Prefix Goodness

The *prefix goodness* of a set of strings is the length of the longest common prefix for the elements in the set, multiplied by the number of strings in the set. For example consider the set {000, 001, 0011}. The longest common prefix is "00", which means it has a prefix goodness of 6.

You are given a set of binary strings. Find the maximum prefix goodness among all possible subsets of these binary strings.

The input begins with an integer *T*, the number of test cases. Each test case begins with *n*, the number of binary strings, and is followed by *n* lines of binary strings.

Constrains

- $T \leq 20$
- $n \leq 50000$
- Binary strings are no longer than 200 characters each.

Output Format

For each test case output the maximum prefix goodness among all possible subsets of *n* binary strings.

Sample Input	**Sample Output**
4 4 0000 0001 10101 010 2 01010010101010101010 11010010101010101010 3 01010101010100001000 1010 01010101010100001000 1000 01010101010100001000 1010 5 01010101010100001010010010100101 01010101010100001010011010101010 00001010101010110101 0001010101011010101 00010101010101001	6 20 66 44