

7th South African Regional ACM Collegiate Programming Competition

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Problem B – Red balloon Board game

Nick and Sharon are practising for the ACM ICPC, which they do by setting really hard questions for each other. Sharon has set a really nasty question for Nick: she takes a list of all the numbers from 1 to N , and shuffles them so that the first number in the list is 1, and the last number in the list is N . The rest of the numbers in between 1 and N are in some random order. She then writes the numbers out in this shuffled order on a $1 \times N$ board and places some coin on several squares of the board. Nick must now move the coins on the board, subject to a few rules:

1. Each coin must always move forward (towards the last square, which has the number N written on it).
2. If a coin is on a square with the number X written on it, then it must move to the next square whose value is greater than X .

With these rules, Nick must work out how many moves in total it takes to move all the coins to the last square (with the number N written on it). You must help him do this.

For example, suppose Sharon writes down the list 1, 3, 2, 4, 5 on the board (so N is 5 in this example). She puts coins on the first and third squares (with 1 and 2 written on them). From 1, the first coin would move to 3, then to 4 and finally to 5, meaning that it takes 3 moves to reach 5. From 2, the second coin would move to 4 and then to 5, meaning that it takes 2 moves to reach 5. Thus the total number of moves needed to move all the coins is 5.

However, just giving Nick one of these boards is too easy, so Sharon has prepared several of them, for which Nick needs to work out the answer. Your task is to help him do this.

Input

The input will consist of several boards, each starting with a line containing two integers, N and M . If N and M are both -1, this means that the end of the input has been reached, and your program should stop.

If N is not -1, then it represents the length of the board. $3 \leq N \leq 100000$. M is the number of coins that Sharon puts onto the board. $1 \leq M \leq 100000$. The next line will contain exactly N space-separated integers, which represent the numbers on the board. The first number in the list will always be 1, and the last number will always be N . Each number from 1 to N will appear in the list exactly once. The next line will contain exactly M space-separated integers, which represent the squares on the board where the coins are placed. These are board positions, and do not refer to the numbers written on the board.

Output

For each board in the input, your program should output a line containing a single integer, which is the number of moves required to move all the coins to the last square.

Sample Input

```
4 1
1 3 2 4
1
6 2
1 3 4 2 5 6
2 4
-1 -1
```

Sample Output

```
2
5
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