Practice   Compete   Jobs   Rank   Leaderboard

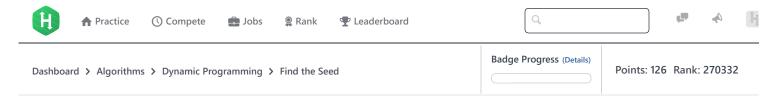Dashboard > Algorithms > Dynamic Programming > Find the Seed

Find the Seed

by vlade087

Problem   Submissions   Leaderboard   Discussions   Editorial 🔒

A company needs random numbers for its operation. N random numbers have been generated using N numbers as seeds and the following recurrence formula:

$$F(K) = (C(1) \times F(K-1) + C(2) \times F(K-2) + \cdots +$$
$$C(N-1) \times F(K-N+1) + C(N) \times F(K-N)) \% (10^9 + 7)$$

The numbers used as seeds are $F(N-1), F(N-2), \ldots, F(1), F(0)$. $F(K)$ is the Kth term of the recurrence.

Due to a failure on the servers, the company lost its seed numbers. Now they just have the recurrence formula and the previously generated N random numbers.

The company wants to recover the numbers used as seeds, so they have hired you for doing this task.

Input Format

The first line contains two space-separated integers, N and K, respectively.
The second line contains the space-separated integers describing $F(K), F(K-1), \ldots, F(K-N+2), F(K-N+1)$ (all these numbers are non-negative integers $< 10^9$).
The third line contains the space-separated coefficients of the recurrence formula, $C(1), C(2), \ldots, C(N-1), C(N)$. All of these coefficients are positive integers $< 10^9$.

Constraints

- $1 \leq N \leq 50$
- $1 \leq K \leq 10^9$
- $0 \leq K - N + 1$

Output Format

The output must be one line containing the space-separated seeds of the random numbers - $F(N-1), F(N-2), \ldots, F(1), F(0)$.

Sample Input

```
2 6
13 8
1 1
```

Sample Output

```
1 1
```

Explanation

This is the classic Fibonacci recurrence. We have the 6th and 5th terms, and, of course, the seeds are the numbers 1 and 1.

Submissions:378

Max Score:100
Difficulty: Advanced

Rate This Challenge:
☆ ☆ ☆ ☆ ☆

More

Current Buffer (saved locally, editable)   ⑂ ⟳   Java 7 ⌄   ⛶ ⚙

```java
1  import java.io.*;
2  import java.util.*;
3  import java.text.*;
4  import java.math.*;
5  import java.util.regex.*;
6
7  public class Solution {
8
9      public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11     }
12 }
```

Line: 1 Col: 1

⬆ Upload Code as File   ☐ Test against custom input   Run Code   Submit Code

---

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