Claw Crane

Mouse Stofl is visiting an amusement park. Next to the roller coaster there is a claw crane machine filled with soft toys. Stofl examined the contents of the machine for an extended amount of time and has reached the conclusion, that some of the prizes are entangled and hence can be won together in just a single try. Furthermore, Stofl has assigned values to the prizes. Unfortunately, he has just a single coin left and therefore he has to maximize the value of prizes he can win in just a single try. Can you help him?

Input

The first line of input contains integers N and M ($1 \leq n \leq 200000$, $1 \leq m \leq 200000$), the number of prizes and the number of entangled pairs of prizes.

The next N lines each contain an integer v_i ($1 \leq v_i \leq 100$), describing the value of a prize. Prizes are numbered from 0 to $N-1$ in the order their values occur in the input. The last M lines each contain two integers describing two entangled prizes.

Output

Print a single integer, the maximum sum of values of prizes, such that Stofl can win all of them in just a single try. You should assume that the claw crane can only catch a single prize *directly*, and that entangled prizes stay entangled when they are won.

Limits

There are 4 test groups, each of which is worth 25 points.

- In test group 1, we have $N \leq 500$, $M \leq 2000$
- In test group 2, we have $N \leq 5\,000$, $M \leq 20\,000$
- In test group 3, we have $N \leq 250\,000$, $M \leq 1\,000\,000$
- In test group 4, we have $N \leq 1\,000\,000$, $M \leq 1\,000\,000$

Examples

Input	Output
6 3 10 4 5 6 5 6 1 3 2 3 5 4	15

Stofl can aim at prize 1, for example, and if he is successful he will win prizes of total value 4+5+6=15, because prize 1 is entangled with prize 3 and prize 3 is then entangled with prize 2. (The other possible values of prizes that can be won in a single try are 10 and 11.)