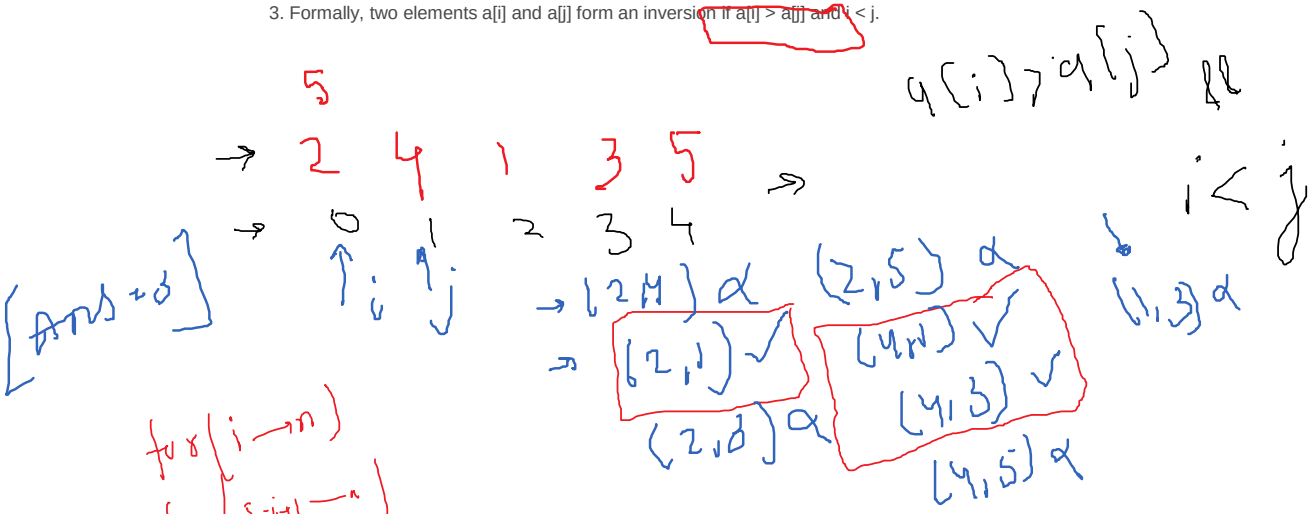
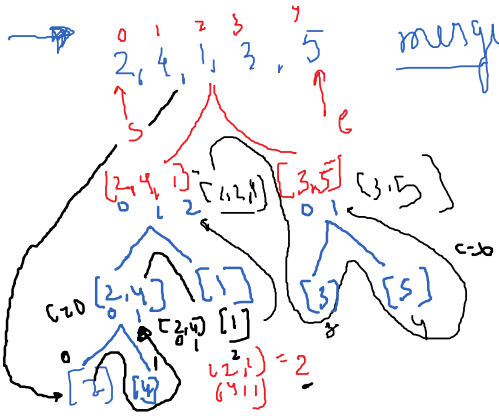
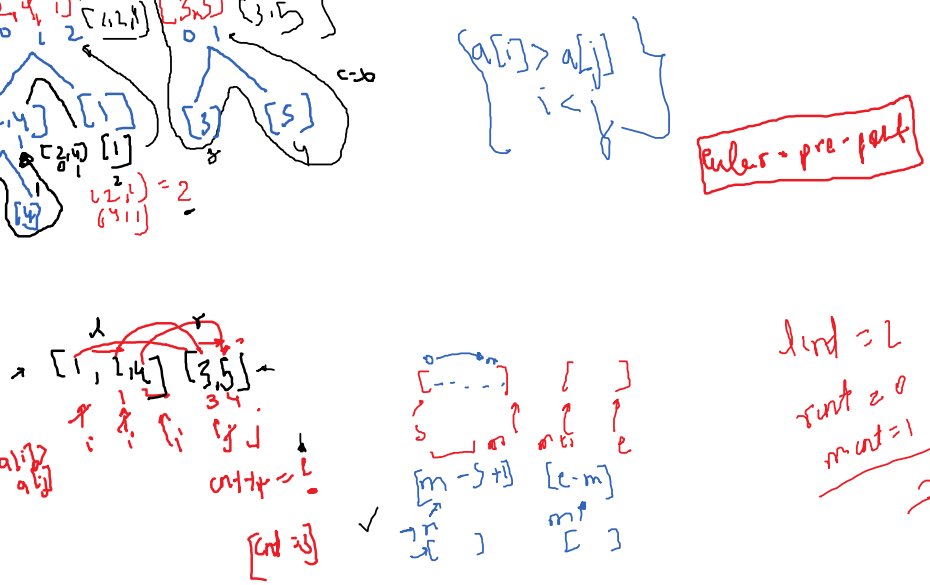
10 July 2022 21:30

