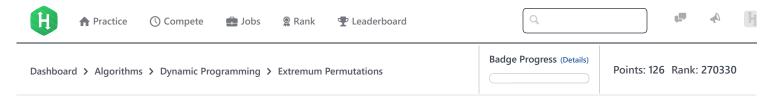
16/11/2017 HackerRank



# **Extremum Permutations**





Let's consider a permutation  $P = \{p_1, p_2, ..., p_N\}$  of the set of  $N = \{1, 2, 3, ..., N\}$  elements.

P is called a magic set if it satisfies both of the following constraints:

- Given a set of K integers, the elements in positions  $a_1$ ,  $a_2$ , ...,  $a_K$  are less than their adjacent elements, i.e.,  $p_{a_i-1} > p_{a_i} < p_{a_i+1}$
- Given a set of L integers, elements in positions  $b_1, b_2, ..., b_L$  are greater than their adjacent elements, i.e.,  $p_{b_i-1} < p_{b_i} > p_{b_i+1}$

How many such magic sets are there?

#### **Input Format**

The first line of input contains three integers N, K, L separated by a single space. The second line contains K integers,  $a_1$ ,  $a_2$ , ...  $a_K$  each separated by single space. the third line contains L integers,  $b_1$ ,  $b_2$ , ...  $b_L$  each separated by single space.

#### **Output Format**

Output the answer modulo 1000000007 (109+7).

# Constraints

```
3 <= N <= 5000

1 <= K, L <= 5000

2 <= a_i, b_j <= N-1, where i \in [1, K] AND j \in [1, L]
```

### Sample Input #00

```
4 1 1
2
3
```

#### Sample Output #00

5

#### **Explanation #00**

Here, N = 4  $a_1 = 2$  and  $b_1 = 3$ . The 5 permutations of  $\{1,2,3,4\}$  that satisfy the condition are

- 2143
- 3241
- 4231
- 3142
- 4132

#### Sample Input #01

16/11/2017 HackerRank

```
10 2 2
2 4
3 9
```

# Sample Output #01

161280

f in Submissions:211 Max Score:100 Difficulty: Medium Rate This Challenge: ☆☆☆☆☆



Join us on IRC at #hackerrank on freenode for hugs or bugs.

Contest Calendar | Blog | Scoring | Environment | FAQ | About Us | Support | Careers | Terms Of Service | Privacy Policy | Request a Feature