|  |
| --- |
| 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 of the input is an integer M, then a blank line followed by M datasets. There is a blank line between datasets.

The first line of each dataset contains two integers: a positive integer *n* ( $0 < n \le 50$) giving the length of the strings; and a positive integer *m* ( $0 < m \le 100$) giving the number of strings. These are followed by *m* lines, each containing a string of length *n*.

**Output**

For each dataset, 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.

Print a blank line between consecutive test cases.

**Sample Input**

1

10 6

AACATGAAGG

TTTTGGCCAA

TTTGGCCAAA

GATCAGATTT

CCCGGGGGGA

ATCGATGCAT

**Sample Output**

CCCGGGGGGA

AACATGAAGG

GATCAGATTT

ATCGATGCAT

TTTTGGCCAA

TTTGGCCAAA

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1999-03-24*

10

10 6

AACATGAAGG

TTTTGGCCAA

TTTGGCCAAA

GATCAGATTT

CCCGGGGGGA

ATCGATGCAT

3 6

HWI

DRY

CFE

WEV

GDQ

WYC

3 5

GML

KDX

SVU

MGD

KQI

7 4

MNFPWTF

FEPBCPD

HWNASSH

EVCTIQJ

4 7

CZUI

QSDV

XHNA

LEFU

CVUX

NDBI

FXTX

3 9

CLH

WVA

OYX

OGM

QTR

WOT

TKQ

IOU

TVR

3 4

BUV

MBT

JBH

IZX

3 2

QJE

OXY

2 3

OP

WK

IR

50 100

KFQHTUADXKLWJBKZKQNKOUSFMQPWHVTUALDVFEYDQLBZONZBEM

LUJFZVVRREMMAOYEJFKKKAVMBMBANFPACAFBVCUOIGDJUBPGIZ

QTBLHEZIHMQWOSYVVTXQJIYMRVPIBYHRTKCAOCKVQCTHWRCSMC

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VQVTGDPXYGKMYXGKXKWIWWRPJAJYRYRPQOIYTZVUFGGFDMPAYL

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DWZWUVSIWHZEEBDKSZPKZNNMWXEHNWLQVMOPHIADRBJVEMFXOX

CCCGGGGGGA↵\r\n

AACATGAAGG↵\r\n

GATCAGATTT↵\r\n

ATCGATGCAT↵\r\n

TTTTGGCCAA↵\r\n

TTTGGCCAAA↵\r\n

↵\r\n

DRY↵\r\n

HWI↵\r\n

CFE↵\r\n

GDQ↵\r\n

WEV↵\r\n

WYC↵\r\n

↵\r\n

GML↵\r\n

KDX↵\r\n

SVU↵\r\n

KQI↵\r\n

MGD↵\r\n

↵\r\n

MNFPWTF↵\r\n

HWNASSH↵\r\n

EVCTIQJ↵\r\n

FEPBCPD↵\r\n

↵\r\n

CVUX↵\r\n

FXTX↵\r\n

QSDV↵\r\n

LEFU↵\r\n

CZUI↵\r\n

NDBI↵\r\n

XHNA↵\r\n

↵\r\n

IOU↵\r\n

CLH↵\r\n

OYX↵\r\n

QTR↵\r\n

OGM↵\r\n

WOT↵\r\n

TKQ↵\r\n

TVR↵\r\n

WVA↵\r\n

↵\r\n

BUV↵\r\n

MBT↵\r\n

IZX↵\r\n

JBH↵\r\n

↵\r\n

OXY↵\r\n

QJE↵\r\n

↵\r\n

OP↵\r\n

IR↵\r\n

WK↵\r\n

↵\r\n

DDKBANYHXXCQDYKXEFELQMPFYNZENTLQYWTZLSIIRMYULLTPSZ↵\r\n

WEKVHBDJEBMFBCHIVSHXZAUPPVSTXXJVCVQJWVUDWGIXKRHHJP↵\r\n

BRMBKQSCGEBICKWCKBFXOBQYLQYVPADRURUEHNINTJWVTSAGTF↵\r\n

KRMSFECIETCVAXLDAGSRZIJWOESRIZFTTTLYXPIDLKZLJMQKUK↵\r\n

XBJMQKDGMKWSZGHKKEKPUZDIAKWTMVGMWPYOBEUOOTGNZPXKVJ↵\r\n

GHYILBEPPICSJMBEHRPWJFYTRGHPDOUMVTWHWCYLLADWMGBWXS↵\r\n

CEDKQIHKNAELPJJBPZLGXDABPQCROZNSDSFVAMIOPMBGVLHMKS↵\r\n

FZEQBFVDTEQWJMXAKWLNDQNQHVNSYZZFYDVBIRGDXZBHLZJVXU↵\r\n

DXHSMJYLGOWFMADAGQDEDDVOFWOVONLSLSKZDKLKYHRNJUNRMS↵\r\n

TATZTCAAHJQJTPXVCMIIBTPGJEFVMPUHPPGITJJCSZLNQIKSWV↵\r\n

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OIRRBNUHAUDAJAEMAVYSGIAZODDQTMZHXRZYEVIGQLGZLMOLKM↵\r\n

DERHWIGMBWMGHHZUWWGHIFCHDYDETDZZKSIGBPUELIKUPKOOIX↵\r\n

BGFYLFUFHBUQLCJCJQKPBZPDEHHDGUWHCEHPLBWSERIRVUTEKF↵\r\n

GLUEOSMEGIPEFSYQNAVTEBIOCBBNXKXFXRLLMARSIHZQZXGPYC↵\r\n

ZSAQPDHSGDTOBUDQIUHAYVSJRNXNNQUOIWEXCNRISNZUHEKRZT↵\r\n

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FAESREPBLTUMFZBPHZYLWBJFUDUVIPBOPFIILZJYSDKZDMPMNP↵\r\n

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BQIFALRWEDTNRRESFGWCUKVCAWSZGPJIFTPHEIDLNYAFREXZMT↵\r\n

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NTWHFZLLDDYAKGTQMLZCRYAECUQTYKMNDKXJLKWONWOXDJORVP↵\r\n

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UFVZMFEVJZDBLAKILTEBYYIQWQPIXMTTROSGWYDFXGGJGSRSLY↵\r\n

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HRYNCOQNXUWZDHLJPZANYPMNCGXVOKWYCWLGMDVLXRLCZYOQXQ↵\r\n

OPYGBPCDULQPUODOFDWINC↵\r\n

...資料過長省略輸出