1. Given an array of integers. Find the Inversion Count in the array.
2. For an array, inversion count indicates how far (or close) the array is from being sorted. If array is already sorted then the inversion count is 0. If an array is sorted in the reverse order then the inversion count is the maximum.
3. Formally, two elements a[i] and a[j] form an inversion if a[i] > a[j] and i < j.



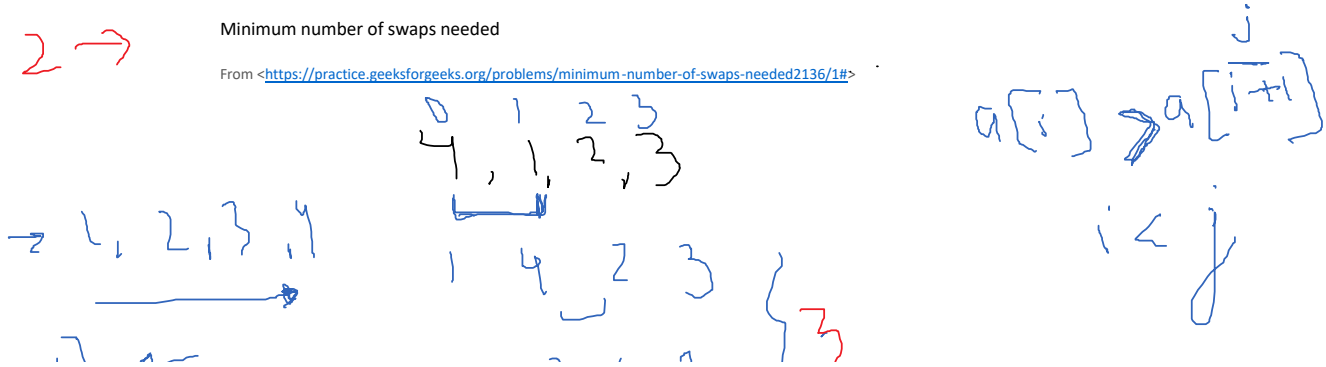


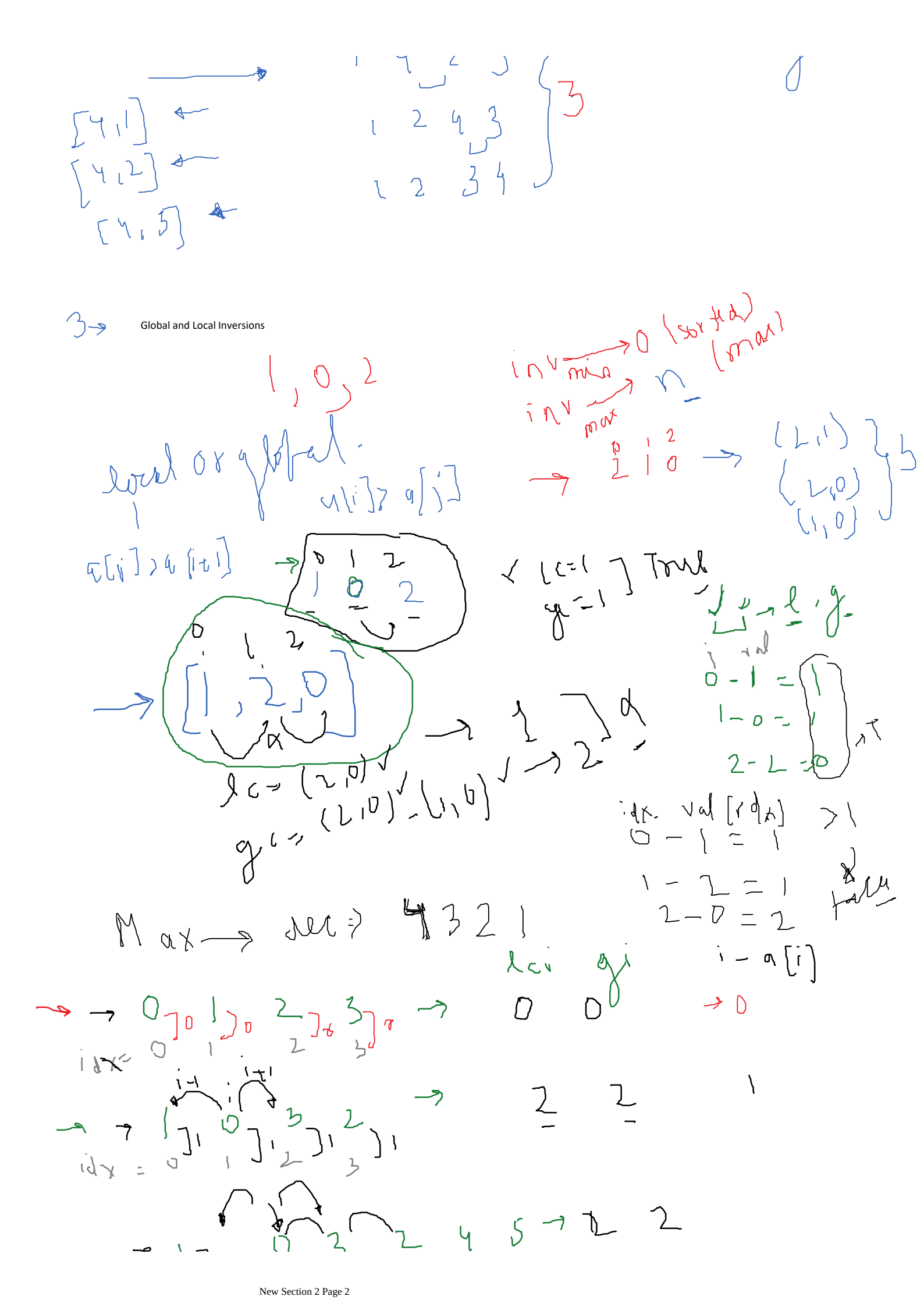
```
int cntinversion(vector<int>&arr , int n)
{
   int ivr = 0 ;
   for(int i = 0 ; i< n ; i++)
   {
      for(int j = i + 1 ; j < n ; j++)
      {
         if(arr[i] > arr[j] && i < j)
         {
            ivr++;
         }
      }
   }
   return ivr ;
}
```



