Barn Allocation

Farmer John recently opened up a new barn and is now accepting stall allocation requests from the cows since some of the stalls have a better view of the pastures.

The barn comprises N (1 <= N <= 100,000) stalls conveniently numbered 1..N; stall i has capacity C_i cows (1 <= C_i <= 100,000). Cow i may request a contiguous interval of stalls (A_i, B_i) in which to roam (1 <= A_i <= N; A_i <= B_i <= N), i.e., the cow would like to wander among all the stalls in the range A_i..B_i (and the stalls must always have the capacity for her to wander).

Given M (1 <= M <= 100,000) stall requests, determine the maximum number of them that can be satisfied without exceeding stall capacities.

Consider both a barn with 5 stalls that have the capacities shown and a set cow requests:

```
Stall id:    1   2   3   4   5
           +---+---+---+---+---+
Capacity:  | 1 | 3 | 2 | 1 | 3 |
           +---+---+---+---+---+
Cow 1       XXXXXXXXXXX             (1, 3)
Cow 2           XXXXXXXXXXXXXXX     (2, 5)
Cow 3           XXXXXXX             (2, 3)
Cow 4                   XXXXXXX     (4, 5)
```

FJ can't satisfy all four cows, since there are too many requests for stalls 3 and 4.

Noting that Cow 2 requests an interval that includes stalls 3 and 4, we test the hypothesis that cows 1, 3, and 4 can have their requested stalls. No capacity is exceeded, so the answer for this set of data is 3 -- three cows (1, 3, and 4) can have their requests satisfied.

Input

* Line 1: Two space-separated integers: N and M

* Lines 2..N+1: Line i+1 contains a single integer: C_i

* Lines N+2..N+M+1: Line i+N+1 contains two integers: A_i and B_i

Output

* Line 1: The maximum number of requests that can be satisfied

Example

Input:

```
5 4
1
3
2
1
3
1 3
2 5
2 3
4 5
```

Output:

```
3
```