Count Inversion :-

The count inversion problem in arrays involves counting the number of pairs (i,j) such that: $i<j$ and $arr[i] > arr[j]$

Ex :-
Input :- arr = [2,4,1,3,5]
Output :- 3

The inversions are :-
(2,1)
(4,1)
(4,3)

Complexity Analysis :-
Naive Approach : $O(n^2)$
Merge Sort Approach : $O(n \log n)$

Edit Distance Problem:-

The edit distance between two strings is the minimum number of operations required to convert one string into another. The allowed operations are:

1) Insertion of a character
2) Deletion of a character
3) Replacement of a character

Ex:-

Input :- str1 = "kitten", str2 = "sitting"
Output :- 3

To convert "kitten" → "sitting" :

1) Replace 'k' with 's' → "sitten"
2) Replace 'e' with 'i' → "sittin"
3) Insert 'g' at the end → "sitting"

* Time Complexity : $O(m \times n)$
* Space Complexity : $O(m \times n)$