46. Permutations

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Given a collection of **distinct** numbers, return all possible permutations.

For example,

`[1,2,3]` have the following permutations:

```
[
  [1,2,3],
  [1,3,2],
  [2,1,3],
  [2,3,1],
  [3,1,2],
  [3,2,1]
]
```

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C++

```
1  class Solution {
2      // recursive
3  public:
4      vector<vector<int>> permute(vector<int>& nums) {
5         vector<vector<int>> res;
6         helper(res,nums,0);
7         return res;
8      }
9      void helper(vector<vector<int>>& res,vector<int>& nums,int begin ){
10         if(begin>=nums.size()) {
11             res.push_back(nums);
12             return;
13         }
14         for(int i=begin;i<nums.size();i++){
15             swap(nums[begin],nums[i]);
16             helper(res,nums,begin+1);
17             swap(nums[begin],nums[i]);
18         }
19     }
20 };
```

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