A Math Contest P2 - Subsequence Sum

Time limit: 1.0s **Memory limit:** 256M

You are given an array of N integers, $a_1, a_2, \ldots, a_N$. Find the sum of all of its subsequence sums modulo $10^9 + 7$.

Constraints

$1 \leq N \leq 10^6$

$1 \leq a_i \leq 10^9$

Input Specification

The first line contains an integer, N.

The next line contains N space-separated integers, $a_1, a_2, \ldots, a_N$.

Output Specification

Output the sum of all subsequence sums modulo $10^9 + 7$.

Sample Input

```
3
1 2 3
```

Sample Output

```
24
```

Explanation for Sample

The subsequence sums are

- $1 = 1$
- $1 + 2 = 3$
- $1 + 3 = 4$
- $1 + 2 + 3 = 6$
- $2 = 2$

- $2 + 3 = 5$
- $3 = 3$

The sum of all subsequence sums is $1 + 3 + 4 + 6 + 2 + 5 + 3 = 24$.