS, a ship will send a signal to neighbouring ships, telling them to send a signal to other neighbouring ships, eventually reaching the GENESIS. Athrun knows that there are N $(2 \leq N \leq 100)$ ships labeled $1 \ldots N$, with GENESIS labeled N. Destroying the i^{th} ship requires E_i $(1 \leq E_i \leq 1\,000)$ energy. Athrun also knows that there are M $(N \leq M \leq 1\,000)$ connections of the form $i \rightarrow j$ between ships. Each connection means that ship i can pass a one-way signal to ship j. Athrun would like to destroy a number of ships so that ship 1 cannot send a signal to ship N. **Of course, the GENESIS may not be destroyed.**

He would like to spend the least amount of energy in disconnecting the ships, and has asked you to help him find this amount.

Input Specification

First line has the integer N.
The next $N-1$ lines contain the values $E_1 \ldots E_{N-1}$.
Line $N+1$ contains the integer M.
The next M lines contains two integers, i and j denoting a connection between ship i and ship j.

Output Specification

An integer denoting the minimum energy required to cut connections between ship 1 and N.

Sample Input

```
3
4
3
2
1 2
2 3
```

Sample Output

```
3
```