**Hamming Distance**

**Problem Description**

For two binary strings, the Hamming distance is the number of mismatches. For two nonnegative integers, their Hamming distance is the one of their binary representations. Given N nonnegative integers, your task is to write a program that computes the maximum Hamming distance of any pair of them.

[Hint]: You don’t need to find the binary representation of an integer, because an integer is stored in its binary form. Simply using the exclusive-OR operation on two integers will give a binary code in which a 1-bit means a mismatch and a 0-bit means a match.

**Input Format**

The first line contains an integer T which indicates the number of test cases. And the following is the T test cases. For each test case, the first line is the integer N, N<500, and the second line contains the N integers. All integers are 32-bit nonnegative integers.

**Output Format**

For each test case, output the maximum Hamming distance in one line.

**Sample Input**

|  |  |
| --- | --- |
| Sample Input | Sample Output |
| 2  3  1 0 3  2  3 7 | 2  1 |