

Introduction

There is a complete theory about how queues work. In our case, we would like to create a limited model to study the order in which a bunch of customers will be attended by their cashiers on a supermarket.

The conditions for our experiment are:

- Each cashier spends the same amount of time with each customer (this is just an exercise, not real life).
- There will be a defined number of queues but never less than 2 and never more than 5.
- There is a variable number of customers, never less than 1 and never more than 20 and they are identified by a letter (A,B,C,...)
- The customers are distributed randomly among the different queues.
- If two customers are served at the same time, we would consider that they will be ordered following the queue number they are at (first will be customer in queue 1, second customer in queue 2)

The objective is to give the order in which the customers are attended, for example:

- There are 4 queues:
 - Cashier number 1 spends 3 minutes on each customer
 - Cashier number 2 spends 2 minutes on each customer
 - Cashier number 3 spends 4 minutes on each customer
 - Cashier number 4 spends 1 minutes on each customer
- Customers are distributed as follows:
 - Queue 1 (Cashier 1): Customer A, customer E, customer I
 - Queue 2 (Cashier 2): B, F, J, N
 - Queue 3 (Cashier 3): C, G, L
 - Queue 4 (Cashier 4): D, H, M, O, P, Q

With this input the customers will have been served in the following order and timing:

D (after 1 minute)
 B (after 2 minutes on queue 2)
 H (after 2 minutes on queue 4)
 A (after 3 minutes on queue 1)
 M (after 3 minutes on queue 4)
 F (after 4 minutes on queue 2)
 C (after 4 minutes on queue 3)
 O (after 4 minutes on queue 4)
 P (after 5 minutes)
 E (after 6 minutes on queue 1)
 J (after 6 minutes on queue 2)
 Q (after 6 minutes on queue 4)
 N (after 8 minutes on queue 2)
 G (after 8 minutes on queue 3)
 I (after 9 minutes)
 L (after 12 minutes)

Input

The input will be the number of queues on the first line, followed by the information for each queue, first the time spent by the cashier on a customer, the number of customers on a queue and then the order of the customers (separated by a space). Example:

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4
3 3 A E I
2 4 B F J N
4 3 C G L
1 6 D H M O P Q
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Output

The list of served customers ordered by the time spent on the queue separated by spaces:

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D B H A M F C O P E J Q N G I L
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