Sorting character matrices X18568_en

Write a program that reads $n \times m$ matrices of lowercase letters and reorders them, so that the resulting matrices have the characters in each row ascendingly sorted in alphatetical order, and the rows are also ascendingly sorted in lexicographic order (i.e. the order of words in a dictionary).
For instance, given the following matrix of 4 rows and 6 columns:

```
s a c x a b
b d z a a a
l j c z n d
o e a b c e
```

The expected output matrix is:

```
a a a b d z
a a b c s x
a b c e e o
c d j l n z
```

The program must read a series of matrices and, for each of them, write the reordered matrix.
HINTS: You can use the function `std:sort()` to sort the characters in each row, but you MUST program the sorting algorithm for the rows. You can choose between **bubble sort** or **selection sort**.
The solution will be INVALID if you use `std:swap`, you transform the rows into `strings`, or you implement a sort algorithm different than those requested..
Use the provided program skeleton, without changing anything outside the indicated places. Breaking this rule will render your program INVALID.

```
#include<iostream>
#include<vector>
#include<algorithm>
using namespace std;

typedef vector<char> Fila;
typedef vector<Fila> Matriu;

// Reads matrix n x m from cin
void OmplirMatriu(Matriu& a){
int n = a.size();
int m = a[0].size();
for (int i=0; i < n; ++i){
   for (int j=0; j < m; ++j){
    cin >> a[i][j];
   }
}
}

// Prints the matrix to cout
```

```
void ImprimirMatriu(const Matriu& a){
int n = a.size();
int m = a[0].size();
for (int i=0; i < n; ++i){
   cout << a[i][0];
   for (int j=1; j < m; ++j){
    cout << " " << a[i][j];
   }
   cout << endl;
}
cout << endl;
}

// Sort each row of the matrix
void OrdenarCaractersCadaFila(Matriu& a){
  //// ADD CODE HERE
}

// Checks if row a is greater than b (called from SortRows)
bool MesGran(const Fila& a, const Fila& b){
  //// ADD CODE HERE
}

// Swap two rows of the matrix (called from SortRows)
void SwapRows(Fila &a, Fila& b){
  //// ADD CODE HERE
}

// Sort matrix by rows using Bubble sort or Selection sort (your choice)
void SortRows(Matriu& v){
  //// ADD CODE HERE
}

int main(){
  int n,m;
  while (cin >> n >> m){
    Matriu a(n, Fila(m));
    OmplirMatriu(a);
    OrdenarCaractersCadaFila(a);
    SortRows(a);
    ImprimirMatriu(a);
   }
}
```

Exam score: 2.500000 **Automatic part:** 0.000000%

Input

The input consists of a series of zero or more cases. Each case consists of two integers $n, m > 0$ followed by a matrix $n \times m$ of lowercase letters.

Output

The output is the reordered matrix for each input case. Each reordered matrix is followed by a blank line.

Sample input

```
4 6
s a c x a b
b d z a a a
l j c z n d
o e a b c e

3 7
f w u x a t q
i e h g f p m
p p p a a t t

2 2
m b
q a

1 1
f
```

Sample output

```
a a a b d z
a a b c s x
a b c e e o
c d j l n z

a a p p p t t
a f q t u w x
e f g h i m p

a q
b m

f
```

Problem information

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