SORT COLORS;

-> https://leetcode.com/problems/sort-colors/submissions/

APPROACH 1->COUNTING APPROACH;

1=> MAKE ONE ITERATION ->TAKE THREE VAR FOR 1COUNT ,2COUNT AND 3COUNT;

2=> COUNT ALL THE OCCURENCE OF 1,2,3;

3=> MAINTAIN AN IDX FOR INSERTING POS;

4=> WHILE(0 COUNT IS NOT ZERO)->INSERT 0 IN ARRray and idx++ and zero--;

5=> WHILE(1 COUNT IS NOT ZERO)->INSERT 1 IN ARRray and idx++ and ONE--;

6=> WHILE(2 COUNT IS NOT ZERO)->INSERT 2 IN ARRray and idx++ and ONE--;

APROACH ->2-> TWO POINTERS;

1=> TAKE TWO POINTERS THAT WILL SHOW ON WHICH IDX WE HAVE TO INSERT ZERO AND ONE;

2=> RUN A LOOP TILL SIZE-1

3=> IF ARR[I] == 0 SWAP WITH S AND S++ AND I++;

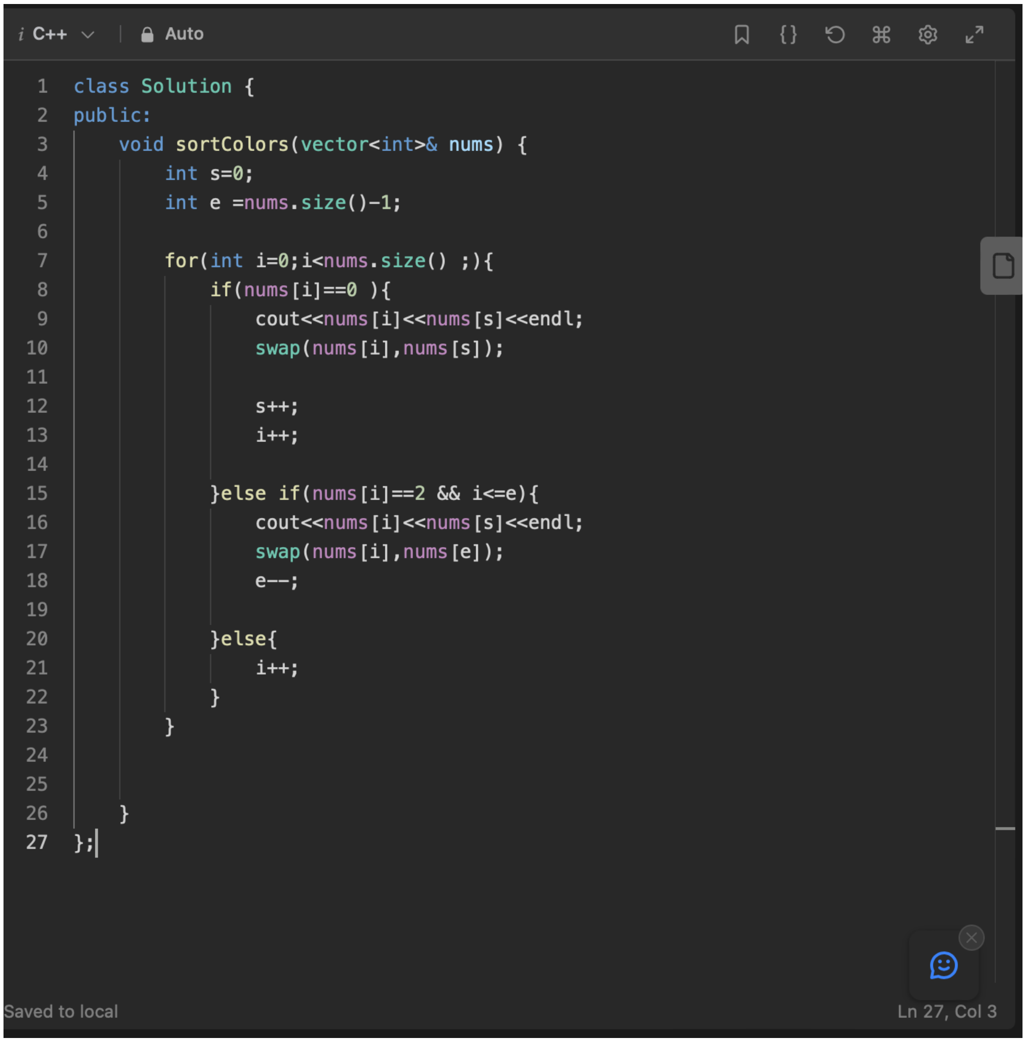
** edge case=> while swpping we also have to check I<=e =>other wise we may swap the elemt that is already at its correct position;

Why equal to => becoz we are taking the last index as the first correct place of 2 and if there alrady exist 2 and no swap occurs then e will not decremnt and hence it will be error;

4=> IF ARR[I] == 2 SWAP WITH E AND E--

**EDGE CASE=> WHILE SWAPING WITH E WE DO NOT KNOW WHICH ELEMENT IS COMING SO WE HAVE TO CHECK AGAIN THE SAME IDEX SO DO NOT I++;

5=> done;



```
class Solution {
public:
    void sortColors(vector<int>& nums) {
        int s=0;
        int e =nums.size()-1;

        for(int i=0;i<nums.size() ;){
            if(nums[i]==0 ){
                cout<<nums[i]<<nums[s]<<endl;
                swap(nums[i],nums[s]);

                s++;
                i++;

            }else if(nums[i]==2 && i<=e){
                cout<<nums[i]<<nums[s]<<endl;
                swap(nums[i],nums[e]);
                e--;

            }else{
                i++;
            }
        }


    }
};
```