Problem K
All Subsequences

Given a sequence of integers $A_{1..N}$. A subsequence $B_{1..M}$ of A is obtained by removing zero or more elements from A. For example, $B_{1..3} = \{2, 3, 6\}$ is a subsequence of $A_{1..6} = \{1, 2, 3, 4, 5, 6\}$ that is obtained by removing A_1, A_4, and A_5 from A. Two subsequences are considered different if they are obtained by removing a different set of indices from A.

The score of a subsequence $B_{1..M}$, $f(B_{1..M})$, is defined as $|(B_1 - B_2) \times (B_2 - B_3) \times \cdots \times (B_{M-1} - B_M)|$ for $M \geq 2$ and 0 for $M < 2$.

Your task is to compute the sum of the scores of all possible subsequences of A and modulo the output by $998\,244\,353$.

For example, let $A_{1..4} = \{1, 3, 3, 7\}$. There are 11 subsequences of A whose lengths are at least 2 (the remaining 5 subsequences have a score of 0 as their lengths are less than 2).

- $B_{1..2} = A_{1,2} = \{1, 3\} \rightarrow f(B) = |-2| = 2$.
- $B_{1..2} = A_{1,3} = \{1, 3\} \rightarrow f(B) = |-2| = 2$.
- $B_{1..2} = A_{1,4} = \{1, 7\} \rightarrow f(B) = |-6| = 6$.
- $B_{1..2} = A_{2,3} = \{3, 3\} \rightarrow f(B) = |0| = 0$.
- $B_{1..2} = A_{2,4} = \{3, 7\} \rightarrow f(B) = |-4| = 4$.
- $B_{1..2} = A_{3,4} = \{3, 7\} \rightarrow f(B) = |-4| = 4$.
- $B_{1..3} = A_{1,2,3} = \{1, 3, 3\} \rightarrow f(B) = |-2 \times 0| = 0$.
- $B_{1..3} = A_{1,2,4} = \{1, 3, 7\} \rightarrow f(B) = |-2 \times -4| = 8$.
- $B_{1..3} = A_{1,3,4} = \{1, 3, 7\} \rightarrow f(B) = |-2 \times -4| = 8$.
- $B_{1..3} = A_{2,3,4} = \{3, 3, 7\} \rightarrow f(B) = |0 \times -4| = 0$.
- $B_{1..4} = A_{1,2,3,4} = \{1, 3, 3, 7\} \rightarrow f(B) = |-2 \times 0 \times -4| = 0$.

The sum of all those scores are $2 + 2 + 6 + 0 + 4 + 4 + 0 + 8 + 8 + 0 + 0 = 34$.

Input

Input begins with a line containing an integer: N ($1 \leq N \leq 100\,000$) representing the number of integers in the sequence A. The next line contains N integers: A_i ($0 \leq A_i \leq 10^9$) representing the sequence A.

Output

Output in a line an integer representing the sum of the scores of all possible subsequences of A modulo $998\,244\,353$.

Sample Input #1

```
4
1 3 3 7
```

Sample Output #1

```
34
```

Explanation for the sample input/output #1

This is the example from the problem description.

Sample Input #2

```
10
13 5 1 30 73 16 5 1 30 59
```

Sample Output #2

```
683367406
```