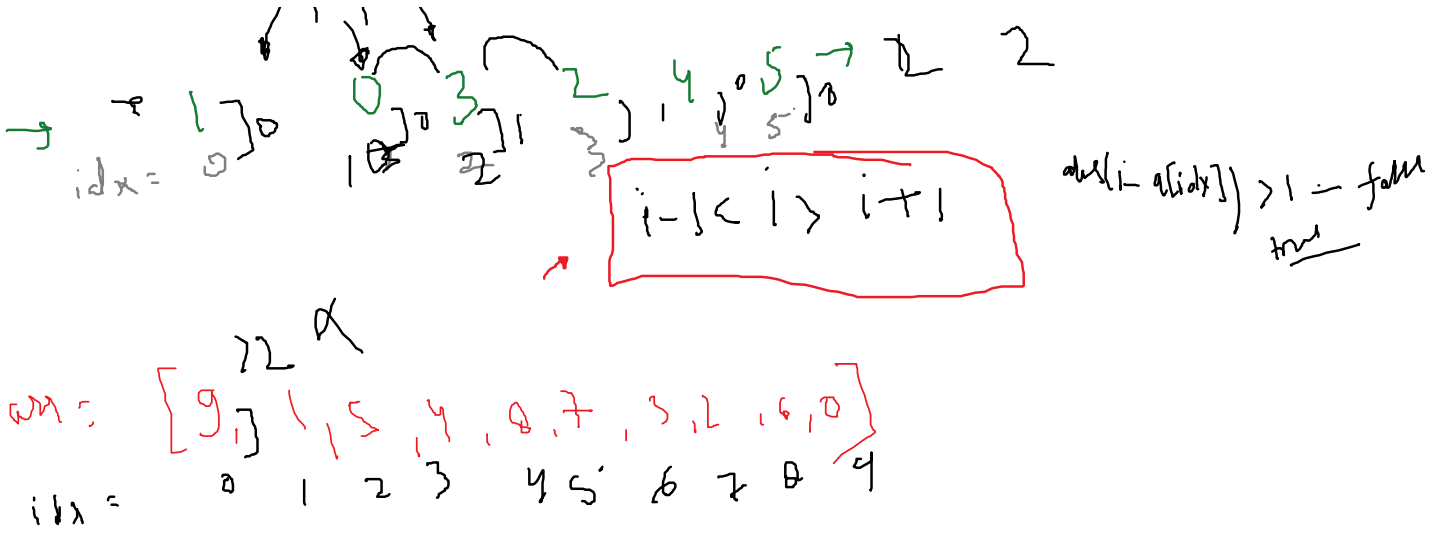
Minimum number of swaps needed

From <https://practice.geeksforgeeks.org/problems/minimum-number-of-swaps-needed2136/1#>



