1) Your task is to compute the number of inversions in the file given, where the ith row of the file indicates the ith entry of an array. Because of the large size of input array you have to implement a fast algorithm.
Number of inversions = No. of pairs (i, j) of array indices with I < j and A[i] > A[j]
Ex- (1, 3, 5, 2, 4, 6)
Inversions - (3, 2), (5, 4), (5, 2)

2) Cells of a matrix are called adjacent if they share an edge. A matrix of zeroes and ones is called a chess matrix if there are no two adjacent cells that share the same value. Hence, in a chess matrix the zeroes and ones have to alternate in the same way the colors alternate on a chessboard:
You are given a String[] board that represents a rectangular grid of cells, with a 0 or a 1 in each cell. Each character of each element of board will be either '0' or '1'. In this grid we selected some rectangular subgrid that is a chess matrix. Find the largest possible area of the selected subgrid.
Test Cases:
1) {"1",
"0"}
Returns: 2
The entire board is a chess matrix.
2) {"0000"}
Returns: 1
The largest possible chess matrix here is just a single cell.
3) {"01"}
Returns: 2
Again, the entire board is a chess matrix.
4) {"001",
"000",
"100"}
Returns: 2
Each rectangular subgrid is determined by a contiguous range of rows and a contiguous range of columns. The four corners of this grid do not form a valid rectangular subgrid.

3) Magical Girl Maggi uses "magical strings" to cast spells. For her, a string X is magical if and only if there exists a non-negative integer k such that X is composed of k consecutive '>' characters followed by k consecutive '<' characters. Note that the empty string is also magical (for k=0).
Once Maggi picked up a String S. Each character of S was either '<' or '>'. Maggi can change S by removing some of its characters. (The characters she does not remove will remain in their original order.) Maggi wants to change S into a magical string by removing as few of its characters as possible. You are given the String S. Compute and return the length of the magical string Maggi will obtain from S.
Test Cases:
1)
"<><><<>"
Returns: 4
The longest magical string Maggi can produce is ">><<". Its length is 4. To change S into ">><<", Maggi must remove the characters at 0-based indices 0, 2, and 6.
2)
">>><<<"
Returns: 6
S is already a magical string. Therefore Maggi doesn't have to remove any character.
3)
"<<<>>>"
Returns: 0
Maggi has to remove all characters of S.