Permutations of Array/String
Recursion & Backtracking

arr = {1,2,3}

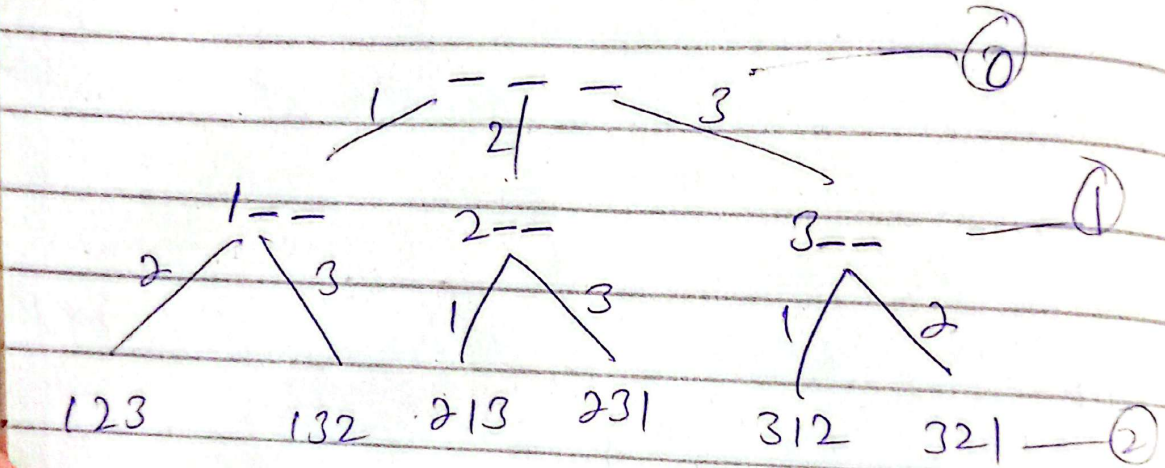
Possible Arrangements

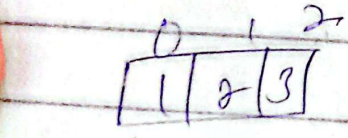
{1,2,3} → {1,3,2} → {2,1,3} → {2,3,1} → {3,1,2} → {3,2,1}

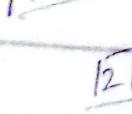
3	2	1

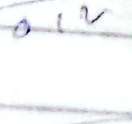
Number of Choices

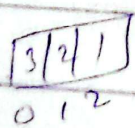
$3 * 2 * 1 = 6$ or $3!$ or $n!$












```
getPerms(num[], idx, ans){
if(idx==n) ans.pb(num)  BC
           return
for(i=idx; i<n; i++){
   swap(num[idx], num[i])
   getPerms(num, idx+1, ans)
   swap(num[idx], num[i])  Backtracking
```

T.C = $O(n! * n)$

S.C = $O(n! + n)$