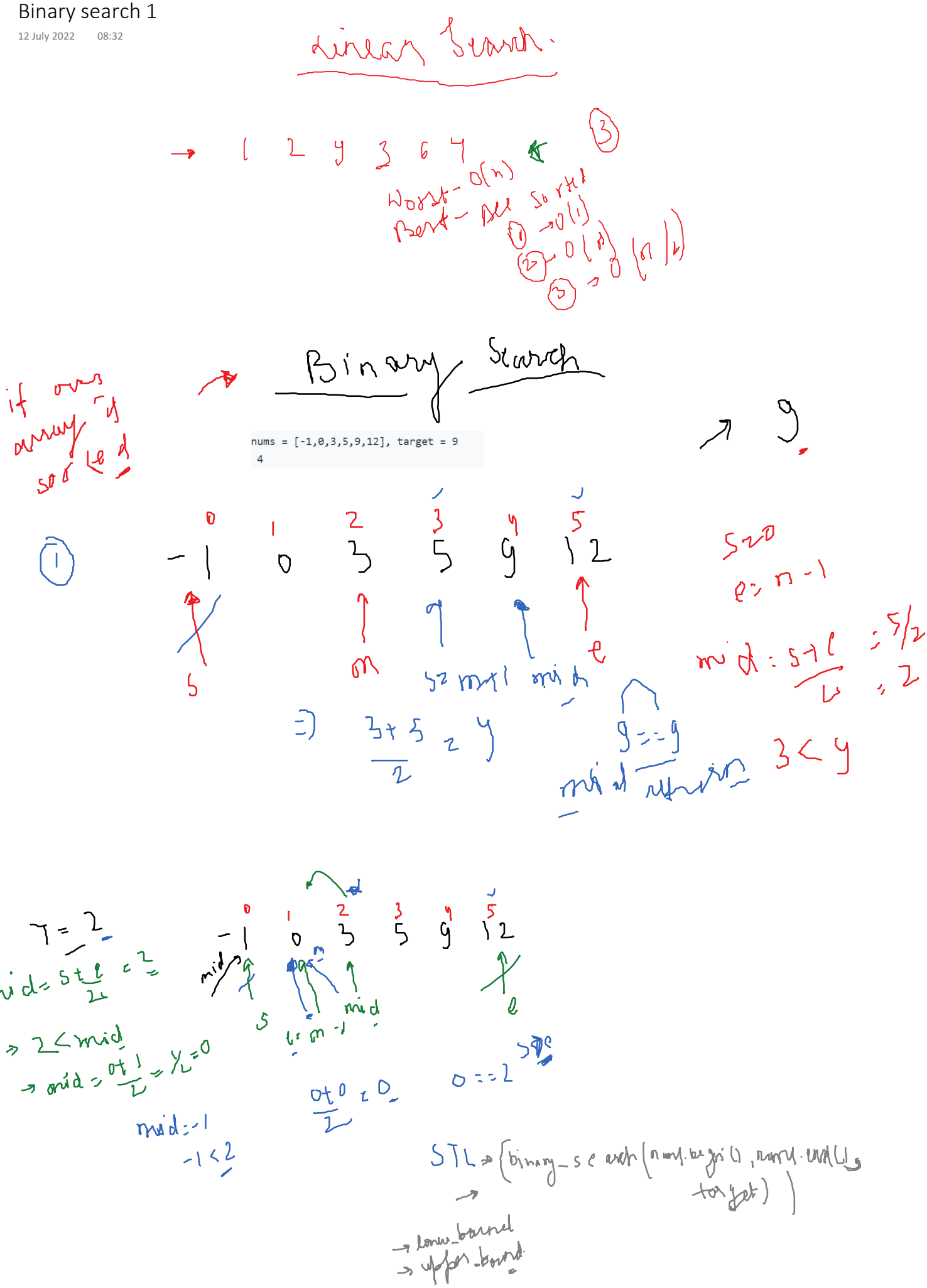


3→ Global and Local Inversions


idx =
i-1 < i > i+1
abs(i - q[idx]) > 1 — false
true
arr:
idx =

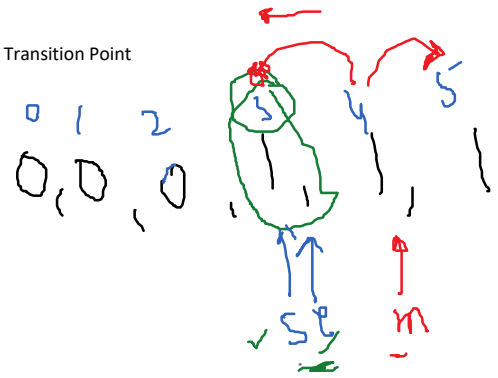
Binary search 1

12 July 2022 08:32

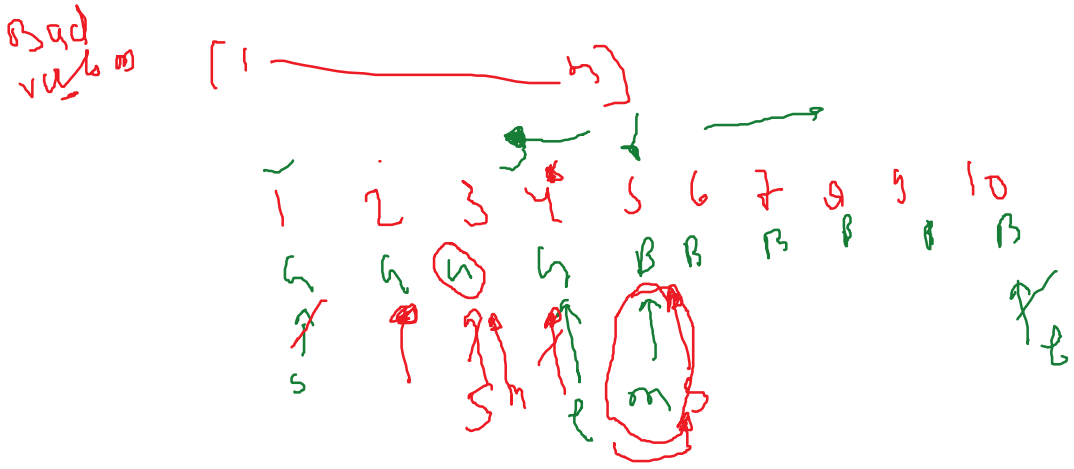


