

# Flipping Lamps

Input file: *standard input*  
Output file: *standard output*  
Time limit: 7 seconds  
Memory limit: 1024 mebibytes

There are  $n$  lamps in a row, all initially off. The show lasts for  $m$  days.

On day  $i$ , you must choose exactly  $a_i$  distinct lamps and toggle each chosen lamp: a lamp that is off becomes on, and a lamp that is on becomes off.

A *plan* is the sequence of chosen sets over all  $m$  days. Two plans are different if there is a day on which the chosen sets differ.

Count the plans that leave exactly  $r$  lamps on after day  $m$ , modulo 998 244 353.

## Input

The first line contains three integers  $n$ ,  $m$ , and  $r$  ( $1 \leq n \leq 10\,000$ ,  $1 \leq m \leq 200\,000$ ,  $0 \leq r \leq n$ ).

The second line contains  $m$  integers  $a_1, a_2, \dots, a_m$  ( $0 \leq a_i \leq n$ ).

## Output

Print a single integer: the number of plans leaving exactly  $r$  lamps on after day  $m$ , taken modulo 998 244 353.

## Examples

| <i>standard input</i> | <i>standard output</i> |
|-----------------------|------------------------|
| 3 2 1<br>1 2          | 6                      |
| 7 4 4<br>1 2 4 5      | 57960                  |