

Problem K

All Copy Paste

Time Limit: 2 seconds

You have a sequence $A = (A_1, A_2, \dots, A_N)$ of length N , where initially $A_i = i$ for all i ($1 \leq i \leq N$).

There are Q queries. In the q -th query, an integer x_q ($1 \leq x_q \leq |A|$) is given and you replace A with

$$(A_1, A_2, \dots, A_{x_q}, A_1, A_2, \dots, A_{|A|}, A_{x_q+1}, A_{x_q+2}, \dots, A_{|A|}),$$

where $|A|$ denotes the current length of A . In other words, you insert a copy of the entire sequence A right after its first x_q elements.

After processing all Q queries in order, output the first M elements of the resulting sequence A .

Input

The input is given in the following format.

```
N M Q
x1
x2
⋮
xQ
```

The first line contains three integers N , M , and Q ($1 \leq N \leq 10^6$, $1 \leq M \leq \min(10^6, N \times 2^Q)$, $1 \leq Q \leq 10^6$). Each of the following Q lines contains one integer x_q ($1 \leq x_q \leq \min(10^{12}, N \times 2^{q-1})$), representing the parameter of the q -th query.

Output

Print M integers A_1, A_2, \dots, A_M , the first M elements of the final sequence after all queries are applied, in a single line separated by spaces.

Sample Input 1

```
5 9 2
2
6
```

Sample Output 1

```
1 2 1 2 3 4 1 2 1
```

Sample Input 2

```
200000 10 10
234
54
2346
374
6
24
547
65
20000000
74
```

Sample Output 2

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