**GROUP PROJECT TASK**

**1. Problem**

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| DNA Sorting |

One measure of ``unsortedness'' in a sequence is the number of pairs of entries that are out of order with respect to each other. For instance, in the letter sequence ``DAABEC'', this measure is 5, since D is greater than four letters to its right and E is greater than one letter to its right. This measure is called the number of inversions in the sequence. The sequence ``AACEDGG'' has only one inversion (E and D)--it is nearly sorted--while the sequence ``ZWQM'' has 6 inversions (it is as unsorted as can be--exactly the reverse of sorted).

You are responsible for cataloguing a sequence of DNA strings (sequences containing only the four letters A, C, G, and T). However, you want to catalog them, not in alphabetical order, but rather in order of ``sortedness'', from ``most sorted'' to ``least sorted''. All the strings are of the same length.

**Input**

The first line contains two integers: a positive integer *n* (0 < n ≤ 1000) giving the length of the strings; and a positive integer *m* (0 < m ≤ 1000) giving the number of strings. These are followed by *m* lines, each containing a string of length *n*.

**Output**

Output the list of input strings, arranged from ``most sorted'' to ``least sorted''. If two or more strings are equally sorted, list them in the same order they are in the input file.

**Sample Input**

10 6

AACATGAAGG

TTTTGGCCAA

TTTGGCCAAA

GATCAGATTT

CCCGGGGGGA

ATCGATGCAT

**Sample Output**

CCCGGGGGGA

AACATGAAGG

GATCAGATTT

ATCGATGCAT

TTTTGGCCAA

TTTGGCCAAA

Source: <https://www.csie.ntu.edu.tw/~r93046/acp2005/hw2/hw2.html>

**2.Design an algorithm for the problem**

1. Each group is required to design an algorithm to solve the problem using **one** Algorithm Design Technique (ADT) only:
   * brute force or
   * divide and conqueror
   * greedy or
   * dynamic programming.
2. Show and explain the design of the algorithm

**3.Implement the algorithm**

1. Each group is required to implement the algorithm. Each group can use any programing language to implement the algorithm.
2. Show and explain the detail implementation of the algorithm in your video presentation
3. Show in your video presentation:
   * The example of input for the implementation (Input)
   * The example of the implementation for the input (Process)
   * The example of output for the input (Output)
4. Submit:
5. Group Video presentation
6. Report
7. Source Code