

G. The Maximize Sum

Time limit: 0.5s

Memory limit: 1536 MB

You are given a set S of n elements. Do you know how many subsets the set has? It is 2^n where n is the number of elements in S .

For example, consider a set S of 3 elements. $S = \{1, 2, 3\}$ so S has $2^3=8$ subsets. They are $\{1\}$, $\{2\}$, $\{3\}$, $\{1,2\}$, $\{2,3\}$, $\{1,3\}$, $\{1,2,3\}$, $\{\}$. Here $\{\}$ is empty set.

In the above example number of subsets of S having at most 2 elements excluding empty set are $\{1\}$, $\{2\}$, $\{3\}$, $\{1,2\}$, $\{2,3\}$, $\{1,3\}$.

Find subsets which have at most 2 elements excluding empty set in which each element of S must belong to a single subset i.e. if we take subset for example $\{1\}$ then we can't take other subsets containing element 1. Now sum the product of the subsets containing 2 elements with the value of subsets containing single element. Your target will be maximizing this sum.

For example consider a set $S = \{1, 2, 3, 4, 5, 6\}$. So the subsets of S having at most 2 elements excluding empty set are $\{1\}$, $\{2\}$, $\{3\}$, $\{4\}$, $\{5\}$, $\{6\}$, $\{1,2\}$, $\{1,3\}$, $\{1,4\}$, $\{1,5\}$, $\{1,6\}$, $\{2,3\}$, $\{2,4\}$, $\{2,5\}$, $\{2,6\}$, $\{3,4\}$, $\{3,5\}$, $\{3,6\}$, $\{4,5\}$, $\{4,6\}$, $\{5,6\}$.

Now we can take subsets of $\{5,6\}$, $\{4,3\}$ and $\{1,2\}$ which contains all 6 elements of S then total sum will be $= (5*6) + (4*3) + (1*2) = 44$. On the other hand if we take subsets of $\{5, 6\}$, $\{4, 3\}$ and $\{1\}$ & $\{2\}$ then total sum will be $= (5*6) + (4*3) + 1 + 2 = 45$ which is greater than the previous one.

Input

The first line of the input will be an integer T to represent the number of test cases. For each case there will be two lines. The first line contains integer n — the number of distinct elements in the given set S . The second line contains n integers s_i ($i=1,2,\dots,n$) — the elements of the S .

Output

In a single line, output the maximum sum.

Constraints

- $1 \leq T \leq 100$
- $1 \leq n \leq 100$
- $-10000 \leq s_i \leq 10000$

Example

Input :

2

6

1 2 3 4 5 6

3

1 2 3

Output :

45

7

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