3

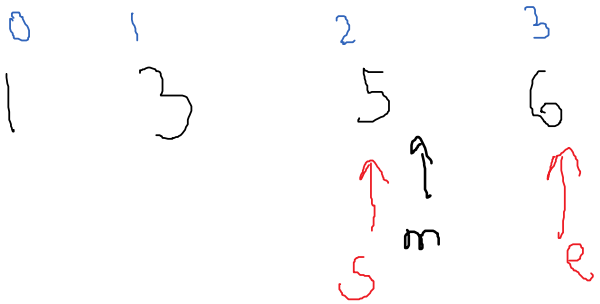
Find Transition Point



3



4 — Search Insert Position



Find First and Last Position of Element in Sorted Array

① first idx
② last idx

Fidx

0 1 2 3 4 5
5, 7, 7, 8, 8, 10

t = 8
m =
ns: mid
3

Binary Search 2

12 July 2022 22:56

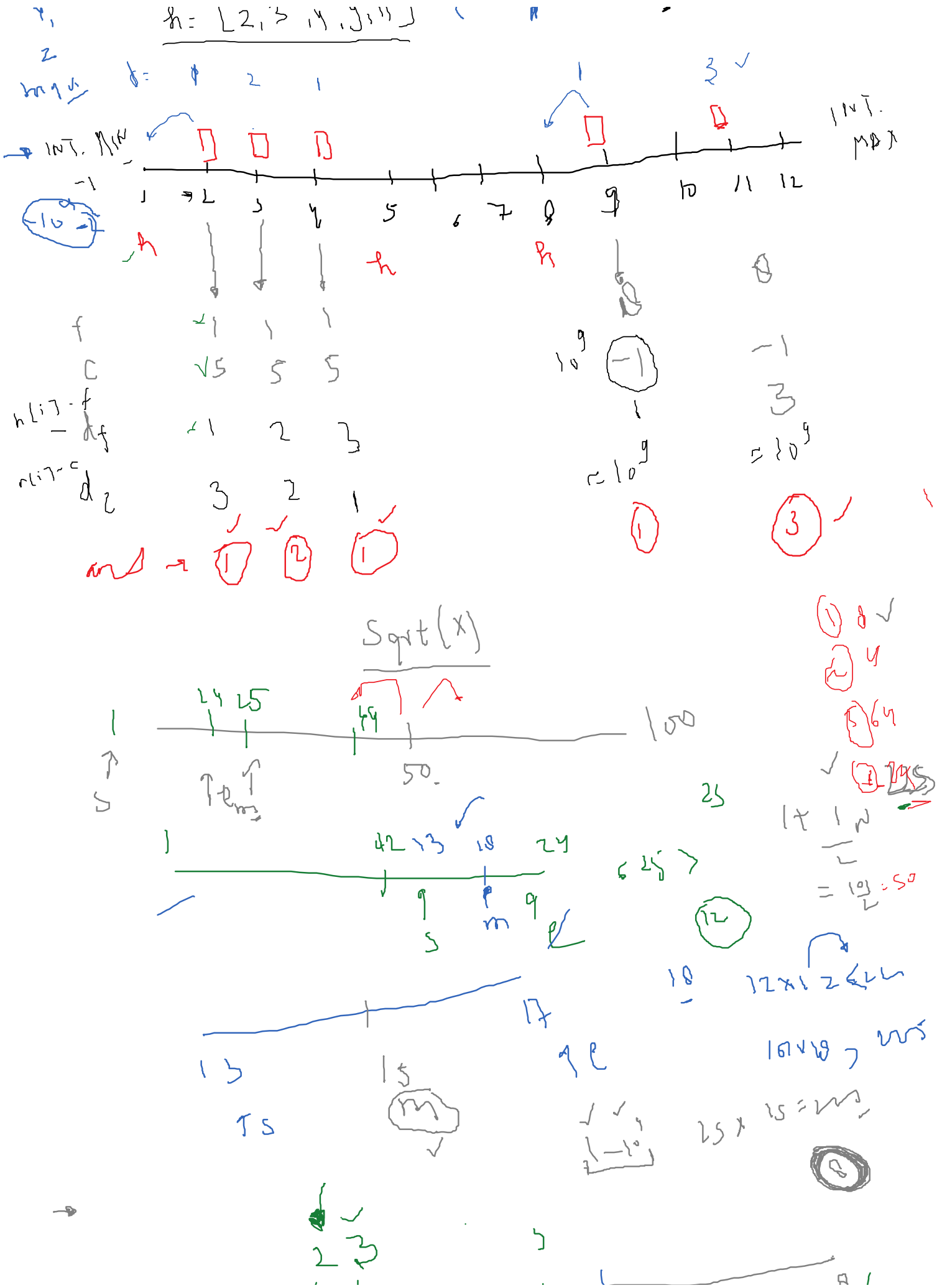
No of occ

```
N = 7, X = 2
Arr[] = {1, 1, 2, 2, 2, 2, 3}
Output: 4
```

Broken & wrong

[5, 10, 15, 22, 33, 40, 42, 55]

[7, 14, 18, 25, 30]


Sqrt(x)