

# Maximize Diversity of an Array

## Problem Statement

You are given an array  $A$ . The **diversity** of the array  $A$  is defined as the number of pairs  $i, j$  ( $i < j$ ) such that  $A_i \neq A_j$ .

You want to maximize the diversity of the array. For that, you are allowed to make at most  $K$  operations on it. In each operation, you can select a particular element and change its value to any integer in the range 1 to  $10^9$ , both inclusive.

Find out the maximum diversity of the array that you can obtain.

## Input Format

- The first line contains  $T$ , the number of test cases.
- Each test case consists of:
  - The first line contains two integers  $N, K$ , where  $N$  is the length of the array  $A$ , and  $K$  is the maximum number of operations allowed.
  - The second line contains  $N$  space-separated integers representing the elements of the array  $A$ .

## Output Format

For each test case, output a single line containing an integer corresponding to the maximum possible diversity of the array.

## Constraints

- $1 \leq T \leq 20$
- $0 \leq K \leq 10^9$
- $2 \leq N \leq 10^5$
- $1 \leq A_i \leq 10^9$

## Example Input

```
3
3 10
1 2 3
4 2
1 1 2 2
6 2
2 3 3 2 4 4
```

## Example Output

```
3
6
14
```

## Explanation

**Testcase 1:** The array is already diverse, and no operations are required. Hence, the answer is 3.

**Testcase 2:** By performing 2 operations, you can make all the elements distinct (e.g., change 1 to 3 and 2 to 4). Hence, the maximum diversity is 6.

**Testcase 3:** With 2 operations, you can maximize the distinctness of the array to achieve a diversity of 14.