

# The Cosmic Era P5 - GENESIS

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**Time limit:** 1.0s    **Memory limit:** 64M

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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  $1 \dots N$ , with GENESIS labeled  $N$ . Destroying the  $i^{\text{th}}$  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 cannot 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

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First line contains the integer  $N$ . The next  $N - 1$  lines contain the values  $E_1 \dots E_{N-1}$ .

Line  $N + 1$  contains the integer  $M$ . The next  $M$  lines contain two integers,  $i$  and  $j$  denoting a connection between ship  $i$  and ship  $j$ .

## Output Specification

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

## Sample Input

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3
4
3
2
1 2
2 3
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## Sample Output

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```
3
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